

RESEARCH GRADUATES eYEARBOOK 2019



Graduate Research and Development
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Introduction

QUT Business School

Masters graduates

PhD graduates

Creative Industries Faculty

Masters graduates

Professional Doctorate graduates

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Distinguished Professor Patsy Yates
Deputy Vice-Chancellor and Vice-President (Research and Innovation)

QUT seeks to provide transformative research relevant to our communities, with a key focus on training research graduates who are agile, future-ready, and able to positively change the world that they inhabit.

In this Yearbook, we proudly showcase the significant research of more than 340 Master of Philosophy and Doctor of Philosophy students who have graduated in the last twelve months. These graduates emulate key values and capabilities of QUT – they are creative and entrepreneurial; they embrace digital transformation; they are collaborative and open to change; they are ethical and have integrity of purpose.

These leaders of tomorrow have experienced a research training culture and environment that has supported them to develop their personalised learning journey and to cultivate transferable skills that will benefit their future career and endeavours in any sector or community. This is achieved through a joint effort with their supervisors, innovative and high-quality researchers who use cutting-edge technology, tools and techniques to ensure that the next generation will be agents of change. We thank all supervisors for their contribution to ensuring a high quality research training environment at QUT.

Please enjoy QUT's 2019 Research Graduates eYearbook.

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Professor Helen Klæbe
Pro Vice-Chancellor (Graduate Research and Development)

QUT aims to produce graduates who can deliver innovative solutions to complex real-world problems. Our research culture is underpinned by our focus on generating high quality and impactful research that shapes and improves our local, national and global communities. Our students work collaboratively across disciplines and with industry, government and societal partners to make original and significant contributions to knowledge that will influence the economic, political, cultural, social and environmental landscape.

Our academic research programs are enhanced by an embedded research training framework that offers our students personalised access to choose relevant complimentary research and transferable skills training, including industry internships that they might wish to undertake during their studies to enhance career opportunities. This unique skill set makes our graduates well positioned to become entrepreneurial agents of change, whether they pursue careers in industry, academia or a mixture of both.

We thank our supervisors, including our industry and clinical adjunct supervisors, for their expertise and commitment to ensuring our students' success. We also acknowledge our research collaborators, funding bodies and end users for their continued engagement and support. These valuable partnerships enable our research students to develop networks and career opportunities that they will sustain, grow and (hopefully) keep connected to QUT long after graduation.

QUT is proud of our 2019 research graduates' achievements and we invite you to explore and celebrate their research in this eYearbook.

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Professor Robina Xavier
Executive Dean, QUT Business School

Researchers in the QUT Business School focus on developing actionable solutions to the real world problems faced by research end users; individuals, corporations, not-for profits, governments and NGOs, amongst others. Working extensively with, and through, international collaborators our research has global impact on policy and practice as well as through advancements in our academic disciplines.

In 2019, more than 30 HDR students will graduate from the QUT Business School with topics across all of our business disciplines as well as at the intersection of fields.

This work represents new knowledge for businesses, policy makers and consumers who are facing an increasingly dynamic environment in which 'keeping ahead of the game' is a real challenge. QUT's eYearbook showcases in more detail their cutting-edge research and achievements and I hope you enjoy reviewing their work.

I would like to congratulate all of our HDR graduates. I wish you well for your future endeavours and invite you to keep in touch with QUT through QMomentum, a program and platform that supports research graduates to transition from study to work.

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Professor Mandy Thomas
Executive Dean, Creative Industries Faculty

Reports about the needs of the future workforce indicate there is little doubt that Australia's young people will need skills in technology, science and robotics. Many education and business commentators note the real skills needed are what is broadly called the four Cs – creativity, communication, critical reflection and collaboration. Reports say that these skills are less able to be replaced by technology and are transportable across industries and roles. Rather than focusing on deep technical skills, employers are instead looking for capacities such as collaboration, problem-solving, critical thinking, imagination, communication, resilience, agility and empathy.

QUT Creative Industries higher degree research graduates are ideally placed to be the innovators and activators in the coming decades as they have the four Cs in abundance. Their leading research across the creative and cultural industries in fields such as trust and disruption through digital media, design for better communities and life outcomes as well as social cohesion through arts engagement for under-represented communities requires their highly developed skills across the four Cs. As our research graduates go out into the world we know they can and will make a difference, and as many graduates do will return to QUT to share their knowledge and insights with the next generation of change-makers.

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Professor Carol Nicoll
Executive Dean, Faculty of Education

QUT's Faculty of Education is one of the largest Faculties of Education in Australia, and is consistently rated as 'above world standard' in the Excellence in Research in Australia assessment. Our strength as a Faculty is directly tied to the efforts and expertise of our academic staff and research students. As Executive Dean of the Faculty, I take pride in knowing that we consistently graduate research students of the highest calibre through our MPhil, EdD, and PhD programs.

Our research graduates come to us from a wide range of backgrounds, often with significant professional experience in education and other fields. We are stronger through our personal and professional diversity, and in recognising this strength I also acknowledge our graduates whose research is undertaken in collaboration with other QUT faculties.

I am delighted to congratulate our 2019 graduates and to celebrate and share their research with you through this QUT Research eYearbook 2019, which showcases the exemplary work produced by graduates across our university.

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Professor Ross Young
Executive Dean, Faculty of Health

Warmest congratulations on your well-deserved research achievements and graduating from QUT's Faculty of Health. We are committed to research excellence, and are honoured to recognise this year's graduating cohort as among our more than 1,300 health researchers currently working on ground-breaking discoveries with translational impact.

Together we improve the health of individuals and communities through research innovation that is informed by industry and community connections. Research by our graduates contributes to a body of knowledge that underpins important research advances, improved health care practices and skills, and has impact in communities, industry and government across the world. The work of our alumni is advancing health and wellness to address key challenges in personalised medicine, mental health, ageing, health equity, health systems and services and disease and injury prevention.

We are extremely proud of your achievements and commend your commitment to producing research of the highest calibre and wish you every success in your future careers.

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Associate Professor Allan Chay
Acting Executive Dean, Faculty of Law

As Acting Executive Dean of the Faculty of Law I am proud to present the achievements of our graduating higher degree research students in 2019.

The Faculty works hard to attract and support talented research students. This year those efforts, and the tremendous efforts of our graduating students and their supervisors, have been rewarded with the contributions that our research graduates have made to the disciplines of Law and Justice, which are showcased in this publication.

Congratulations to our graduates who have more than demonstrated the talent and capability to achieve further success in their chosen fields.

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Professor Gordon Wyeth
Executive Dean, Science and Engineering Faculty

Congratulations on graduating from one of the nation's most collaborative research institutions.

As Executive Dean, I lead the QUT Science and Engineering Faculty, Australia's fastest rising institution for quality scientific research. We are working on some of the biggest challenges and opportunities facing Australia and the global community, and much of what we do relies on team efforts by our research students, our postdoctoral researchers, and our career researchers. I'm proud to report that 90 per cent of our faculty's research ranks as above or well above world standard and your outstanding research directly contributed to that impressive result.

Thank you again for your achievements to advance knowledge and deliver real-world impact. We hope you continue to follow your passion for the pursuit of new knowledge and its applications into research careers, and I invite you to access QUT Momentum, a program and platform that supports doctoral graduates' transition from study to work.

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2018 ODTA Winners

At QUT we celebrate our exceptional research students with our annual Outstanding Doctoral Thesis Awards.

QUT Business School

Ambroise D Descamps
Essays on Information and Beliefs in Dynamic Choices
Supervised by Lionel Page, Sebastien Massoni

Creative Industries Faculty

Ella M Jeffery
Dead Bolt: Unhomely Renovations and Contemporary Australian Poetry
Supervised by Lesley Hawkes, Holland-Batt

Susan A Cake
Narrative Comedy Screenwriting: Facilitating Self-Directed, Transformative Learning
Supervised by Phoebe Hart, Sean Maher

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Faculty of Education

Melitta Hogarth

Addressing the Rights of Indigenous Peoples in Education: A Critical Analysis of Indigenous Education Policy
Supervised by Bronwyn Ewing, Grace Sarra

Suzanne Tamone

Teachers' Ways of Seeing their Approaches with Student Behaviour in the Preparatory Year
Supervised by Kerryann Walsh, Leanne Crosswell

Faculty of Health

Elise B Button

Identifying Risk of Deteriorating and Dying in People with a Haematological Malignancy
Supervised by Patricia Yates, Shirley Chambers

Holly A Harris

Feeding Dynamics in the Family: Relationship between Parental Feeding Practices and Child Fussy Eating
Supervised by Karen Thorpe, Lynne Daniels

Olga Montvida

Evaluation of Cardio-Metabolic Effects of Treatment with Incretin-Based Therapies in Patients with Type 2 Diabetes
Supervised by Sanjo Paul, Louise Hafner

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Jonathan Robinson

Expectancy Violation in Visual Perception: Characterising the Brain Signals of Prediction Error

Supervised by Patrick Johnston, Philippe Lacherez

Sekar Ulaganathan

The Influence of Light Exposure and Seasonal Changes on Short-term and Longer-Term Changes in Axial Length of the Human Eye

Supervised by Scott Read, Michael Collins

Faculty of Law

Kamarah Pooley

An Evaluation of Youth Justice Conferencing for Youth Misuse of Fire

Supervised by John Scott, Claire Ferguson

Science and Engineering Faculty

Rachel Eberhard

The Metagovernance of Australian Water Policy: Practices, Rationales and Outcomes

Supervised by Douglas Baker, Severine Mayere

Chuanbin Zhu

Improving One-Dimensional Ground Response Analysis by Incorporating Basin Effects

Supervised by David Thambiratnam, Craig Cowled

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Ayomi L Jayarathne

Transformation of Physical and Chemical Properties of Metals Built-Up on Urban Road Surfaces

Supervised by Ashantha Goonetillekel, Godwin Ayoko

Yalong Jiao

Computational Discovery and Electronic Engineering in Nanomaterials for Photovoltaic and Electronic Applications

Supervised by Aijun Du, John Bell

Ferdinand Wagner

Convergence of Bioengineering, Orthopaedics and Tumour Biology to Develop and Validate Humanized Rodent Models for Primary Bone Tumour Research

Supervised by Dietmar Hutmacher, Elena M De-Juan Pardo

Felix Wunner

Design and Development of an Additive Manufacturing Technology Platform for Melt Electrospinning Writing - A systems Engineering Approach

Supervised by Dietmar Hutmacher, Elena M De-Juan Pardo

Amit Chand Sukal

Molecular Characterisation and Diagnosis of Badnaviruses Infecting Yams in the South Pacific

Supervised by Anthony James, James Dale

Yvonne Phillips

Analysis and Visualisation of Very-Long-Duration Acoustic Recordings of the Natural Environment

Supervised by Paul Roe, Michael Towsey

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Kim Morrison
Counter-Story as Curriculum: Autoethnography, Critical Race Theory, and Informed Assets in the Information Literacy Classroom
Supervised by Sylvia Edwards, Christine Bruce

Martin Peron
Optimal Sequential Decision-Making under Uncertainty
Supervised by Kate Helmstedt, Kai Becker

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Elaine Brady

Master of Business (Research)

QUT Business School

Thesis by Monograph

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Country: Ireland

Supervisor/s: Rebekah Russell-Bennett, Danielle Gallegos,
Christine Domegan (National University of Ireland)

Thesis title:

Lifting the Blaincéad Breastfeeding: Can Mobile Technology Address the Customer Experience of Shame in Ireland

Description:

The World Health Organization (WHO) recommends that mothers exclusively breastfeed for the first 6 months of an infant's life with Irish breastfeeding rates among the lowest in Europe, partly due to the experience of shame. This research draws on literature from the fields of Social Marketing, Shame, Customer Experience, Social Support, and Computer-Mediated Communication and examines how social marketing and mobile technology can be used to reduce shame to improve the breastfeeding experience and encourage new mums to breastfeed for longer periods of time. The findings from semi-structured interviews with Irish mothers and fathers show women experience shame and embarrassment from cultural norms and that mobile technology such as an app can provide support to address the stigma of shame. The research recommends mobile phone support that addresses the needs of both mothers and fathers however using different features to 'lift the blaincéad' on breastfeeding in Ireland.

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Denise Gibran Nogueira

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QUT Business School

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Country: Brazil

Supervisor/s: Carol Richards, Robyn Mayes

Thesis title:

The Sharing Economy: Contributions to Food Security in Australia

Description:

This research explores the contributions of the sharing economy to food security in Australia by examining how the sharing economy promotes access to food to a population that is unable to acquire enough healthy quality food to meet their needs. The findings of this research offer a range of sharing economy approaches to address food insecurity and provide evidence of the contributions and constraints of the sharing economy to access to food, core element of food security. The study identifies practices and policies that can be developed to achieve food security in a more meaningful way in Australia.

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Country: Australia

Supervisor/s: Gary Mortimer, Frank Mathmann

Thesis title:

License to Cheat: Does Farmers' Markets Patronage Influence Non-prosocial Behaviour?

Description:

Farmers' markets are a growing industry with increased economic importance in the Western world. Consumers shop at farmers' markets for prosocial reasons such as supporting the local community and economy. This research investigates whether licensing influences deviant consequences of prosocial behaviour due to an elevated positive self-image within a farmers' markets context, while also considering consumers' individual differences in promotion focus. Results indicate that licensing takes place within farmers' markets, but only for consumers low-medium in promotion focus. With gaining more insight into consumer behaviour in this context, this research supports creation of new farmers' market places and local economies.

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Yuheng Lo

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Thesis by Monograph

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Country: Australia

Supervisor/s: Uwe Dulleck, Stephen Whyte

Thesis title:

How the Self-Transcendent Emotion of Awe Affects Cooperation, Distributional Preferences and Reporting of the Five Factor Model of Personality Traits

Description:

The emotion of awe has been proposed to lead to behavioural shifts. This experimental study explores how induction of awe impacts cooperation through a repeated public goods game, distributional preferences through the equality equivalence test, and personality reporting through the five factor model of personality traits. It sheds light onto the study of prosocial behaviour, personality reporting and the experimental methodology of awe.

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Billy Lukmanjaya

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Country: Indonesia

Supervisor/s: Jeanette Van Akkeren, Julie-Anne Tarr

Thesis title:

The Role of Corporate Culture as a Contributor to Fraud and Corruption in Australia: Perceptions of Forensic Accountants and Industry Professionals

Description:

The role organisational culture plays as a contributor to incidents of fraud and corruption is examined through semi-structured interviews with forensic accountants and senior management who have worked in multiple fraud and corruption investigations. Based on the findings, common characteristics around firm culture that impact incident rates are identified. Findings lend support to prior literature evidencing shared values within an organisation can influence employees' perceptions of what is acceptable, that employee conduct will mirror that of management, and that a combination of ethical culture, ethical education and ethical climate can serve as preventative measures with proactive risk assessments minimising risk of event occurrence.

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Shelley Murphy

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Country: Australia

Supervisor/s: Erica French, Graham Davidson

Thesis title:

Change Managers and Stakeholder Perceptions of Their Influence on Project Success

Description:

This exploratory study provides critical insights into how stakeholders in a change project perceive change management and the work of change managers. Focussing attention on how multiple stakeholders' perspectives mesh to form a consensus on project success and change management success, this study explored ways in which change managers might influence success personally and through their use of change management. Though there can be no single or right way to manage change, this thesis identifies three success factors for change managers and six success factors for change management that may facilitate perceptions of project success.

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Harriet Smith

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Country: Australia

Supervisor/s: Uwe Dulleck, Benno Torgler

Thesis title:

Adherence to Ethical Standards: Pharmacists as Experts

Description:

Credence goods are characterised by qualities of products that cannot be detected by consumers before their use, preventing them from assessing beforehand the true experienced utility. This study aims to apply the credence goods framework to the joint diagnosis-treatment in the sale of over-the-counter medicines in a real world setting. The presence of inefficiencies was studied through a unique sample (394 observations) of OTC pharmaceutical purchases in a controlled Australian field setting. This study provides first evidence from a simulated patient experiment on the provision of advice and pharmaceuticals using the credence goods framework in Australia. The results indicate there are significant inefficiencies present through over- and under-treatment, overselling and diagnostic failure. The analysis found that pharmacies were engaging in strategic overselling as a substitute for overcharging strategies which were not attainable due to institutional conditions.

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Alice Tsou

Master of Business (Research)

QUT Business School

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Country: Australia

Supervisor/s: Shane Mathews, Clinton Weeks

Thesis title:

Managing Brand Reputation in a Dynamic, eWOM Service Industry Environment

Description:

This study aimed to build an understanding of branding management issues in relation to eWOM. A qualitative case study technique was used to explore how the businesses managed eWOM in the hotel service industry. The research focused on how the hotels managed eWOM, including resource allocation, capability, routines and standardization in relation to brand management in response to eWOM activities. This study identified that hotels that are more proactive and strategically orientated when managing eWOM have spillover performance benefits due to their leveraging of digital capability which in turn enhances brand reputation.

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Paul Woods

Master of Business (Research)

QUT Business School

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Country: Australia

Supervisor/s: Paula McDonald, Glen Murphy

Thesis title:

Technology Enabled Mobile Work and the Porosity of Work-Life Borders

Description:

Technology that enables work anywhere, anytime is pervasive across professional and personal lives. Through semi-structured interviews, the study reveals the technological, workplace and normative dimensions that influence the porosity of physical (location), temporal (time) and psychological (mindset) borders between work and non-work spheres.

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Yefeng Zhang

Master of Philosophy

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Country: China

Supervisor/s: Yuyu Zhang, Daifei Yao

Thesis title:

Fraudulent Financial Reporting in China: Evidence from Renaming Behaviour

Description:

Using a sample of listed companies in China during 2010-2017, this study examines the association between corporate's renaming behaviour and fraudulent financial reporting activities (FFRs). The moderating role of state-owned enterprises (SOEs) and powerful directors in mitigating the association between corporate renaming and financial reporting fraud is further investigated. The results suggest that companies with renaming experience are more prone to commit financial fraud. The positive association between corporate renaming and FFRs is less pronounced for SOEs than for non-SOEs. Reported results also show that the power of board of directors positively moderates the association between renaming behaviour and the likelihood of FFRs.

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Merrilyn Delporte

Doctor of Philosophy

QUT Business School

Thesis by Monograph

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Country: Australia

Supervisor/s: Bree Hurst, Caroline Hatcher, Jennifer Bartlett

Thesis title:

Making Sense of Human Advocacy Narrative: Stakeholder Identification, Emotion, and the Case of People Seeking Asylum in Australia

Description:

This Australian-based study involved an investigation of how different audiences respond to organisational communications designed to raise support for people seeking asylum. The research resulted in unique insights into how stakeholders identify with organisational objectives and values, and the impact of 'emotion' on their responses and actions. The study makes a valuable contribution to organisational and communication theories by exploring the seldom researched perspective of 'audiences'. In identifying how various cognitive and emotional factors impact stakeholder responses to advocacy campaigning, this research can also help organisations communicate more effectively with a diverse range of potential supporters.

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Thomas Jean-Christophe Lucien Garcia

Doctor of Philosophy

QUT Business School

Thesis by Monograph

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Country: France

Supervisor/s: Sebastien Massoni, Lionel Page, Marie Villeval
(French National Centre for Scientific Research: Institute of
Researches on Catalysis and Environment)

Thesis title:

A Behavioral Approach of Decision Making under Risk and Uncertainty

Description:

This thesis investigates how individuals make decisions under risk and uncertainty. It is composed of four essays that theoretically and experimentally investigate decision-making. First, I study situations where individuals must decide whether an event has occurred using uncertain evidence. I highlight that individuals tend to maximize accuracy instead of maximizing expected payoffs. I find that it is partially due to the existence of a value of being right and a recency bias. Second, I study how ambiguity on the costs or the benefits of a donation affects donation behavior. I show that individuals use ambiguity strategically as an excuse to behave less generously without feeling guilty. Finally, I study the external validity of risk preference measures based on a representative panel of the Dutch population. I find that risk-preference measures are related to behavior in experimental risk tasks, however they are not related to risk-taking in the field.

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Bushra Hamid

Doctor of Philosophy

QUT Business School

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Country: Pakistan

Supervisor/s: Peter Verhoeven, Janice How

Thesis title:

The Value Relevance of Greenhouse Gas Emissions to Institutional Investors

Description:

This thesis examines whether capital markets value corporate environmental performance (CEP) as measured by greenhouse gas (GHG) emissions intensity. Core to this examination is the role played by large institutional investors. To fulfil their fiduciary duty to safeguard the long-term interests of their stakeholders, it is argued that institutional investors assign higher values to firms with lower GHG emissions intensity. The findings show a positive relation between firm value and environmental performance in low GHG intensive firms, but the reverse for high GHG intensive firms. Thus, the market appears to treat these two groups of firms differently. The research suggests that most market participants consider reducing GHG emissions a shareholder value destroying activity.

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Thi Ngoc Lan Le

Doctor of Philosophy

QUT Business School

Thesis by Monograph

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Country: Vietnam

Supervisor/s: Peter Verhoeven, Janice How

Thesis title:

Ownership Structure, Governance and Stock Liquidity in Vietnam

Description:

This thesis examines how ownership concentration and type, influences stock liquidity in the context of a transition economy. Vietnam's capital market is characterized by poor informational transparency, highly concentrated state ownership and poor governance. The research found evidence supporting the agency cost argument with controlling owners, belongs to the state or family decreasing stock liquidity, whilst institutional (foreign) ownership enhances liquidity. However, the researcher found no evidence that a more independent board promotes stock liquidity in the Vietnamese market. Additional tests show that in the environment of highly concentrated ownership, duality impairs stock liquidity, whilst Big 4 auditors enhance stock liquidity.

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Gia Ninh Nguyen

Doctor of Philosophy

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Country: Vietnam

Supervisor/s: Sandeep Salunke, Kavoos Mohannak

Thesis title:

Creative Imitation in Servitisation and Performance in Developing Countries: A Knowledge-Based View

Description:

This thesis uses mixed methods and is situated in the emerging market contexts of Vietnam and Malaysia. It examines the construct of creative imitation, its antecedents and its role in servitisation-based competitive strategy. In doing so, four new forms of creative imitation are identified, with important implications for the impact of creative imitation on servitisation and performance in developing countries.

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Supervisor/s: Louisa Cogle, Stephen Cox, Sean Pascoe
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Thesis title:

Impacts of Fisheries Management Objective on Technical Efficiency: Case Studies in Fisheries

Description:

This dissertation is the first to examine the impact of differing fisheries management objectives and potential trade-offs with respect to technical efficiency. Understanding this relationship is important, as fisheries managed with strong social objectives, such as maintaining livelihoods, may, potentially trap individuals in inefficient, low-income production systems. The key conclusions were that fisheries managed with strong economic objectives resulted in higher technical efficiency than those with social objectives. However, other factors (including efficiency estimation methods used, model specifications, input measures) also have an impact on technical efficiency levels. Hence, technical efficiency estimates between fisheries should be compared with caution.

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Supervisor/s: Paula McDonald, Abigail Cathcart

Thesis title:

Employability Strategies Used by Creative Industries Graduates

Description:

This thesis adopted a mixed methods approach to examine the early career experiences of Creative Industries graduates in Australia. Through interviews and survey data analysis, the research provides new and significant insights into (1) the personal and structural factors that shape creative graduates' early careers; (2) how creative graduates evaluate, select, and use employability strategies during their early careers; and (3) the relationship between employability strategies and graduate employment outcomes.

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Supervisor/s: Uwe Dulleck, Benno Torgler

Thesis title:

Improving Educational Outcomes Using Commitments and Unconditional Incentives: Three Empirical Essays

Description:

The majority of existing educational programs dispense incentives on the condition that students achieve predetermined education targets. Behavioural economists in recent periods have stressed the importance of framing incentives and have begun evaluating the most effective ways to implement incentives and education-based targets. This thesis takes an innovative approach to explore the effects of unconditional incentives and commitment structures on the key educational indicators of Indigenous high school students' attendance rates and effort levels. In doing so, this thesis also addresses a key policy issue in looking at different ways to improve school attendance rates for Indigenous high school students.

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Supervisor/s: Erica French, Wasana Bandara

Thesis title:

Training Transfer in Environments of Tensions: An Organisational Routines Perspective

Description:

This thesis is an exploration into how training transfers in environments of tensions. The study takes place within the context of process-improvements and conceptualises the notion as 'routine disruption'. The transfer of the trainings provided for routine actors to cope with routine changes are impacted by various strategic and defensive responses used by routine actors during a routine disruption. Peer, market and time pressures also affect the extent of training transfer in environments of tensions. A framework to study training transfer in situations of routine disruptions and tensions that emanate from contentious change is provided via this study.

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Supervisor/s: Janice How, Peter Verhoeven

Thesis title:

Corporate Governance, Regulatory Enforcement Actions and Reputational Loss in the Banking Industry

Description:

This thesis examines the relevance of corporate governance to the likelihood of bank misconduct and subsequent reputational loss over the period 2000-2014. Regulatory enforcement actions issued by major U.S. banking supervisors are used to identify whether a bank has engaged in misconduct. I adopt the residual method to estimate the magnitude of reputational loss following the announcement of enforcement actions, and observe that potential reputational loss plays an important role in disciplining banks' behavior. I find board heterogeneity (i.e., board size and diversity) is significantly non-linearly associated with the likelihood of bank misconduct and the magnitude of the reputational loss.

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Supervisor/s: Victoria Browning, Carol Windsor, Lisa Bradley

Thesis title:

Exploring Coachable Moments

Description:

Coaching is considered a desirable leadership style and organisations invest significant resources in training managers to be coaches. Yet research suggests that managers often do not demonstrate coaching behaviours when the opportunity arises. Through in-depth interviews with coaching managers, the coachable moment was explored as the gateway to an informal coaching conversation in the workplace. Propositions were developed in line with theorisation about managers adopting a risk assessment perspective to informal coaching when weighing up whether compliance with an organisational requirement to demonstrate coaching behaviours outweighed risks associated with giving negative feedback.

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Supervisor/s: Kerrie Sadiq, Andrew West, Suzanne Taylor

Thesis title:

A Policy Proposal to Address Tax Base Erosion Caused by Transfer Pricing in Indonesia

Description:

Prior studies indicate that developing countries face the problem of aggressive transfer pricing practices by multinational enterprises (MNEs) which cause tax base erosion. This study finds that the Indonesian transfer pricing regime fails to accurately allocate the income of MNEs among taxing states in accordance with actual economic reality. To overcome this problem, this study considers different interpretations of transfer pricing regimes in four countries: (a) Mexico's minimum profit, (b) Brazil's pre-fixed profit margin and (c) India's and China's location-specific advantage rules. This study argues that adopting the location-specific advantage criteria for determining an arm's length price could help Indonesia address the problem of aggressive transfer pricing practices and assist Indonesia to reduce tax base erosion.

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Supervisor/s: Belinda Luke, Craig Furneaux

Thesis title:

Perceptions on the Accountability of Public Ancillary Funds

Description:

This study examines perceptions of nonprofit accountability in philanthropic organisations in Australia, specifically Public Ancillary Funds (PubAFs). PubAFs are charitable trusts that make grants and fundraise from the public. Commonly known types include community and corporate foundations, and flow-through funds for individual charities e.g. hospitals or schools. While PubAFs share a legal form and specific regulatory guidelines, they are very diverse with large variations in donors and beneficiaries. To date accountability of PubAFs has been largely assumed rather than systematically explored. This study strengthens understandings of to whom, for what, how and why PubAFs exercise accountability. Data from three sources (online databases, managers and trustees of PubAFs, and PubAF websites) was analysed. Existing theory on nonprofit accountability is extended and refined through the development of a typology, incorporating relationships and forms of accountability in PubAFs.

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Supervisor/s: Aubrey Hurn, Min Zhu

Thesis title:

Simulation Methods for Stochastic Differential Equations in Finance

Description:

This thesis resolves a number of econometric problems relating to the use of stochastic differential equations based on computer-intensive simulation methods. Stochastic differential equations play an important role in modern finance. They have been used to model the trajectories of key variables such as short-term interest rates and the volatility of financial assets. The central theme of the thesis is the use of Hermite polynomials to approximate the transitional probability distribution functions of stochastic differential equations. Based on these approximations, a new method is proposed for simulating solutions to these equations and new testing procedures are developed to examine the fit of the equations to observed data.

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Thesis title:

Spinoff's Early Alliance Portfolio Development: A Longitudinal Study in an Alliance-Intensive Industry

Description:

Due to high costs and high failure rates of mining projects, companies frequently enter strategic alliances to share risks and pool resources. This need is even more pronounced for new firms due to liabilities of newness and smallness. This thesis is a step toward extending our understanding of the alliance portfolio emergence in newly founded firms. I have studied the parental imprinting influence on the antecedents, dynamics and outcomes of alliance network growth in young spinoff firms. I have conducted longitudinal analysis using a panel data of 10 years by a synthesis of multiple datasets.

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Supervisor/s: Christina Spurgeon, Christy Collis

Thesis title:

Likes, Comments, Action: The Strengths and Limitations of Strategic Impact Documentary's Facebook Audience Engagement Strategies

Description:

The research project examined how social issue documentary is evolving in the digital age. Using case study analysis of That Sugar Film's Facebook audience engagement campaign and an innovative mixed methods approach, the research demonstrated that positive personal stories, information exchange, and authentic characters can build trust, while negative posts may gain reach, but can also lead to exclusion and polarisation. The research evidenced how publics discuss social issues in the digital age, with important implications for the way social media can be used to productively engage audiences in behaviour and attitude change in the long tail of online engagement.

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Thesis title:

Aural Scenography: Towards an Environmentally Aware Sonic Arts Praxis

Description:

The study identifies a distinct lack of environmental consideration within the fields of Theatrical Sound Design practice, necessitating re-direction of those practices towards enhanced 'environmental awareness'. Through applying principles abstracted from Permaculture, an ecologically and ethically aware form of agricultural design, a series of principles for a new praxis of Aural Scenography is developed, that has application for theatrical sound design practitioners similarly wishing to re-direct their own practices.

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Thesis title:

Do Touch: The Impact of Tangible Interaction on Situated Community Engagement

Description:

This research investigated how the use of tangible interaction and map-based interfaces can affect the quality of participants responses to situated community engagement. This was done by creating two prototypes of a tangible mapping interface that were deployed as urban probes for community engagement. Results from the studies suggest that tangible interfaces encourage playful engagement and discussion, which in turn result in participants putting more thought into their responses and generating richer data.

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Supervisor/s: Gavin Carfoot, Michael Whelan, Andrew Arthurs

Thesis title:

For The Benefit of The Song: Exploring The Role of Preproduction in Recorded Popular Music

Description:

This study explores the preproduction process in commercial popular music recording and production and the perceived value of a formalised preproduction process to its participants. Through an interdisciplinary investigation of preproduction in other creative industries, a preproduction process that is more formalised than that usually associated with music production was developed. For participants, the formalised music preproduction framework presented a more complete process, with perceived benefits for the songs and participants in areas such as improved musical outcomes and workflow efficiency. Overall, these broad results contribute to our understanding of preproduction in commercial popular music, and illustrate some possible avenues for further development in record production and creative practice.

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Supervisor/s: Michael Dezuanni, Mark Ryan

Thesis title:

Epic Film and the Sensory Recreation of History: Gladiator (2000) & The Robe (1953)

Description:

Epic films are integral to the experience and interpretation of history outside the limits of traditional research. In their capacity as one of the primary forms of historical adaptation for the public, they suggest new ways of understanding and representing the past. This thesis looks beyond questions of historical accuracy and political context to determine how the epic genre recreates historical worlds onscreen from a sensory perspective. It focuses on two key epics, *Gladiator* (2000) and *The Robe* (1953), and analyses them using phenomenological models which help to emphasize the importance of sensory experience in cinematic reconstructions of ancient history.

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Supervisor/s: Jennifer Seevinck, Manuela Taboada, Tomasz Bednarz (University of New South Wales)

Thesis title:

From Analogue to Digital: Drawing The Human Form by Examining Creative Practices, Techniques and Experiences of Practitioners Within Immersive Technology

Description:

Advancements in virtual reality (VR) have facilitated a new drawing experience for digital artists. These have provided the experience for artists to have an embodied human-computer interaction (HCI) while drawing. This project focuses on exploring and understanding how analogue life drawing practices can be redefined in the digital realm of virtual reality. In this practice-led project, the analogue life drawing creative practice is the foundation for making immersive drawing artworks in the virtual environment. This is alongside theoretical research into aesthetic experience, embodiment, disembodiment and presence in conjunction with conducting semi-structured interviews to understand other drawing practitioner experiences with immersive drawing.

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Supervisor/s: Kari Gislason, Donna Hancox

Thesis title:

Journeys in Kitchens: Travel Writing and the Possibilities of New Encounters with Women, Food and Domestic Life in Islamic Cultures

Description:

In European travel literature, interiors and domestic spaces have received little critical attention. This practice-led study explores the nature of writing about domestic encounters and domestic spaces used by two female travel writers, Freya Stark (1893-1993) and Ella Maillart (1903-1997). Their works suggest the possibility of an alternative relationship between author and subject, with a point of view permitting the observation of rich ethnographic details and attention to everyday life and everyday women. The study includes a work of creative non-fiction based on travels in kitchens in Iran and far west China.

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Supervisor/s: Charles Robb, Victoria Garnons-Williams

Thesis title:

Dancing with Failure: Accident and Control in Contemporary Art Practice

Description:

This practice-led research project examines how sculpture can act as a site or medium for responding to slippages, interruptions and changes of state; and, in doing so explores the subjective connotations of form and material. By undertaking intuitive studio experiments informed by interwoven processes of chance and control and interpreting the outcomes through the metaphoric connotations of form, I seek to harness a range of tensions and contradictions inherent to the processes of making, and to realize a body of works that are reflective of personal biography, memory and the human condition. This research has been informed by the works of Michael Landy, Jimmie Durham and Robert Smithson as well as theories that relate to Synectics and the writing of Susanne Langer. Regarded as a whole, this project aims to identify and analyse the complex interactions of material and metaphor that can occur in the making of contemporary art.

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Supervisor/s: Glen Thomas, Kari Gislason

Thesis title:

Thought, Action; Impact: Modes of Presentation to Enable an Immersive Reader-Response

Description:

This study consists of an exegesis examining modes of narration in literary fiction; and a creative work: an extract of a proposed novel *Boots of Spanish Leather*. Set in sixteenth-century Spain, this is the story of a shrewd and ambitious young foot soldier striving to escape the peasant class, who, risking everything he holds dear, joins the ill-fated Spanish Armada. The Absentee Narratee mode of presentation developed for use in *Boots of Spanish Leather* explores the theoretical foundations for the use of second person thought utterances in First Person-Present Tense narrative situations.

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Thesis title:

Royal Palms: Exploring 1980s Neoliberal Characterisation through Foucauldian Power and Discourse

Description:

This practice-led novel and exegesis explores the characterisation of an anecdotal 1980s Wall Street junket on Queensland's Gold Coast in terms of Foucauldian power and discourse. Problematizing the subject's decentred ontology implied by the life sciences, Foucault's theories are adapted to illustrate characterisation as a site of discursive interpellation and contest in neoliberal fiction. Decentred, the subject as a scape of discursive practice reveals the struggle between 'personal discourse' and the organisational power of corporations. This has implications not only for character intentionality and artificial subjects, but provides a framework where humanism and organisational agency can be approached as an ontology of the self.

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Thesis title:

The Creation and Use of Video-For-Learning in Higher Education: Pedagogies and Capabilities

Description:

This research highlights the educational affordances of video-for-learning, and video production models, in a Higher Education context. Theories of screen media were combined with theories of learning and teaching to assist University staff to develop their professional practice through the design, production and use of video. This challenged a number of normalised processes for creating video in Higher Education settings. The findings deepen understandings of the effectiveness of video for learning, and of the support structures required for video production and use in Higher Education.

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Thesis title:

HOSTING Food-based Artworks Formed and Altered by Performance

Description:

This practice-led research project explores the dynamics of hospitality and food through the creation and analysis of sculptural objects, installation and performance. The performance and participation occurring between the artist, viewer, and artwork are framed as dynamic host/guest relationships. The project proposes the host-guest as a motif for understanding the reciprocity of roles in participatory art practices.

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Supervisor/s: Manuela Taboada, Natalie Wright

Thesis title:

Becoming Integral Educators for Sustainable Futures: A Human-Decentred Design Approach to Teacher Development in an Independent Secondary School

Description:

Although the current dominant human systems are misaligned with those of the planet, education is strategically positioned to contribute to the integral ways of being in the world needed for sustainable futures. This research explores how a series of collaborative design workshops within a Human Decentred Pedagogical Framework might engage secondary teachers in a personal and professional transformative learning process at an independent special assistance school in Brisbane Australia. Findings include: changes in participants' perspectives on educational priorities and values, development of key mindsets associated with sustainability, and an expanded capacity for collaborative work on complex problems requiring non-dual thinking.

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Supervisor/s: Debra Cushing, Courtney Pedersen

Thesis title:

Making Marks: Handlability In Landscape and Learning

Description:

Drawing together Steiner philosophy, Landscape Architecture, and Visual Art, this Master of Design (Research) thesis explores and redefines a pedagogical practice which maintains the Steiner philosophy of 'Head, Heart and Hand', but which simultaneously enhances awareness and embraces contemporary notions of sustainability in this educational setting. Utilising a qualitative, action research methodology, this research explores how educators might rethink, reimagine and refit a sense of place and outdoor learning, by cultivating a framework of sustainable practice. The resulting model 'Culture for Renewal' may be extrapolated to apply to the wider pedagogical context, awakening a consciousness, crucial for the times in which we live.

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Thesis title:

Accidental Activism: Intervening in The Global Fashion Industry

Description:

This thesis combines scholarly perspectives with practice-led research to navigate the complex relationship between global fashion production and development. This research project investigates how garment workers in global value chains can be empowered and explores whether this could challenge current industry practices.

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Supervisor/s: Christina Spurgeon, Nicole Edwards

Thesis title:

It's the People's Radio: People with Disability in Australian Community Radio

Description:

Community radio in Australia was established to empower ordinary citizens. However, people with disability are less heard than others in community radio, as with mainstream media. Listening to experiences of community radio staff and volunteers with disability can provide the foundation for plans to increase participation, agency and voice. Using semi-structured interviews, this practice-led research asked people with disability in the sector what empowers them, and how policy change, training and awareness-raising might increase their participation. It's The People's Radio, an accompanying 4 part radio documentary, tells the stories of community radio participants with disability in their own voices.

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Supervisor/s: Courtney Pedersen, Andrew Mcnamara

Thesis title:

#SoBrave: The Crisis of Neoliberal Feminine Bravery

Description:

This creative practice-led research project employs cross-disciplinary methods to examine how neoliberal constructions of feminine bravery reinforce prescriptive and restrictive behaviour standards for women. Using performance, video, textiles and immersive installations to explore conceptions of feminine bravery, the artist has developed a parodic persona, 'Brave Girl', a mock super-hero/medieval warrior, who is inspired by popular culture, online media, cosplay and comic strip characters. Brave Girl embodies some aspects of the artist's journey, however, stepping away from autobiography, into "anti-autobiography", has enabled a distinct critical understanding of how affirmations of bravery function. The research determines that it is possible to use the ambiguities of contemporary art practice to reveal the hegemonic qualities of the feminine bravery construct.

Introduction

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Supervisor/s: Bree Hadley, Caroline Heim

Thesis title:

The Loss of Small White Clouds: Dementia in Contemporary Performance

Description:

This study researched the representation of dementia in theatre. A number of performances were analysed from the past decade and found that linguistic, physical and visual elements all impact how people with dementia are depicted. The research determined that trends do exist in theatre about dementia, which are important to investigate in order to diversify the stories told about, and improve the social perception of, people with dementia.

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Supervisor/s: Jill Franz, Evonne Miller, Maria O'Reilly (Central Queensland University)

Thesis title:

The 'Home' / 'Homelessness' Continuum in Residential Aged Care

Description:

This project drew on the experiences of residents and staff in two different residential aged care facilities in South East Queensland, in order to better understand the factors that affect residents' ability to feel 'at home'. The resulting theoretical model reveals how the factors interconnect over time to contribute in a unique way to the meaning of home for individual residents. Ultimately, the model invites, and supports, a more sensitised and integrated approach to the design and management of Residential Aged Care Facilities.

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Supervisor/s: Rachael Haynes, Courtney Pedersen

Thesis title:

Conjuring Alterity: Refiguring The Witch and the Female Scream in Contemporary Art

Description:

This practice-led research project addresses the political and creative significance of the witch archetype as an emancipatory symbol for alterity in contemporary art. Framed within an intersectional feminist methodology, it explores cultural mythologies, personal histories, political activism, gender and sexual rebellion. Using embodied performance it explores the significance of disruptive feminist voices and reimagines intersectional identities in contemporary art practice through the figure of the 'witch' as Other.

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Supervisor/s: Gavin Carfoot, Terence Willsteed, Andrew Arthurs

Thesis title:

Nostalgia, Authenticity and the Culture and Practice of Remastering Music

Description:

This study on remastering practice explores the creation of digital replicas from existing musical artefacts and the impact this has on notions of culture, authenticity and nostalgia. It also examines the perceived sonic differences between remastered and original hi-fi recordings. The research then identifies and applies the remastering process used to produce digital remasters of iconic Australian band Sunnyboys to a selection of demo recordings from lesser-known Australian bands who emerged from a similar genre, time and place as Sunnyboys, in order to determine how nostalgia, authenticity and the culture and practice of remastering music is enacted in lo-fi recordings.

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Supervisor/s: Caroline Heim, Sandra Gattenhof

Thesis title:

Envisaged, Invited and Actual Audiences: A New Model to Approach Audience Research in Australian Community-Engaged Performance Projects

Description:

This study investigates different approaches to theatre audience studies to develop a new practical model for examining the embedded and intrinsic audiences in community-engaged performance projects with social orientations. The practical model is empirically tested in two Australian case studies, and augmented and enhanced through its application in three key audience categories: Envisaged Audience, Invited Audience and Actual Audience. This study argues that the proposed model is a useful tool for industry, in particular, to locate, illuminate and disrupt different points of views on audiences held by community stakeholders, and to integrate perceptions on the audience with actual audience experiences.

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Supervisor/s: Mark Pennings, Rachael Haynes

Thesis title:

Creating [in]Sincerity: A Study of Sincerity in Contemporary Visual Art Practice

Description:

Undertaken during the turn towards a `post-truth¿ culture and the rise of the #MeToo movement, this practice-led project has investigated sincerity¿s contradictions and difficulties and devises conceptual and mediated strategies for `sincere¿ creative engagement in arts practice, specifically in relation to expressions of trauma. This thesis considers the role of sincerity in ethical, communicative, phenomenological, and affective modes, examining the nature of sincerity across visual platforms.

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Country: Colombia

Supervisor/s: Marcus Foth, Peta Mitchell

Thesis title:

The Right to the Digital City: The Role of Urban Imaginaries in Participatory Citymaking

Description:

This study investigates how digital technologies enable citizens to challenge dominant practices of urban decision-making by helping them experience, imagine and shape the city. Developed through three case studies, the research presents an ethnographic exploration of the social, spatial and technological interactions of ordinary citizens, grassroots organisations, and cultural institutions in Brisbane, Australia. This project revisits the concept of citizenship and contributes towards the establishment of alternative principles for community engagement and political participation.

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Country: Australia

Supervisor/s: Andrew Mcnamara, Courtney Pedersen

Thesis title:

Thinking Outside the Black Box: The Apparatus between Art and Science

Description:

In the dominant mode of art discourse the apparatus features as a blind spot. It is most often treated as an indexical trace of the image, as a readable text or conversely an unreadable formal gesture. This practice-led research draws on conceptions of the apparatus developed in the philosophy of science and technology. In doing so, it offers a new approach to understanding the apparatus in practice by foregrounding the material presence of technologies, their 'performative agency' and the perceptual dimensions of spectatorship.

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Supervisor/s: Tiziana Ferrero-Regis, Kathleen Horton

Thesis title:

Genderqueer Fashion Models and their Representations of Gender in Visual Culture

Description:

Amidst global cultural shifts towards gender diversity, genderqueer fashion models have emerged as an atypical case in a largely heteronormative fashion industry. This project examines the work of four gender diverse models as cultural intermediaries of gender in visual culture. Using methods of interpretive analysis this project provides insights into the genderqueer fashion model's capacity to make social and political agendas visible. Also, the project documents how they facilitate social, cultural and political discussion and influences on the evolving notions of gender, fashion and beauty through their bodily practice.

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Supervisor/s: Alice Payne, Jennifer Craik

Thesis title:

The Wardrobe Impact of Worn Stories: Exploring Garment Storytelling for Sustainability

Description:

Slowing down the throughput of garments is an important way of reducing the critical environmental and social impacts of contemporary fashion practices. This research explores how the process of sharing personal garment stories might assist everyday wearers to change their consumption practices in this way. Applying thematic and visual content analysis to participant garment stories and interviews, this study offers insight into participants' approaches to, experiences of and wardrobe impacts from garment storytelling. Finding a positive impact on participants' clothing relationships and practices, the study builds a case for garment storytelling as a durability strategy for wearers, and offers resources to support its uptake.

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Supervisor/s: Glen Thomas, Craig Bolland

Thesis title:

Non-Place and Ma: The Writing of Nowhere

Description:

This thesis investigates what formal problems globalisation and the loss of anthropological place pose for the creative writer. It asks how fiction might best represent the journeys of the solitary supermodern ‘passenger’ through an empty and mute world of transient non-places. The exegesis finds that the non-place possesses qualities analogous with sacred space, and that writing informed by the Japanese religio-aesthetic ideal ma (間;) may yield sympathetic depictions and understandings of non-place that current treatments are not calibrated to register. The accompanying novel, *The Diplomat, or Oblivion* applies these findings to a fictional representation of supermodern passengerhood.

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Supervisor/s: Stephen Harrington, Gavin Carfoot

Thesis title:

Indie-Folk: Vintage Sensibilities in The 21st Century

Description:

This project investigates the indie-folk music scene, characterised by lo-fi and vintage sensibilities evoking the Western colonial 'frontier spirit' marked by old-timey handmade aesthetics, acoustic instruments and a back-to-basics ethos. Beginning as a niche genre then exploding into mainstream awareness in the 2000s, its popularity grew alongside cultural trends for all things natural, eco-friendly and 'rootsy'. Through interviews with artists, industry practitioners and fans, this research reveals the complexities involved in vintage sensibilities existing in a digitally-connected modern world, and how they relate to authenticity, hipster culture, green consumerism, gender, race and class.

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Supervisor/s: Jean Burgess, Stephen Harrington

Thesis title:

The Logics of Social News: How BuzzFeed, Junkee and [Pedestrian.tv](#) are Making News More Engaging, Sociable and Personal

Description:

This thesis is the first to define and describe 'social news', a new kind of journalism which has emerged in response to social media. It examines three Australian online news outlets: BuzzFeed, Junkee, and [Pedestrian.tv](#), and finds that they seek audience engagement through producing sociable content that is personalised for a young demographic. While social news may at first appear to violate the rules of 'quality' journalism, it provides a critical platform for marginalised voices and has the potential to reach and politically engage readers in crowded social media newsfeeds.

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Country: Australia

Supervisor/s: Jill Franz, Mirko Guaralda

Thesis title:

Housing for an Ageing Australia: What Next?

Description:

Within the policy context of ageing-in-place aspirations, this thesis examines the potential nature of housing for Australia's ageing population. By conceptualising housing and support together as an ecology and using grounded theory methodology to involve relevant stakeholders the thesis reveals both the desire and need for new urban and suburban based housing typologies arranged around collective living and mutual support. It further proposes a performance brief comprising desirable housing design principles. The thesis makes a contribution theoretically to the fields of architecture and critical gerontology.

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Country: Australia

Supervisor/s: Susan Carson, Brendan Keogh, Timothy Highfield (University of Amsterdam)

Thesis title:

‘Restaurant Reviews Aren’t What They Used to Be’: Digital Disruption and the Transformation of the Gastronomic Field

Description:

As recently as a decade ago, restaurant reviews were the purview of elite professional food critics. Subsequent momentous changes in the media landscape allow anyone with an internet connection to voice their opinion through blogs and Online Consumer Review (OCR) sites such as Zomato and Yelp. The participation of amateurs in the discourse around culinary experiences represents a blurring of the formerly distinct relationship between mainstream media journalists and their audiences. This transformed technological and media landscape has fundamentally affected the discourses and practices of traditional cultural intermediaries in these fields, such as the restaurant reviewer, or ‘food critic’.

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Country: Australia

Supervisor/s: Stephanie Hutchison, Gene Moyle, Lee McGowan

Thesis title:

Settling The Score: Pre-Scoring Spatio-Temporal Processes For Independent Dance Practice

Description:

This research project develops Pre-scores, a generative choreographic tool that facilitates the communication and translation of movement concepts. Pre-scores are spatio-temporal dance scores depicting choreographic ideas as embodied inscriptions, using drawing, text and symbols, to transmit imaginative visualisations of movement concepts. Translucent layers of tracing paper reflect the way movement is generated and experienced within a body in motion and become a metaphor simulating the dancer's internal score. Pre-scores provide a low-fi collaborative tool, instigating the flow and transparency of choreographic thinking and transforming the imagined into the tangible.

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Supervisor/s: Lesley Hawkes, Kathryn Kelly

Thesis title:

Transcultural Improvisations: An Investigation of Hybridity through a Local Australian Samba de Gafieira Dance Community

Description:

This research explored the Brazilian dance style samba de gafieira and how it is translated into Australian culture. It entailed investigating how travel and immigration, movies and television, and the Internet, enable dancers in Australia and Rio de Janeiro to source and share information, and therefore how a shared samba de gafieira culture has emerged. The research revealed that this hybridization process is primarily enabled by Brazilian immigrant dance teachers, with USA popular culture having negligible influence, and that samba de gafieira in Australia is a close replication of the dance as it exists in Brazil.

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Supervisor/s: Paul Sanders, Ian Weir

Thesis title:

Adaptable Urbanism: Understanding Self-Organised Territorialisation in Urban Communities

Description:

This research addresses the concept of self-organisation, particularly with regard to how it enables and affects adaptability in urban communities. Assemblage theory was applied to synthesise research on adaptability, system dynamics, and self-organisation, and to ultimately identify a range of factors and variables that affect and are affected by self-organisation in urban communities. The developed theory was verified and advanced through case study research of four urban communities that reflected high levels of self-organisation and adaptability.

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Supervisor/s: Christina Spurgeon, Terry Flew

Thesis title:

Townsville's Creative Services Subsector and the NBN: A Case Study

Description:

The research presents a case study of the early NBN rollout in Townsville. Interviews with businesses in the creative services subsector were conducted to come to a soci-economic understanding of how business used the NBN. The improvements to business efficiency were notable, particularly the through increased access to information and cloud computing. Cluster analysis methods were used to determine the impact of the NBN on creative services subsector employment. While there was some evidence to suggest a link between the NBN and creative services subsector employment unresolved issues in the broadband market greatly obscured the benefits of the NBN.

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Supervisor/s: Christopher Carter, Bree Hadley, Matthew Delbridge (University of Tasmania)

Thesis title:

Animated Motion Capture: An Examination of Cartoon-Stylised Human Movement for the Capture of Animated Performances

Description:

Motion capture offers an alternative method for animating characters in 3D computer graphics (CG) to traditional frame-by-frame methods. An unspoken divide exists within the industry that silos realistic movement to motion capture and cartoon-style movement to traditional animation methods. This study challenges this divide and identifies production conditions for achieving cartoon-style motion for a 3D CG motion capture animation by examining a typical motion capture pipeline and testing reference materials from popular animation training manuals with recorded actions of performers at the time of capture.

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Supervisor/s: Axel Bruns, Patrik Wikstrom

Thesis title:

Measuring the Networked Public - Exploring Network Science Methods for Large Scale Online Media Studies

Description:

This thesis explores network science methods and media and communication theory to investigate structures and dynamics of national and global publics. It does so in two studies: one regarding the sharing of hashtags and links on Twitter around acute events, such as the Sydney Siege; the other about communities, publics, and possible echo chambers in the Australian Twitter follower network. It leads to new evidence about structures and dynamics within communities and the public sphere on Twitter, revealing the epistemological implications of network analysis algorithms and outlining a methodological framework to better connect media and communication studies with network science.

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Country: Australia

Supervisor/s: Marianella Chamorro-Koc, Alethea Blackler,
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Thesis title:
Engagement With Digital Health Technologies

Description:

The increased implementation of digital health technologies requires a better understanding of how to design technologies and services that enhance people's engagement with their health. This thesis contributes new knowledge about i) an increased understanding of the different ways in which people engage with digital health technologies, ii) the stages of people's engagement with digital health technologies over time, and iii) the features that support such engagement. The findings offer new directions for the digital health industry to further develop their service design. They also support people's engagement with their health goals through tailoring their services more effectively to end-users.

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Thesis title:

Government In Online Spaces: Critical Evaluation of Citizen-To-Government Participation in Urban Centres in Java, Indonesia

Description:

This thesis examines how governments in Indonesia, a young democracy with a rapid growth of Internet and social media; perform with citizens in digital sphere by employing the concepts of 'citizen participation' and 'voice'.

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Country: Australia

Supervisor/s: Evonne Miller, Victoria Garnons-Williams

Thesis title:

Woven Narratives: Creative Participatory Art in Residential Aged Care

Description:

This thesis presents a participatory art project which involved relocating my tapestry weaving studio into an aged care home for six months and working with residents to co-design and co-create a woven tapestry. The project's concept, materials and processes were designed as an interpretation of two theoretical models: the motivation to meaning and transcendence in ageing focusing on subjective experiences. This thesis contributed to the arts and health literature by presenting craft as a practice and method that connects materials, ideas and people through engagement and facilitates wellbeing. It also highlighted the complexity and the advantages of the research context.

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Thesis title:

The Meaning Change of Urban Heritage: A Socio-Semiotic Investigation of Historic Areas in Yogyakarta, Indonesia

Description:

This thesis investigates the relationship between architecture and cultural meaning. The study takes place in the World Heritage listed city of Yogyakarta, Indonesia. The research demonstrates people's attitude towards memory, and how it contributes to the idea of nationalism and identity. Findings stress the importance of the concept of 'locality' and can inform future governance in Indonesian cities.

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Supervisor/s: Evonne Miller, Glenda Caldwell, Emma Baulch

Thesis title:

Being Me on Instagram: How Indonesian Hijabers Reframed the Nexus of Piety and Modernity

Description:

This thesis used digital ethnography and iconographical methods to investigate how Indonesian hijabers (hijab-wearing women who are fashion-conscious) use the visual social media platform Instagram. Drawing on Goffman's theory of self-presentation, this study revealed these hijabers used Instagram to display their unique authenticity, to highlight their piousness and to advance their feminist agendas. They reframed the nexus of piety and modernity, adeptly using the visual affordances of Instagram to challenge dominant power structures, share Islamic knowledge, and enhance women's agency and empowerment.

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Country: Australia

Supervisor/s: Axel Bruns, Nicolas Suzor, Stephen Harrington

Thesis title:

Social Media Governance: Platforms in Conflict - The Strategies of Operators and the Tactics of Users

Description:

This study is a close inspection of three cases of everyday political conflict and the ways these conflicts are negotiated on social media platforms. It examines users' struggles for freedoms of expression, identity, and safety; and reveals that whilst high-profile conflicts are useful for uncovering the machinations of platform governance, they provide a poor foundation for lasting reform. In response users are found to have developed shrewd, tactical opportunities to leverage the systems of social media platforms to supplant, and circumvent, inadequate reforms and agitate for better outcomes.

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Supervisor/s: Alice Payne, Elinor Buys, Deepthi Bandara
(University of Peradeniya), Leena Seneheweera (University of
Peradeniya)

Thesis title:

Fashion Education Ecosystem: Bridging the Fashion Knowledge Gap in the Sri Lankan Apparel Industry

Description:

The export apparel industry in Sri Lanka is seeking to develop higher value fashion products and services for overseas consumers with the support of locally trained fashion designers. This thesis investigates how Sri Lankan designers are prepared by higher education and the apparel industry to acquire the necessary knowledge and skills that can contribute to the industry's development. The thesis identifies the collaborative approach of developing Sri Lankan fashion designers through higher education and apparel industry forming a 'Fashion Education Eco-system'.

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Scott Regan

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Thesis by Creative Works

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Country: Australia

Supervisor/s: Kiley Gaffney, Terence Willsteed

Thesis title:

The Brisbane Sound

Description:

This study asks ‘what is the Brisbane Sound, and what does it sound like?’ The Brisbane Sound refers to music made by a small group of post-punk bands hailing from Brisbane between 1978-1983, most notably The Go-Betweens. This research by Creative Works is the first scholarly account of the Brisbane Sound. It examines how the term has been constructed in the media over time. Then, the music of these bands is analysed to verify these claims. Finally, this data informs the production of five original songs that aim to sound like the Brisbane Sound.

Introduction

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Country: Australia

Supervisor/s: David Megarritty, Craig Bolland

Thesis title:

This House is Full of Shadows: A Post-Jungian Analysis of the Contemporary Family Homecoming Drama

Description:

This research identifies the limited availability of psychological studies of playwriting, especially studies drawn from the psychological theories of C. G. Jung. It offers a detailed case study of a specific dramatic genre, the contemporary family homecoming drama, to demonstrate how Jungian and post-Jungian theories can help to illuminate the rich psychological material of these plays. The study demonstrates the usefulness of complex, individuation and emergence theories for both critics and writers of drama. The full text of a new family homecoming play, 'Eventide', forms part of the research.

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Leo Rezayan

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Country: Australia

Supervisor/s: Jared Donovan, Jennifer Seevinck

Thesis title:

Making Collaborative Data Physicalisations

Description:

This project investigated physical data presentations, physicalisations to explore ways of presenting data in physical, three-dimensional form, and understand how this would be received by users. This project first reviewed the field of tangible interaction and collaboration to identify a series of concepts to support the design of collaborative data physicalisation. Next, this research undertook a research through design and reflective approach to design, to create a new collaborative data physicalisation system. It then used observations and focus-groups to evaluate the design's utility and explored how people employed physicalisation as part of their collaborative sense-making and meaning-making processes.

Introduction

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Country: China

Supervisor/s: Terry Flew, Mark Ryan, Stuart Cunningham

Thesis title:

Changing Dynamics of Digital Entertainment Media in China

Description:

This study is about the rise of Chinese technology companies and their integrated power in screen production culture. It examines the dynamics between BAT - Baidu, Alibaba and Tencent, the Chinese equivalent of Google, Facebook and Amazon, and the streaming services in China. This study adopted case studies to explore Chinese online productions via genres of TV, variety shows and user-generated content. In doing so, BAT is identified as the new digital power, and that they are reconfiguring power distributions of media industries in the content professionalising process.

Introduction

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Country: Australia

Supervisor/s: Emma Felton, Jason Sternberg

Thesis title:

The Augmented Rural Reality: how rural high school students' decisions to pursue university study in digital media are 'augmented' by the role of life history and cultural capital.

Description:

Rural students are underrepresented in higher education in Australia. At the same time, the workforce is rapidly transforming with the integration of digital processes into everyday work and life. Rural students are less digitally competent than urban students. Queensland, a largely regionalised state, has a high percentage of rural students. Using cultural capital as a framework, this research identifies family, community, school and digital media as influences on rural Queensland students' decisions to pursue higher education and their perceived value of digital media. Family plays the most significant role in the decision making process, while students' community and school also influence decisions and perceptions. Students' value of digital media depended somewhat on their intended career choice. Findings provide valuable new data around student influences towards higher education and digital media and suggest avenues to improve outreach programs targeting students in rural areas.

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Country: Australia

Supervisor/s: Axel Bruns, Stephen Harrington

Thesis title:

Gateway to the Sideline: Brand communication on social media at large-scale sporting events

Description:

This thesis investigated how sport organisations use social media to communicate at international sporting events. Combining participant observation, interviews and Twitter data analysis, it examines two cases - the AFC Asian Cup and Netball World Cup - to document, analyse and compare the creation and implementation of social media strategy. This research uncovered that the development of social media strategy comprises six key pillars: volunteer selection and training, setting objectives, audience segmentation and targeting, platform-based approaches, content creation strategy and moderation of fan conversation. However, within these foundational categories, the specific strategy enacted varies, depending on the event's position in the market.

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Country: Australia

Supervisor/s: Anoma Kumarasuriyar, Mirko Guaralda, Ashalatha Thampuran (Mohandas College of Engineering and Technology), Gillian Lawson (Lincoln University)

Thesis title:

Dwelling as a Progressive Human Ecological Order: A Study on the Non-duality and Altered Living Environments in Kerala

Description:

A significant theoretical change in the history of dwelling in Kerala has caused the current dwelling practices to be less responsive to its ecological existence. This research investigated the evolution of dwellings in Kerala as changing human ecological relationships, in the hope of developing a holistic model that can represent the complex process of dwelling. The human ecological model that is proposed in this research throws light on the continuation of ancient architectural theory in Kerala and is intended to motivate relevant professionals such as architects, planners and builders to develop a holistic and environmentally aware approach in their practice.

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Country: Australia

Supervisor/s: Gavin Carfoot, Lee McGowan, Philip Graham
(The University of Queensland)

Thesis title:

Popular Song and Narratology: Exploring the Relationship between Narrative Theory and Song Lyrics through Creative Practice

Description:

This thesis proposes a new theorization of song analysis based on practice-as-research and underpinned by structuralist narrative theory. In an examination of 300 number one songs, the research explores both the relationship of storytelling and musical structure in popular songwriting, and the nature of songwriting-as-research as a research paradigm. In doing so, the thesis and associated creative works seek to guide future songwriters and industry in how stories are most effectively conveyed in popular song lyric writing.

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Penny Wild

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Country: Australia

Supervisor/s: Paul Smith, Jill Franz

Thesis title:

Interior Design Identity as Practised

Description:

The purpose of this research was to understand the ways that interior designers experience practice through thinking, acting, and being, and as a consequence develop their interior design identities. The findings have supported the development of a new model on interior design identity development through practice. This model will contribute to the discipline by strengthening aspects of interior design identity and practice and will in turn inform education and further research within the discipline.

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Country: Australia

Supervisor/s: Evonne Miller, Marianella Chamorro-Koc

Thesis title:

Product Ecosystems: Extrinsic Value in Product Design

Description:

Industrial Designers create the everyday products that enrich our lives. In recent decades, the discipline has been transformed by disruptive innovation, social change and the 'humanisation of technology', with Industrial Designers now creating total user experiences across multiple products and services. Unfortunately, the design process sometimes fails to adapt to the increased complexity of our world. This thesis describes the development of a new and more holistic way to approach the complex task of design: Product Ecosystem Thinking. This new Design Method demonstrates how products gain value from the ecosystem, providing a conceptual framework for Industrial Designers.

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Country: Australia

Supervisor/s: Sean Maher, Donna Hancox

Thesis title:

Constructing Digital Narratives: Negotiating totality and infinity with people from refugee backgrounds

Description:

Definitive narratives affect marginalised groups globally, playing significant roles in their continued oppression, while dominant groups are afforded the privilege of being represented as diverse. This research examined the opportunities and challenges for practitioners who create stories online to produce narratives which resist definitive and narrow representations. The researcher collaborated with four authors from refugee backgrounds to produce a digital narrative titled “We See Each Other” (2018). The result of the research was key insights into sites of innovation for digital narrative practice and a course of action for creative practitioners wishing to negotiate the complex issue of representation.

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Country: China

Supervisor/s: Vesna Popovic, Alethea Blackler

Thesis title:

Elderly Chinese Immigrants' Adaptation to Their Host Country: Food Experience as a Mediator

Description:

This research examines the relationship between food experience and Elderly Chinese Immigrants (ECIs)' cultural transition in Australia. Field studies investigated ECIs' cultural experience of food, and how they react to the cultural differences in food-related activities. Results indicate that food experience mediates ECIs' cultural transitions between ECIs' home country cultural background and their host country context. Such findings lead to the development of the Food Experience Mediated Adaptation Framework, which illustrates ECIs' cultural transition and can be used as a guide for future design practices. This research, therefore, contributes to knowledge in the experience design field.

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Country: China

Supervisor/s: Vesna Popovic, Rafael Gomez

Thesis title:

The Role of Negative Emotions in Constructing Meaning in Interactive Contexts

Description:

This research explores the potential of negative emotions in creating meaningful user experience. It investigates the transformation of negative emotions during interactions and its functional consequences on meaning perception. The causes of specific negative emotions in different contexts of interactions and their effects on cognition and behaviours were examined. The findings reveal the mechanism of changes in emotions over the course of interactions. The predominant role of negative emotions in the meaning-making process is demonstrated. This research outcome consists of two conceptual models for modelling meaningful experiences and systematic methods of emotion induction in users.

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Country: Ghana

Supervisor/s: Donna King, James Watters

Thesis title:

Ghanaian Teachers' Beliefs About Giftedness and Gifted Education Teaching Strategies in Mathematics and Science

Description:

The aim of this qualitative instrumental case study was to explore Ghanaian teachers' beliefs about giftedness and their knowledge of gifted education strategies. Ten teachers from six junior high schools participated in interviews, and provided lesson plans and related student work. Inductive and deductive data analysis revealed that the majority of teachers held limited insights into the nature of giftedness or of strategies advocated to support gifted students in mainstream classes. The study has implications for policy development and for reform of pre-service teacher education in Ghana.

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Country: Australia

Supervisor/s: Jennifer Alford, Lisa Van Leent

Thesis title:

Building Linguistic Subject Knowledge for Writing Instruction: Teacher Responses to Professional Learning

Description:

This study contributes to knowledge about teacher professional learning, in particular a theorisation of the process of turning linguistic subject knowledge into effective pedagogy for writing. The research project explored teacher responses to professional learning about language in the Australian Curriculum: English, Year 10. Systemic functional linguistics provided a framework for collaborative decision-making about specific professional learning needs. Design-based research methodology provided insight into how teachers' developing knowledge base influenced decisions about the planning and delivery of writing instruction. Further, Lee Shulman's approach to pedagogical reasoning and action supported an analysis of teachers' accounts of the decisions they made.

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Country: Australia

Supervisor/s: Kate Williams, Kerryann Walsh

Thesis title:

Measuring Early Childhood Educators' Self-Efficacy for Mandatory Reporting of Child Maltreatment

Description:

This study aimed to investigate how to measure self-efficacy as an important aspect of mandatory reporting of child maltreatment in the context of early childhood settings in Queensland. A new scale was developed based on Bandura's Self-Efficacy Theory and subsequently tested through an anonymous online survey with 87 early childhood educators. Findings highlight the challenges of conducting research on sensitive topics and support existing research that has examined the barriers and facilitators to mandatory reporting. Opportunities and challenges relating to educators' self-efficacy are identified, and collective efficacy emerged as a key theme influencing motivation. Recommendations include enhanced training initiatives that focus on building collective efficacy, regular updating of service policies to better reflect legislative requirements, and further development work on a reporting self-efficacy measure.

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Supervisor/s: Lyndal O’Gorman, Elizabeth Saggars

Thesis title:

Making Visible The Lived Experiences of Mothers of Children with Autism Spectrum Disorder

Description:

Raising a child with autism spectrum disorder (ASD) is complex. Gaining insight into the lived experiences of mothers of children with autism is a first step toward developing effective policy and services to support not only children with ASD but also their families. This Visual Narrative study asked participants to capture daily photographs then engage in a semi-structure interview. Findings showed child health/behaviour significantly influenced the maternal lived experience within the family; external systems; and the mothers’ own experience of wellness. The nuanced insights contribute towards understanding of ASD and highlight the importance of family-centric policies.

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Supervisor/s: Alberto Bellocchi, Kate Williams

Thesis title:

Music Listening for Student Engagement: Teacher and Student Perspectives

Description:

This study explored teacher and student perspectives on music listening for student engagement through semi-structured interviews. Two major findings are reported: music may be used to focus and motivate students during individual and non-challenging tasks; and, individual music listening can reduce classroom distractions.

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Country: Australia

Supervisor/s: Annette Woods, Melinda Miller

Thesis title:

Young Children's Participation in the Organisation of the Early Learning Space

Description:

This study examined the under-researched insights of young children and how they describe their role in organising the materials in the kindergarten classroom space. Using a participatory methodology and design, young children took the researcher on child-led tours of their kindergarten classroom spaces and engaged in video-stimulated recall interviews with the researcher. Data was analysed through a sociomaterial lens and spatial theory. The results of this study demonstrate that children do have multiple roles in organising the materials in the education spaces that they engage within; however, the level of participation and roles available to children continued to be restricted by adults.

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Supervisor/s: Elizabeth Curtis, Denise Beutel

Thesis title:

Investigating Teacher Work and Overall Impact on Wellbeing: A Secondary School Case Study

Description:

This research investigated teacher work and the related impact on wellbeing. Conducted in a single secondary school site, it captures the perceptions of a range of teachers regarding the impact of educational reform and policy in this context. The significance of school culture, relationships and self-determination theory for teachers are discussed as key factors affecting teacher wellbeing in their work environment.

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Country: Malaysia

Supervisor/s: Melinda Miller, Megan Gibson, Kerryann Walsh

Thesis title:

Young Children's Understanding of Poverty Within a Framework of Sustainability: Action Research in a Kindergarten

Description:

This study examined children's understandings of poverty in a Kindergarten classroom. Along with meaning-making around poverty, the study examined pedagogical conditions that support investigations of socio-political aspects of sustainability with young children. Data included observations of children's play, artefacts, conversation transcripts, and teacher reflective journal entries. Findings showed that the children's understandings of poverty shifted and reverted throughout the project and were influenced by broader social events. Further, that young children's engagement with socio-political aspects of sustainability can be supported via purposeful, play-based and arts-based pedagogies. This study addresses a gap in early childhood education for sustainability research by moving beyond a prevalent focus on environmental aspects of sustainability.

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Country: Australia

Supervisor/s: Mallihai Tambyah, Annette Woods

Thesis title:

Teachers' Professional Agency and School Reform

Description:

This qualitative case study explores the professional agency of Australian primary school teachers in the context of top-down and bottom-up school-based curriculum reform. The research conducted from a teacher-researcher perspective found that teachers' experiences of professional agency were dependent on the point in time and context of their reform work. Enablers and constraints to teachers' professional agency were factors associated with assessment, the use of time and opportunities for professional collaboration. This study contributes an Australian perspective on teachers' professional agency and has significant implications for teachers, school leaders and governing authorities engaged in school reform.

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Country: Australia

Supervisor/s: Hilary Hughes, Jill Franz, Jillian Willis

Thesis title:

School Design and Procurement and Educational Goals: A Qualitative Case Study of Two Australian Schools

Description:

Rapid population growth in Australia requires extensive new school infrastructure. This qualitative case study of two Australian government schools investigated implications for educational goals of differing school design and procurement approaches (public private partnerships (PPP) and state managed). Key findings: (i) primary challenges in providing school facilities were budgetary and time pressures in the face of ever-growing student populations; (ii) differences arose between PPP and non-PPP procurement regarding communication and management of school facilities; (iii) both school buildings appeared constrained by prescriptive design guidelines; and (iv) products of both design and procurement processes appeared to affect educational goals for intellectual, physical, social and emotional wellbeing.

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Country: Australia

Supervisor/s: Lyndall English, Linda Knight

Thesis title:

IPads in The Early Childhood Science Classroom: An Exploration of IPads Use in Hands - On Science Activities

Description:

This qualitative case study explored the affordances and uses of the iPad in Prep classrooms when integrated into hands-on science activities about movement. Using a hybrid inductive and deductive thematic analysis approach, this study identified and described the ways that virtual and augmented reality apps on the iPad can both enhance and distract from hands-on science activities about movement in Prep. The findings suggest ways that educators may achieve greater integration of hands-on science and technology learning experiences in Prep classrooms.

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Country: Australia

Supervisor/s: Radha Iyer, Derek Bland

Thesis title:

Resisting Education: A Capital Idea

Description:

This study examines an alternative education program for students displaying challenging behaviours in mainstream schools in Queensland. It identifies how some students are disempowered in both mainstream schools and alternative education and how this leads to ongoing challenging behaviours. This thesis draws on Bourdieu's theories of habitus, cultural and social capital as well as resistance theory (Willis, 1977) and identifies a novel capital termed as justice capital as an unrecognised resource with the potential to empower these students to achieve greater educational success. The study concludes that providing effective alternative education pathways necessitates providing educational experiences that empower these students.

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Supervisor/s: Margaret Kettle, Jennifer Alford

Thesis title:

Rethinking Homework for Foreign Language Teaching and Learning in Primary School

Description:

Homework attracts much debate in schooling, especially in terms of its processes, outcomes and benefits for primary school learners. This study investigated the implementation and accomplishment of foreign language homework in a Year 4, 5 and 6 Japanese as a Foreign Language program. Utilising Activity theory and understandings of Second Language Acquisition, the case study involved video, interview and document data from students, Japanese language teachers and parents. Key findings include the students' use of self-talk to regulate their accomplishment of foreign language tasks; the teaching needed to scaffold students' understanding of task demands; and parents' gradual reduction of assistance in homework.

Introduction

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Country: Bhutan

Supervisor/s: Suzanne Carrington, Nerida Spina

Thesis title:

Preparing Teachers for Inclusive Education in Bhutan

Description:

This research examined pre-service and beginning teachers' understandings of inclusive education, confidence and preparation for teaching in inclusive classrooms. The study was a descriptive case study with twelve pre-service and twenty beginning teachers in six inclusive schools. Research findings inform five recommendations: enhanced training and development of the teachers, enhanced policy and practice including with community, improved teaching and learning materials, better articulation of duties and responsibilities of all teachers, and transforming class size. This study will make a significant contribution to research on inclusive education in South West Asian countries, as well as to the achievement of inclusive education policy ideals in Bhutan.

Introduction

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Country: Australia

Supervisor/s: Margaret Kettle, Gordon Tait, Peter O'Brien

Thesis title:

Language Change: Identity Management and The Boundaries of Acceptable Verbal Conduct in School Settings

Description:

This study focused on changing language use and social norms in secondary school settings. It investigated how teachers and school leaders define language transgressions and interpret policies such as verbal misconduct. The study used snowball sampling and Critical Discourse Analysis to examine the accounts of 19 secondary school leaders and teachers in South-East Queensland. Findings indicate policy ambiguity and the use of personal parameters in defining acceptability standards and responses. In addition, taboo terms referencing social variables such as race, gender and sexuality are of greater concern than individual swear words, leading to an innovative framework of contemporary language taboos.

Introduction

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Country: Australia

Supervisor/s: Jennifer Alford, Maryanne Theobald

Thesis title:

Using a Dialogic Approach to Develop Intercultural Competence in University Students

Description:

Higher education seeks to produce interculturally competent students; however, it is not clear how to achieve this as part of the university experience. This study investigated how to develop intercultural competence at a regional Australian university, demonstrating growth in a group of commencing students' intercultural attitudes, knowledge and skills through participation in a series of dialogic forums. A fine-grained analysis of forum moments also revealed how students used interactional tools to facilitate intercultural understandings with diverse others. Implications highlight the importance of promoting dialogic interaction as a means to stimulate intercultural competence in higher education institutions.

Introduction

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Country: Australia

Supervisor/s: James Watters, Elizabeth Saggars

Thesis title:

Challenging Mathematically Gifted Middle Years Students: A Mastery Learning Model

Description:

Studies reveal that although teachers are extensively in-serviced on how to differentiate the curriculum and instruction for gifted students, many fail to do so. This explanatory case study explored the classroom experiences, achievement, interest and engagement of five mathematically gifted students while participating in a differentiated mathematics program framed by Bloom's Mastery Learning Model adapted for gifted students. Findings suggested positive outcomes in terms of achievement and attitudes. Hence, this study supports using Bloom's Mastery Learning model to differentiate learning for gifted students, enabling the effective use of data to guide ability-, and interest-appropriate instruction.

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Supervisor/s: Hilary Hughes, Amanda Lupton

Thesis title:

Teachers' Experience of Professional Learning Through Personal Learning Networks

Description:

There is an urgent need to improve continuing professional learning for teachers as education becomes increasingly complex. Traditional models of professional development are often fragmented, discrete events, disconnected from teachers' practice and perceived as empty measures of compliance. There is limited research that investigates alternative professional learning approaches that leverage online social technologies and involve teacher agency, collaboration and active participation. Therefore, this research explores teachers' experience of professional learning through personal learning networks (PLNs). The findings have supported the development of a new model of learning as a connected professional, which makes a significant contribution to theory and practice in the emerging field of professional networks and learning, enabled through the affordances of social technologies.

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Supervisor/s: Denise Beutel, Boon Lee, James Watters

Thesis title:

The Measurable Impacts of Australian Higher Education Reforms in an Era of Changing Policies

Description:

Recent Australian higher education reforms have endeavoured to change the performance and efficiency, thereby quality, of Australian public universities. This study incorporated the Cerych and Sabatier Framework with Data Envelopment Analysis to create an analytical framework designed to evaluate whether reform goals had any measurable impacts on the universities to which they were applied. The results showed that while short-term impacts on efficiency estimates were observable, longer-term impacts were not sustained, particularly through the instability of governments that were susceptible to electoral and internal party fluxes.

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Supervisor/s: Vinesh Chandra, Margaret Lloyd

Thesis title:

Teachers' Interpretation of Pedagogy in the Face of Immersive Educational Simulations

Description:

This study investigated how teachers interpret their own pedagogy as a result of teaching within and through an immersive educational simulation. It explored Australian secondary teachers' beliefs about the role of technology within Economics and Business education, together with the challenges and disruptions faced when teaching in this unique learning environment. This qualitative study adopted a Grounded Theory approach to reveal the pedagogical complexities of teaching with such disruptive technologies. A new signature pedagogy, titled emergence pedagogy, was offered as a theoretical model to describe the transformation of pedagogical practice when teaching within an 'in-world' and 'out-world' environment.

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Faculty of Health

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Supervisor/s: Kimberly Alexander, Patricia Yates, Sonia Hines
(Mater Health Services)

Thesis title:

The Physical Activity, Sedentary Behaviour, Functional Status, and Quality of Life of Colorectal Cancer patients within Six Months after Curative Treatment

Description:

Curative colorectal cancer (CRC) treatment affords longer survival but its effects can be debilitating. Current evidence focuses on long-term outcomes of treatment, which leaves a knowledge gap on how patients fare within the acute timeframe (within six months of treatment). A systematic review of the literature highlighted a research gap, therefore a prospective observational study was conducted to understand the acute impact of curative CRC treatment on patients' physical activity, sedentary behaviour, functional status, and quality of life (QoL). Study results suggest that the acute timeframe provides an opportunity to improve patients' physical activity, sedentary behaviour, functional status, and QoL.

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Supervisor/s: Anthony Devenish, David Long, Vivienne Tippet

Thesis title:

Australasian Paramedic Attitudes and Perceptions about Continuing Professional Development

Description:

This study utilised constructivist grounded theory to explore the attitudes, engagement and perception of current Australasian paramedics in relation to CPD. The study found paramedics have not significantly modified their engagement in CPD/LLL despite professional registration. There is, however some confusion surrounding what constitutes CPD. Furthermore, education appears to be a new form of hierarchical stigmatisation within the paramedic culture. The study facilitated the creation of a framework of paramedic CPD, which includes CPD models; PDP; reflective practices; and LLL. The framework acknowledges professional, industrial, social, personal, political, organisational and economic factors which influence or change paramedic engagement in CPD.

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Supervisor/s: Jacqui McGovern, Jonathan Peake, Anthony Parker, Oliver Neubauer

Thesis title:

The Effects of Acute Exercise and Aging on the Growth of Prostate Cancer Cells

Description:

This study investigated the effects on exercise and ageing on prostate cancer cell growth. Blood serum was collected before and after exercise from older and younger adults and tested in a cell culture model using prostate cancer cells. Expanding upon previous research by others that was conducted in young adults only, the results of this study suggest that exercise increases the cancer-inhibitory effects of serum from older adults.

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Supervisor/s: Robert Schweitzer, Kate Murray

Thesis title:

Metacognition, Personality Functioning and Domestic Violence: A Mixed Methods Analysis

Description:

The study, the first of its kind, examined the relationship between personality factors, metacognition, and domestic violence in a sample of twenty-five males from the general population. Males evidencing higher levels of conflict were shown to exhibit lower capacity for considering others and greater personality pathology. Case studies revealed the complexity of the relationship between metacognitive capacity and acts of aggression. The findings have implications for future research and the development of treatment interventions for male perpetrators of domestic violence.

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Country: Australia

Supervisor/s: Leisa-Maree Toms, Rosana Pacella (University of Chichester)

Thesis title:

Investigating Childhood Health Outcomes Linked to Perfluoroalkyl Acid Exposure in Australia: A Temporal Trend Analysis

Description:

This project investigated temporal trends in per-fluoroalkyl acid concentrations in Australian children between 2002 and 2017. Temporal trends in chemical concentrations were then compared with modelled burden of disease data in order to direct future research into the health effects associated with exposure. Between 2002 and 2017, there was a significant decrease in perfluoroalkyl acid concentrations within Australia's child population, but there was no correlation between this and burden of disease in the same age group.

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Country: Australia

Supervisor/s: Anthony Shield, Geoffrey Minett

Thesis title:

Impact of Prior Hamstring Strain Injury & Biofeedback on Eccentric & Isometric Knee Flexor Strength

Description:

Hamstring strain injury is a prevalent non-contact injury in running based sports. Little is known about the effects of lower grade injury on the capacity to perform common rehabilitation exercises protocols as well as hamstring strength tests. Novel data from these studies has contributed to the evolving hamstring injury literature, showing relatively mild hamstring injury has no significant effects on the strength performance in varying hamstring tests of different contraction modes. However, muscle architectural deficits were apparent despite athletes meeting return to play criteria, further solidifying the need to enhance rehabilitation protocols to restore structure and function for individuals.

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Country: Australia

Supervisor/s: Donna Macgregor, Hayley Moody, Louise Bishop

Thesis title:

Preliminary Sex and Stature Estimation of the Humerus for a Contemporary Australian Sub-Population

Description:

Biological profiles (ancestry, sex, age and stature) of skeletal remains assist with the identification of missing persons. Standards for estimating the sex and/or stature for the humerus of an Australian population are yet to be developed. This research aims to develop sex and stature estimation equations for the humerus specifically for a Queensland population. Samples consisted of humeral PMCT Digital Imaging and Communications in Medicine (DICOM) datasets from a contemporary Caucasian Australian adult sub-population, aged between 17-90 years, obtained from the Brisbane Mortuary and QUT's Medical Engineering Research Facility from 2016 - 2018. Threshold based segmentation was conducted to form 3D models of the humeri, which was then measured according to the five standardised measurements of the humeri. This thesis presents the results of the preliminary sex and stature estimation equations developed from this research and their utility to contemporary missing persons casework.

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Supervisor/s: Patricia Yates, Kimberly Alexander

Thesis title:

Relationship between Structural and Psychological Empowerment, Participation in Continuing Professional Development and Perceived Self-Competence in Cancer Nursing

Description:

This cross-sectional study is the first to investigate the way in which the workplace environment influences nurses' participation in continuing professional development (CPD) in the context of cancer care. The study identified that factors positively associated with participation in CPD include empowering structures, such as access to information, resources, support, and healthy work environments. The study also identified that participation in CPD was associated with greater self-perceived competence in their practice. These findings highlight the importance of improving workplace structures to enable quality nursing care.

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Country: Iran

Supervisor/s: Lisa Nissen, David Kavanagh, Judy Drennan
(The University of Queensland), Michele Clark (The University
of Queensland)

Thesis title:

Augmented Reality for Information Exchange between Pharmacists and Patients with Diabetes Mellitus

Description:

This higher degree research project addressed the important issue of low health literacy in diabetes mellitus and high blood pressure by introducing a novel custom-built augmented reality app for smartphones and evaluating the effects of this app on people's self-efficacy in managing their diabetes and high blood pressure. This research project formally evaluated the new augmented reality app, trademarked MedAugment, from multiple perspectives, i.e. the perspective of researchers, general practitioners, people living with diabetes, diabetes educators, and app/game developers. The project was a multidisciplinary partnership between six organisations, including academia, not-for-profit organisations, community organisations, private industries and service providers.

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Country: Oman

Supervisor/s: Gerard Fitzgerald, Amina Tariq, Susan Walker

Thesis title:

A Road Map for Health Information Management in Oman

Description:

This study focuses on the current practice of health information management and its effectiveness in Oman. It investigates the factors driving the direction of future practice and their impact on the quality of health information, HIM employees and the Ministry of Health as a whole. It applied an exploratory sequential mixed-methods design through three integrated studies: focus groups, interviews and survey. The consolidated research data in this thesis identified a widespread misunderstanding of the HIM concept and confusion in regard to its function and importance. The research generated a framework for understanding the factors and their relationships to each other and to improved health system outcomes, which may guide the future development of HIM practice and make a major contribution to international knowledge within the discipline of health information management.

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Country: Oman

Supervisor/s: Mark King, Barry Watson, Jeremy Davey
(University of the Sunshine Coast)

Thesis title:

A Gap Analysis of the Automated Speed Enforcement Operations and Regulations in Oman

Description:

This research is the first of its kind on the conceptual approach to automated speed enforcement and operational practices in Oman, from the perspectives of police and policy-makers. Two gap analysis tools were used to identify the gaps within the conceptual approach and operational practices: Congruence Model and Benchmarking. Suggestions are provided for improving the conceptual and operational aspects of the automated speed enforcement program in Oman, and can also be adopted in other neighbouring countries of the Gulf Cooperation Council.

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Country: Jordan

Supervisor/s: Gerard Fitzgerald, Erika Borkoles, Paula Bowman

Thesis title:

Investigating Missed Nursing Care in an Australian Acute Care Hospital: An Exploratory Study

Description:

This thesis is a mixed methods study of missed nursing care in an Australian acute care hospital. It explores the concept so as to further understand and to build a detailed theoretical understanding of the phenomenon. The study identified a range of factors influencing missed nursing care including the number of working hours per week, interruptions, and perceived lack of management support. A conceptual and holistic understanding of the phenomenon using Complexity Theory has been constructed. The thesis recommends incorporating nursing reflective practice into healthcare organisations and informing nursing management about change theories.

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Country: Saudi Arabia

Supervisor/s: Jennifer Mays, Kaeleen Dingle, Darren Wraith

Thesis title:

Identifying Factors Influencing Saudi Arabian Nurses' Turnover

Description:

This study provides the most comprehensive information available, to date, about factors that influence nurses desire to leave their current job and provides evidence for better health workforce planning in Saudi Arabia. This study strongly indicates that the main factor related to turnover is unfair, unequal salaries for different nationalities in Saudi Arabia. The findings of the study will help inform the design of nurse education policy and programs to potentially encourage expatriate nurses to remain.

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Country: Australia

Supervisor/s: Helen Edwards, Alexandra McCarthy (The University of Auckland), Elisabeth Isenring (Bond University)

Thesis title:

Alcohol Use and Associated Health Behaviours of Women who have Been Treated for Breast Cancer

Description:

This study utilised mixed methods to determine the predisposing, enabling, and reinforcing factors associated with alcohol consumption in women previously treated for breast cancer. Underpinned by the Precede-Proceed theoretical model, the study considered quantification of alcohol consumption; demographic, psychosocial, and health-related factors associated with alcohol use; and whether a tailored e-health lifestyle intervention changed alcohol-related health behaviours. Findings provided much needed insight into the predisposing, enabling, and reinforcing factors that shape alcohol consumption in the target population.

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Country: Nepal

Supervisor/s: David Atchison, Marwan Suheimat

Thesis title:

Application of Bessel Beams in the Human Eye

Description:

Bessel light beams have spread-resistant and self-reconstruction properties. These beams were compared with conventional light beams for ophthalmic applications. The Bessel beams increased the strength of reflections used to determine ocular lens parameters, improved fixation stability, and decreased light loss during imaging of the retina. These findings indicate that Bessel beams have application in clinical ophthalmic instruments.

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Country: Australia

Supervisor/s: Margaret Mcelrea, Julie Marchant, Helen Petsky (Griffith University), Mark Chatfield (The University of Queensland), Anne Chang

Thesis title:

Spirometry and Fractional Exhaled Nitric Oxide (FeNO) Reference Values for Indigenous Australians

Description:

This thesis is the first to demonstrate the most appropriate spirometry and FeNO reference values for use amongst Aboriginal and Torres Strait Islander children and young adults. Availability of this data will lead to improved accuracy of spirometry and FeNO interpretation which will aid in more timely diagnosis and management of respiratory conditions for this population. Results from this study also suggest that healthy Australian Indigenous lung function data may not be as low as previously reported in earlier studies.

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Country: Australia

Supervisor/s: Geoffrey Minett, Christopher Drovandi, Ian Stewart, Joseph Costello (University of Portsmouth)

Thesis title:

The Perception of Effort, Training Load, and Exercise Performance in the Heat

Description:

The thesis examined the influence of environmental forecast on the perception of effort during cycling in the heat; and the effects of daily cold-and hot-water recovery use during heat acclimation training on training load tolerance, and 20 km cycling performance in the heat. The thesis findings suggest that environmental temperature awareness may not affect the perception of effort during cycling in the heat; and the use of thermal recoveries during heat acclimation training, irrespective of water temperature, may impair training tolerance, but have little effect on post-intervention 20 km cycling performance in the heat compared to no water immersion recovery.

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Country: Australia

Supervisor/s: Helen Edwards, Kathleen Finlayson

Thesis title:

Risk Factors Associated with Infection in Patients with Chronic Leg Ulcers

Description:

This thesis provides the most comprehensive information available to date, about the presentation of infection, and factors associated with an increased likelihood of developing infection in chronic leg ulcers. These factors include comorbid conditions, medications, psychosocial factors, and local lower-limb factors. A conceptual framework, named Factors for Infection in Chronic Leg Ulcers or FICLU, was also constructed, which can be used to guide future research in wounds. The thesis recommends a holistic approach when assessing patients with chronic leg ulcers and early interventions to prevent infection.

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Country: Australia

Supervisor/s: Geoffrey Minett, Ian Stewart

Thesis title:

Critically Examining the Capacity of Wellness Measures as a Method of Monitoring Training Load and the Athlete Training Response

Description:

Athlete load monitoring is standard in high-performance sports environments, and is principally utilised to maximise performance and physiological adaptations, while limiting the deleterious costs of training and competition. Modified wellness questionnaires are a popularly utilised method of load monitoring, and are commonly used to evaluate the athlete training response from a holistic viewpoint. However, there remains a lack of evidence to support their use. This thesis investigated the dosage effects of wellness measures on controlled acute and chronic modulations in training intensity and overall volume; and the associations between wellness and psychological states, load monitoring markers and common performance measures.

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Country: Australia

Supervisor/s: Selena Bartlett, Andrew Battle, Arnould Belmer, Naohide Yamamoto, Otto Johnson

Thesis title:

Investigation of Cellular and Molecular Mechanisms Involved in Contextual Fear Memory Encoding

Description:

This thesis examined the role of three distinct brain regions following the formation or maintenance of contextual fear memories (e.g. fear memories to particular rooms or environments). The results of this thesis demonstrated how neuronal activity and neuronal plasticity alter following minor changes to the context via addition of simple stimuli, such as auditory tones. This indicates that the manner in which a fear memory is obtained alters where and how it is stored within the brain. This has implications for individuals with fear-based disorders, such as post-traumatic stress disorder.

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Country: Bhutan

Supervisor/s: Kerry Armstrong, Marguerite Sendall

Thesis title:

Help-Seeking Behaviours of Bhutanese Women Subjected to Intimate Partner Violence (IPV)

Description:

This research explored help-seeking behaviours associated with intimate partner violence (IPV) among women in Bhutan. Results showed that increased awareness and positive supportive responses facilitated changes in women's cognitive and behavioural response to IPV. This study led to development of a public health intervention addressing the important role of knowledge and support sources in promoting women's help-seeking behaviours.

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Country: Australia

Supervisor/s: Leonie Cox, Carol Windsor

Thesis title:

Mental Health and Intensive Care: A Critical Analysis

Description:

This research addressed the social othering and positioning of mental health consumers in Australian society. Using a critical lens, the study explored the accounts of nurses caring for mental health consumers in intensive care. Interpretations of the accounts of interactions between nurses and consumers in this context brought focus to the ways in which nurses exercise legitimated power and privilege. It is hoped that the research will prompt critical reflection on the inherent structural power inequities in healthcare facilities and that political awareness of oppression and disenfranchisement of mental health consumers can be fostered among nurses as a professional group.

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Thi Anh Thu Dang

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Thesis by Monograph

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Country: Vietnam

Supervisor/s: Darren Wraith, Hilary Bambrick, Dung Nguyen
(National Lung Hospital), Michael Dunne

Thesis title:

Impact of Ambient Temperature on Hospital Admissions for Acute Myocardial Infarction in Central Coast of Vietnam

Description:

Globally, there is evidence that extremes in temperature linked with climate change can exacerbate underlying health conditions and lead to hospitalization and premature death. This study examined the short-term effects of ambient temperature extremes on hospital admissions due to acute myocardial infarction (AMI) in three geographically dispersed provinces along the Central Coast region of Vietnam. The study found that risk of AMI admission is associated with high and low temperatures, in part due to variation in sub-regional climate. Public health preparedness and multi-level interventions in communities and workplaces including factories and farms should attempt to reduce people's exposure to extreme temperature.

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Country: Vietnam

Supervisor/s: Helen Edwards, Kathleen Finlayson

Thesis title:

Development and Validation of a Surgical Wound Assessment Tool for use in Vietnam

Description:

This study was conducted to examine the unexplored area of surgical wound assessment and nurses' expectations of a surgical wound assessment tool in Vietnamese hospitals. The identified research problem was then examined to develop a surgical wound assessment tool and to psychometrically test it and to identify whether this tool was suitable for use in Vietnam. Findings from this research project are the first step to confirm that the surgical wound assessment tool is reliable and valid for monitoring the status of surgical wound healing and detecting early factors that may increase the risk of surgical wound complications. The use of surgical wound assessment tool not only provides baseline data and beneficial information that can assist nurses to identify short and long-term goals of care but also acts as an educational tool to assist inexperienced wound care nurses to complete an accurate assessment.

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Country: Vietnam

Supervisor/s: Alvaro Correa-Velez, Michael Dunne, Dang Minh
(Vietnam National University)

Thesis title:

Depression, Anxiety and Post Traumatic Stress Disorder and their Correlates among Adults in Central Vietnam

Description:

This thesis examines the prevalence of depression, anxiety and PTSD symptoms and their correlates among a random sample of adults in Central Vietnam. It also investigates the impact of trauma on mental health. The study contributes to knowledge about the burden of mental health problems and their determinants in Vietnam. It adds to the international evidence about lifetime trauma burden and its effect on mental health in Asian countries. The findings indicate a pressing need for changes to the health system in Vietnam to enhance prevention programs and access to mental health care for common mental disorders, especially trauma-sensitive services.

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Country: Australia

Supervisor/s: Julie-Anne Carroll, Ian Shochet

Thesis title:

Predictors of the Two Continua of Mental Wellbeing and Mental Illness: a Multi-theory, Intergenerational Analysis

Description:

By investigating risk and protective factors from multiple psychological theories in combination, this innovative research found a sense of belonging and accomplishment to be the strongest predictors of higher mental wellbeing and lower depression and anxiety symptoms, with substantial differences between generations. The family study identified that parent's own sense of belonging predicted lower depression and anxiety symptoms and higher mental wellbeing in their children. Belonging and accomplishment were found to mediate the relationship between other predictors and mental wellbeing, depression and anxiety symptoms. These findings have substantial implications for clinical practice, health promotion and mental illness prevention practice.

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Country: Australia

Supervisor/s: Gerard Fitzgerald, Adem Sav, Anthony Parker

Thesis title:

Understanding the Health of Operational Personnel in an Ambulance Service: A Mixed Methods Study

Description:

This mixed methods study was designed to review the health of ambulance operational personnel and to better understand the complex relationship between the organisation of the work and the working and organisational environment in which the work is done. The study found that the physical and mental health of ambulance operational personnel is worse than the Australian population due to the interplay of long working hours, shift work and a perceived lack of support. Ambulance services need to take a lead role in designing health support approaches that may better protect the health and wellbeing of ambulance operational personnel.

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Country: Australia

Supervisor/s: Julie King, Nicole Edwards

Thesis title:

Birds Dying in the Sky: Older Transgender Women's Constructions, Understanding and Experiences of Ageing in Thailand

Description:

The thesis examines how older transgender women in Bangkok and Pattaya City, Thailand construct, understand and experience ageing. Qualitative methods were utilised, including semi-structured and in-depth interviews, a focus group and sociograms. The first stage of the research consisted of a focus group and 14 in-depth semi-structured interviews with Thai LGBTIQ service providers. The second stage of the research included two in-depth interviews with 20 older transgender women. Findings support the need for inclusion of the voices of older transgender women by service providers, community organisations, advocacy groups and policy makers. This is especially pertinent considering Thailand's ageing population.

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Country: Australia

Supervisor/s: Stewart Trost, Maryanne Theobald

Thesis title:

Culture and Community of Children's Mealtimes: A Constructed Grounded Theory of Mealtimes in Early Childhood Education and Care Settings

Description:

The majority of Australian preschool aged children attend Early Childhood Education and Care (ECEC) services, and mealtimes are a feature of every child's day at ECEC. However, little is known about how guidelines are interpreted in practice, how mealtimes are enacted or how children and educators interact during mealtimes. This PhD research examined mealtime practices in ECEC services, children's behaviours during mealtimes and the perspectives of educators of mealtimes in ECEC services. The results were used to develop a grounded theory to explain the unique culture and community created by children and their educators during mealtimes.

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Country: Australia

Supervisor/s: Marguerite Sendall, Kristiann Heesch, Mark Brough

Thesis title:

What is the Meaning of Sport for Young People from Refugee Backgrounds? A Case Study of a State High School in Brisbane, Queensland

Description:

This thesis was an ethnographic case study exploring the meaning of sport for young people from refugee backgrounds within a state high school in Brisbane, Australia. The findings showed the field of sport reduced bi-cultural stress and simultaneously, caused cultural tensions for some young people. Sport was a platform on which some young people from refugee backgrounds could acquire capital that was not as freely attained in other areas of the educational setting. The study makes a significant contribution to understanding the sporting experiences of young people from refugee backgrounds in addressing resettlement challenges within a school setting.

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Country: Australia

Supervisor/s: Elizabeth Kate Martin, Lisa Hall (The University of Queensland), Donald Wilson (The University of Sydney), Yvette Miller

Thesis title:

From Policy to Patient Care: Exploring the Implementation of Government Directed Policy in the Hospital Setting

Description:

Effective policy implementation remains a significant challenge for health care administrators and policy makers. Using interpretive description methods, this thesis identified important factors and associated principles that influence the implementation of government directed policy in the hospital setting. These principles were that government directed policy needs to be understood, accepted, validated, integrated, and supported; and that implementation of government directed policy needs to be planned. Consideration of these principles is of value in guiding both policy development and implementation planning to maximize the impact of these policies on clinical practice and patient outcomes.

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Country: Australia

Supervisor/s: Patricia Yates, Kimberly Alexander, Lyndall Spencer (Princess Alexandra Hospital)

Thesis title:

Person, Environment, and Health and Illness Factors Influencing Time to First Analgesia and Patient Experience of Pain Management in the Adult Emergency Department

Description:

This thesis explored patient, clinician, environmental and illness factors that influence how doctors and nurses treat patients who present to the emergency department in pain. The findings confirm that patients are more likely to receive analgesic medication in a shorter time and have a more positive experience with pain care when the emergency department is less busy, they have less pre-existing illness, and have a higher socioeconomic status. The identification of these factors has important implications for making changes to the way emergency departments and emergency clinicians treat pain in a timely and patient-centered manner.

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Country: Australia

Supervisor/s: Selena Bartlett, Andrew Battle, Arnauld Belmer, Fatemeh Chehrehasa, Otto Johnson

Thesis title:

Investigating the Neuroplasticity of Emotional Memories

Description:

This study in behavioural neuroscience assists in identifying the cellular and molecular mechanisms underlying cognitive brain functions in relation to processing emotions. The thesis identifies how neuroplastic change impacts neuropsychiatric disease states and examines a behavioural model of fear memory recall to detail the neuronal circuits, neurotransmitters and some of the cellular mechanisms involved. Investigation of neural substrates and neuroplastic change may facilitate the development of increasingly effective pharmacotherapeutics and contribute to the creation of abiding treatments for anxiety related disorders.

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Country: Australia

Supervisor/s: Mary-Louise Fleming, Anthony Devenish

Thesis title:

A Socio-Ecological Model for a Community-Based Chronic Heart Disease Management Programme in Hong Kong

Description:

A mixed methods design to evaluate the effectiveness of a community-based chronic ischemic heart disease (CIHD) programme. The programme was designed around the socio-ecological model with the intervention focusing on older adults with chronic heart disease. The intervention proposed to change health behaviours and subsequent health outcomes through influencing social support and community connection. In doing so, the study examined the effectiveness of medication adherence, chest pain, shortness of breath, cardiac physiological risk parameters, self-perceived adequacy of social support, quality of life, community connection and unplanned health service use.

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Country: Australia

Supervisor/s: Andrew Kassianos, Kenneth Beagley, Ray Wilkinson, Helen Healy (Metro North Hospital and Health Service)

Thesis title:

The Functional Characterisation of Human Innate Lymphocytes in Renal Fibrosis and Chronic Kidney Disease

Description:

This thesis by publication is a step forward in understanding the function of discrete immune cell populations in kidneys with chronic inflammation and fibrosis. We have successfully identified various human immune cells of the innate immune system as critical drivers of chronic kidney disease. The findings of this thesis sheds light on novel functions of innate immune cells and opens opportunities for the development of novel kidney therapies.

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Country: Australia

Supervisor/s: Monika Janda, Sandra Hayes

Thesis title:

Health-Related Quality of Life in Women with Gynaecological Cancer

Description:

A diagnosis of gynaecological cancer and its treatments have considerable impact on affected women's quality of life. The purpose of this study was to establish patient and clinical characteristics associated with better quality of life after the treatment of cancer, guided by the revised Wilson and Clearly model. The findings in this study will have substantial implications for clinical practice and will inform psychosocial interventions aimed at improving the quality of life of patients in the future.

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Country: China

Supervisor/s: Jonathan Peake, Anthony Parker

Thesis title:

Proteomics Exploration in Skeletal Muscle Following Physical Trauma

Description:

This project examines the proteomic profile of muscle at various time points of regeneration following muscle injury, which provides new scientific knowledge about how skeletal muscle responds to and recovers from traumatic injury. The findings of this project will have impact in terms of enabling the identification of potential novel targets for therapeutic strategies for improving the recovery from serious muscle contusions.

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Country: Australia

Supervisor/s: Cynthia Cliff, Gerard Fitzgerald, Jean Collie
(University Centre for Rural Health)

Thesis title:

What 'Sparks' Innovation in Rural Health Settings: A Case Study

Description:

Rural health settings face challenges in delivering and sustaining health services for their communities. Performance in rural health settings can be constrained by resources, staffing and the tyranny of distance from major centres. This research set out to determine how innovation might contribute to solutions and used a case study methodology to understand the organisational and contextual factors that support innovation in rural health settings. Further, the research examined how publicly available health data can be used to describe performance in rural health services through visualisation and the assembly of measures reflecting access, equity, quality, safety, sustainability and employee engagement.

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Country: Australia

Supervisor/s: Kenneth Beagley, Charles Armitage, Jonathan Harris, Peter Timms, Lynn Corcoran (Walter and Eliza Hall Institute of Medical Research)

Thesis title:

Characterisation of Lymphocytes and Cytokines in Healthy and Diseased Koalas (*Phascolarctos cinereus*) Using Cell-Type-Specific Monoclonal Antibodies

Description:

This thesis is a step forward in developing scientific tools and methods to study the koala (*Phascolarctos cinereus*) immune system in health and disease. Koala numbers are declining for multiple reasons, the most significant of which is infectious disease. The antibodies developed from this thesis have been successfully used to identify cell populations that play key roles in the host immune system. Furthermore, the antibody 'toolbox' developed in this thesis can now be used to monitor population health, develop prognostic indicators, evaluate vaccine studies and increase our understanding of comparative immunology.

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Country: Brazil

Supervisor/s: Christopher Collet, Peter Prentis, Neil Richardson, Tomer Ventura (University of the Sunshine Coast)

Thesis title:

Effect of Dietary Lipid on the Molecular and Metabolic Profile of a Freshwater Crayfish

Description:

As global fisheries decline, increasing attention is being directed towards the aquaculture industry to reduce the consumption of fish oil, leading to the substitution of vegetable oils in formulated diets. This project examines the effect of diet on the ability of red claw crayfish, a commercial aquaculture species in Australia, to synthesise the fatty acids essential for normal growth and development. Based on the metabolic activity and gene expression analysis, outcomes suggest that fish oil can be substituted with sunflower oil in the formulation of crayfish diets for this important aquaculture species.

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Country: Australia

Supervisor/s: Laura Gregory, Lisa Chopin, Penelope Jeffery

Thesis title:

The Rag1^{-/-} Mouse: Establishing Links between Obesity and Prostate Cancer

Description:

Obesity and metabolic syndrome are associated with increased risk of advanced prostate cancer, more aggressive high grade disease and increased risk of death from prostate cancer. Androgen targeted therapies can rapidly induce symptoms similar to metabolic syndrome in patients, affecting health and quality of life. The development of therapeutics which could target metabolic dysregulation in addition to cancer growth is urgently needed. This thesis established a new mouse model of metabolic syndrome and assessed components of the ghrelin axis as treatments of prostate cancer. Importantly, an association between the obesity hormone neurotensin, metabolic dysregulation, and androgen-independent prostate cancer was revealed.

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Country: Australia

Supervisor/s: Nicholas Graves, Adrian Barnett, William Parsonage

Thesis title:

Identifying High-Value Care for Coronary Artery Disease in Australia

Description:

This project compared the cost-effectiveness of drug therapy, stents and surgery for Australian patients with heart disease, modelling their long-term treatment trajectories, costs and health outcomes. It showed that drug therapy is high-value and that the health system, and Australians, would benefit from targeted rather than routine use of stents. This research provides policy recommendations to reduce the use of low-value care and increase the use of high-value care for Australian patients with heart disease.

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Country: Australia

Supervisor/s: Scott Wearing, Vivienne Tippet, Lloyd Reed

Thesis title:

Pathomechanics of Calcaneal Apophysitis

Description:

Sever's disease is a common cause of activity-related heel pain in children. However, little is known about its development and scientific support regarding potential risk factors is often contradictory. This thesis aimed to understand the role of biomechanical risk factors anecdotally linked to the condition. The findings suggest that foot mobility, Achilles tendon mechanics and ground reaction forces during walking and running does not differ in children with and without Sever's disease. Though, children with Sever's disease possess greater ankle joint movement during running. This thesis questions the rationale behind many common biomechanical interventions used in children with Sever's disease.

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Country: Australia

Supervisor/s: Gavin Turrell, Kristiann Heesch

Thesis title:

Body Mass Index Trends among Immigrants to Australia - Associations with Ethnicity, Length of Residence, Age at Arrival, Neighbourhood Disadvantage and Geographic Remoteness

Description:

This thesis presents new data on the risk of obesity among immigrants to Australia. The findings show that obesity prevention efforts need to include vulnerable ethnic groups, immigrants in the early-mid settlement period, and immigrant families arriving with children and adolescents. In addition, healthier environments are needed to support healthy weight; particularly in poorer neighbourhoods and areas outside Australia's cities.

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Country: Australia

Supervisor/s: Gavin Turrell, Adrian Barnett

Thesis title:

Associations between Socio-Economic Position, Neighbourhood Disadvantage, and Mental Health and Well-Being: Are the Relationships Moderated by Exposure to a Natural Disaster?

Description:

An average of at least one natural disaster is experienced every day worldwide. The frequency, timing, spatial extent and intensity of natural disasters is increasing. In response, this thesis aims to understand socio-economic inequalities in mental health and well-being and whether differential exposure to a major flood event influences this relationship. Findings indicate who you are and where you live is important in the context of a natural disaster. The importance of this research is to ensure health protection of populations with the greatest needs. This approach will help ensure that government expenditure on public health initiatives are appropriately targeted.

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Country: China

Supervisor/s: Peter Molenaar, Annalese Semmler

Thesis title:

Human Heart B-Adrenoceptors, Arrhythmias and Control by Phosphodiesterases

Description:

Heart failure is a global epidemic. 50% of patients die within 5 years of diagnosis and 30-50% will be of sudden death due to an arrhythmia. New medicines for heart failure are urgently required. This thesis used explanted hearts from patients with heart failure undergoing heart transplantation to investigate the cause of dangerous ventricular arrhythmias. It was found that both noradrenaline and adrenaline through activation of Beta-1- and Beta-2-adrenoceptors caused arrhythmias which could be controlled by enzymes called phosphodiesterases. These enzymes provide a novel target for future medicines to reduce the risk of arrhythmias in patients with heart failure.

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Country: Australia

Supervisor/s: Steven Mcphail, Peter Lazzarini

Thesis title:

The Delivery of Image Interpretation Education for Radiographers

Description:

Failure to correctly diagnose fractures on x-rays is an important problem in hospital emergency departments. This thesis included the first randomised controlled trial comparing the effectiveness of intensive and non-intensive formats of delivery of x-ray interpretation education for radiographers. The education was designed to improve the ability of radiographers to detect and describe abnormalities visualised on trauma radiographs. Findings suggest that the intensive format of delivery was more effective, although participants in both trial arms demonstrated improvement. These findings have relevance for healthcare and education providers who are seeking to improve radiographers' image interpretation in emergency settings.

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Country: Vietnam

Supervisor/s: Kathleen Finlayson, Helen Edwards, Do Thi Ngoc Diep (Ho Chi Minh City Nutrition Center)

Thesis title:

Foot Self-Care among Patients with Diabetes in Vietnam: The Effectiveness of an Education Program to Fill the Self-Care Gap

Description:

This research investigated the effectiveness of a Self-efficacy theory-based foot care education intervention program (3STEPFUN) for Vietnamese patients with diabetes at low risk of developing foot ulceration. A quasi-experimental study was conducted to determine if the intervention improved participants' foot self-care behaviour and foot risk factors for ulceration. The results showed that the 3STEPFUN has potential to prevent minor foot problems which commonly precede diabetic foot ulcers. The research provides important contributions to the current evidence base on diabetic foot ulcer primary prevention in a field where the application of theory-based nurse-administered programs is still limited.

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Country: Australia

Supervisor/s: Geoffrey Minett, Ian Stewart, Kenneth Beagley

Thesis title:

Gastrointestinal Damage, Inflammation and Central Fatigue during Exercise in the Heat

Description:

This thesis investigated a possible relationship between reduced exercise performance in hot environmental conditions and gastrointestinal damage, inflammation and fatigue. This program of research also examined two preventative strategies, glutamine supplementation and heat acclimation training, which were found to be beneficial in protecting the gut and improving athletic performance in the heat.

Introduction

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Country: Australia

Supervisor/s: Leanne Hides, Melanie White, Catherine Quinn (The University of Queensland), Louise Mewton (University of New South Wales)

Thesis title:

Examination of Personality Risk Profiles and Alcohol Use in Young People

Description:

Young people (10 - 25 years) continue to be overrepresented in alcohol use figures globally, despite extensive evidence for associated harms. This PhD research program found that the interaction between personality traits and social factors differentially influenced susceptibility to the onset and trajectories of drinking in young people. This thesis also started to disentangle the complex relationship between neurotic traits and alcohol use and pointed toward the potential utility of combined social norms and personality-targeted interventions for alcohol use in young people.

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Country: Saudi Arabia

Supervisor/s: Kristiann Heesch, Tracy Washington, Stewart Trost, Faisal Awad Barwais (The University of Queensland)

Thesis title:

Development and Implementation of a Health Promotion Intervention to Reduce Sedentary Behaviour among Male Office Workers in Saudi Arabia: The SLIM (Sit Less, Impress and Motivate) Study.

Description:

Office workers spend most of their workdays sitting, which contributes to poor health outcomes. This thesis aimed to design, implement and evaluate a health promotion intervention to help office workers in Saudi Arabia reduce their sedentary behaviour and increase their physical activity. The intervention, named The SLIM (Sit Less, Impress and Motivate), resulted in a significant improvement in sedentary and physical activity behaviours. This research will support one of the main elements of the Saudi Government 2030 vision, by helping Saudis to adopt and maintain more physically active and healthy lifestyle.

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Country: England

Supervisor/s: Patrick Johnston, Philippe Lacherez, Michael Breakspear (QIMR Berghofer Medical Research Institute)

Thesis title:

Expectancy Violation in Visual Perception: Characterising the Brain Signals of Prediction Error

Description:

The brain generates internal models of the world to interpret incoming information and predict future sensation. These models need to be constantly updated so as to maintain accurate predictions. Fundamental to this is the signalling of violated expectations when new evidence contradicts predictions. Recent evidence has identified a candidate brain signal of violated expectation in visual perception. Here the researcher investigated the operating characteristics of this signal and the extent to which it is consistent with indexing visual surprise. Over four experiments the researcher robustly demonstrates response characteristics supporting current theoretical frameworks of predictive coding in the brain.

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Country: Australia

Supervisor/s: Narelle Haworth, Gregoire Larue, Barry Watson,
Lyndel Bates (Griffith University)

Thesis title:

Investigating Perceptions of Emerging Technology in Driver Education

Description:

The introduction of advanced technologies into novice driver education may improve its efficacy as a young driver crash countermeasure. Underpinned by the Goals for Driver Education and the Technology Acceptance Model, and using a mixed-methods approach, this thesis examined how young drivers, professional driver educators, and parents perceive five advanced technologies used for professional driver education, with a particular focus on driving simulators. Findings suggest that the perceptions of these groups are largely aligned. However, there is complexity in the way they view some technologies, particularly medium fidelity driving simulators and PC-based hazard perception training.

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Country: South Africa

Supervisor/s: Lynette Griffiths, Larisa Haupt, Rodney Lea

Thesis title:

Investigation of Xq Chromosomal Variation in Relation to Migraine

Description:

This research was conducted to expand the understanding of the role of the X chromosome in common and familial typical migraine. The primary objective of this study was to identify new X chromosomal genetic targets that cause migraine. Overall this research has identified nine genetic targets of interest. Various obstacles were encountered throughout this study, but the knowledge gained for overcoming these obstacles are invaluable for implementation and improvement of future genetic studies investigating the X chromosome.

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Supervisor/s: Mark Adams, Kenneth O'Byrne, Anthony Davies (Trinity College), Erik Thompson

Thesis title:

Targeting the Nuclear Factor Kappa-Light-Chain-Enhancer of Activated B Cells (NF-kB) Pathway to Overcome Cisplatin-Resistance in Non-Small Cell Lung Cancer

Description:

This project contributed to a greater understanding of chemotherapy resistance in non-small cell lung cancer (NSCLC), a prevalent issue to chemotherapy. The potential of the inflammatory transcription factor NF-kB as a therapeutic target was investigated to combat NSCLC chemo-resistance using in vitro and in vivo approaches. The activity of NF-kB was elucidated in models of chemo-resistant NSCLC and where specific inhibitors of NF-kB were used to block activity. In addition, a novel 3D model of chemo-resistance in NSCLC was generated which will serve as an important model in future studies.

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Country: Australia

Supervisor/s: Sandra Hayes, Jonathan Peake, Rosalind Spence (The University of Queensland)

Thesis title:

Exercise Safety, Feasibility and the Role of Fitbits Among Women with Stage II+ Breast Cancer

Description:

This research provides evidence to support exercise, as prescribed by exercise physiologists and funded under a chronic disease management plan, as being safe and feasible for women with stage II+ breast cancer care who are also experiencing treatment-related side effects and/or co-morbidities. Exercise under these conditions is also effective at improving fitness, function and health for these women. Further, findings from this research suggests that accredited exercise physiologists could integrate the use of activity trackers into their practice, as a means of helping women maintain physical activity in the longer term.

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Supervisor/s: Ioni Lewis, Cameron Newton, Darren Wishart
(Australian Road Research Board)

Thesis title:

Beyond Compliance: An Exploratory Investigation of Proactive Safety Behaviours within the Context of Work Driving

Description:

This research program is an exploratory investigation on the concept of proactive safety behaviours within the context of work driving. A measure for proactive safety was developed and could be used as a complementary behaviour-based safety performance measure within the work driving context. The research program also provided a model on how organisations can engage their work drivers and management to be more proactive in managing risks while driving for work.

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Supervisor/s: Helen Edwards, Kathleen Finlayson

Thesis title:

Investigation of Predictors of Recurrent Venous Leg Ulcers and Validation of a Recurrence Risk Assessment Tool

Description:

Recurring venous leg ulcers are a serious health problem and it is difficult to predict when they are likely to recur. This research discovered new predictors of recurrence and found a checklist developed to assist in identifying the person's level of risk of recurrence, to be accurate more than 70% of the time. Prevention of recurrence is important and knowledge about the likelihood of these ulcers recurring can assist in preventing this from happening. This research has contributed knowledge to a topic which has had little previous research and has provided evidence to be further examined in large studies.

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Supervisor/s: Louise Bishop, Peter Prentis, Jonathan Harris

Thesis title:

Molecular Insights into the Evolution of Novel Genes

Description:

This project generated genomic resources (such as genomes and transcriptomes) to understand the evolution of genes unique to a group of organisms, or novel genes. It was found that these novel genes can be found in all animals and are abundant in sea anemones. In sea anemones, novel genes play an important role in the evolution of venom and its delivery. This includes the toxic compounds found in their venom, as well as the cells that deliver the venom. Overall, this information provides insights into understanding the mechanisms that underpin the formation of novel genes, which is a key research area in molecular evolution.

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Supervisor/s: Nigar Khawaja, Jane Shakespeare-Finch,
Michael Dunne, Xiang-Yu Hou

Thesis title:

Intercultural competence and short-term overseas study programs: an investigation with healthcare students

Description:

The research used a mixed-methods and longitudinal approach to investigate the efficacy of short-term overseas study programs in promoting intercultural competence among Australian healthcare students. Results showed that overseas study experiences are one of the most significant factors affecting intercultural competence. Short-term overseas study programs can contribute to the development of cultural knowledge, but had limited effects on cultural awareness, attitude, or skills.

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Supervisor/s: Scott Wearing, Sheree Hurn

Thesis title:

An Investigation into the Immediate Effects of Ankle Joint Mobilisation in People with Ankle Equinus

Description:

Ankle equinus is a limitation in ankle dorsiflexion, which has been clinically associated with impaired balance and lower limb pathology in adults. This thesis investigated the immediate effects of ankle mobilisation on balance performance, plantar pressures, muscle activity and ankle movement in people with ankle equinus. Through a series of carefully controlled studies, this thesis identified considerable variation in the force applied during ankle mobilisation. Although the findings suggest that mobilisation may result in improvements in patient-reported outcomes, it also questions the rationale behind the use of ankle mobilisation as an intervention in ankle equinus.

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Supervisor/s: Kerry Armstrong, Jason Edwards, Patricia Obst

Thesis title:

Learning from the Positive for Preventable Injury in the Workplace: Can Non-Deterrence Based Approaches Encourage Compliance?

Description:

This thesis provided a qualitative investigation into the use of advice and information by Work Health and Safety (WHS) inspectors in Queensland. The effective provision of advice and information is fundamental to the success of the overall regulatory approach in Queensland that aims to not only monitor and enforce but also assist and encourage compliance. The research examined the current state-of-play regarding the use of advice and information by WHS inspectors, and how it is experienced by members of the Queensland construction industry. Using positive psychology as a novel paradigm, the identification of three core principles underpinning effective use of advice and information led to the development of 11 recommendations for Work Health and Safety Queensland.

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Country: Iran

Supervisor/s: Areana Eivers, Stuart Ekberg, Ameneh Shahaeian (Australian Catholic University), Fariba Yadegari (University of Social Welfare and Rehabilitation Sciences)

Thesis title:

The Influence of Maternal Interactive Beliefs and Style on the Language Development of Preterm and Full-Term Children

Description:

This thesis investigated the influence of maternal interactive beliefs and style on language development in preterm and full-term children. Across three studies, the psychometric properties of a maternal interactive beliefs measure were evaluated; the relationship between maternal interactive beliefs, maternal interactive style and children's language development was explored; and differences between mothers of preterm and full-term children regarding interactive beliefs and style were investigated. Results demonstrated the critical contribution of both maternal interactive beliefs and interactive styles to children's language development. This research may contribute to prevention of language delay via enhancement of mother-child interactions that contribute to language development.

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Country: Australia

Supervisor/s: Colin Anderson, Mark Thomas

Thesis title:

Revisiting the Priority of Taxation in Corporate Insolvency: An Application of Dworkin's Rights Thesis and Equality Theories

Description:

In the event of corporate insolvency, inconsistencies between corporate and taxation laws can result in the Commissioner of Taxation obtaining a priority over other unsecured creditors. This thesis examines the role of the Commissioner of Taxation as a creditor in corporate insolvency by applying a framework based on Ronald Dworkin's rights thesis and equality theories to the resolution of inconsistencies in Australian corporate and taxation laws. The research proposes a cohesive policy approach to future taxation reform that ensures a consistent approach to the priority of the Commissioner in insolvency.

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Supervisor/s: Benjamin Mathews, Vivienne Tippet

Thesis title:

Paramedics and Children Exposed to Domestic Violence

Description:

This thesis examined the role and experiences of paramedics in Queensland when they encounter children exposed to domestic violence. These children, who may also be at risk of other types of abuse and neglect, often require support and sometimes protection. Paramedics are frequently the first healthcare professionals who respond to victims of domestic violence, including the children in the family. This multi-disciplinary study examined law, policy and social science, and conducted a survey exploring the role and experiences of paramedics, and identified ways to improve policy and practice, and respond better to children who are exposed to domestic violence.

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Country: Australia

Supervisor/s: William Duncan, Sharon Christensen

Thesis title:

Possession of Land: Conceptual Creep as an Aspect of Modern Perspectives of the Relative Enjoyment of Land

Description:

This research contends that possession of land as a legal concept is changing because of its applications within adjudicative settings. However, the full scope of that change is difficult to discern as a logical chain of reasoning has not emerged which adequately explains possession's applications in certain contexts. The study considers this is because possession's traditional characteristics rely on a conceptual linkage to land itself and, in modern real property law, to ownership. When detached from an ownership frame of reference, possession, if it continues to be extended, may need to conceptually develop as also representing different characteristics.

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Supervisor/s: Benjamin White, Fiona McDonald

Thesis title:

Measuring Compliance of Non-Forensic Mental Health Laws With Article 12 of The Convention on The Rights of Persons With Disabilities

Description:

This thesis responds to calls for greater clarity regarding the human rights standards that should be met by mental health legislation, and a mechanism by which to measure such standards. The research provides a new and contemporary human rights analysis tool, the Analysis Instrument for Mental Health, and uses the tool to demonstrate compliance of Victorian mental health legislation. The outcomes that can be achieved through use of the tool include identification of compliance with human rights, and law reform required to achieve full recognition of the right to equal recognition before the law under mental health legislation.

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Supervisor/s: Benjamin White, Lindy Willmott

Thesis title:

The Authorisation of Restrictive Practices used on People with Intellectual and Cognitive Impairments: A Rights-Based Approach

Description:

This research reveals that people with intellectual and cognitive impairments are continuing to be subject to restrictive practices that significantly curtail their rights to liberty and security without either clear legal authorisation or appropriate safeguards that would be consistent with the rule of law. To address this a normative framework is developed - called a rights-based approach.

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Country: Australia

Supervisor/s: Molly Dragiewicz, Elija Cassidy, Nicolas Suzor

Thesis title:

Everyday Violence: Women's Experiences of Intimate Intrusions on Tinder

Description:

This thesis investigates women's experiences of intimate intrusions on the dating app Tinder. Findings from this research help to: identify the commonness of women's experiences of intimate intrusions on Tinder; demonstrate how intimate intrusions on the platform are routinely normalised as part of digital dating cultures; and highlight the cumulative impact everyday intimate intrusions can have for women who experience such behaviour.

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Supervisor/s: Nicolas Suzor, Kylie Pappalardo

Thesis title:

Twitter Trials and Facebook Juries: An Analysis of the Australian Sub Judice Rule and the Regulation of Prejudicial Publicity on Social Media During High-Profile Criminal Trials

Description:

This thesis investigates how the sub judice rule operates in practice in the age of social media. While the law was well established in terms of how it regulated the behaviour of publishers before the internet, there are concerns it is less effective in the digital age. By analysing data from Twitter and Facebook during two high-profile murder trials, I investigate the prevalence of prejudicial publicity on social media, and examine how professional journalists and non-journalists talk about criminal trials. This analysis identifies the types of information empanelled jurors might see about trials and what this means for the law.

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Country: Australia

Supervisor/s: Rosalind Mason, Sharon Christensen

Thesis title:

The Conceptual Legitimacy of Support for Risk-Taking, Entrepreneurship and Innovation in Australian Corporate Law: A Theoretical Examination

Description:

Innovation, entrepreneurship and risk-taking play a pivotal role in economic growth and should be encouraged in a modern economy. This project considers how to best position the legal environment created by corporate law to encourage these phenomena, particularly among start-up ventures. The research explores this question by examining select elements of Australian corporate law through the lens of innovation economics, and breaks new ground in doing so. Using principles of neo-Schumpeterian economics, the research examines the law from industry, financial and public perspectives, and formulates recommendations for improvement and simplification.

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Country: Australia

Supervisor/s: Jodi Death, Mark Lauchs

Thesis title:

An Exploration of the Existence of Clergy Child Sexual Abuse Dark Networks within the Victorian Catholic Church

Description:

Catholic clergy child sexual abuse networks have been acknowledged informally through media reports. Literature acknowledges that child sexual abuse by Catholic clergy involves a network of supervisors who transferred clergy perpetrators of child sexual abuse from parish to parish (Smith 2013; Carney 2012; Gavrielides 2013). This thesis extends on this by evidencing a dark network of clergy perpetrators operating in Victoria between 1939 and 2001. Social network analysis is used to create a network map and evidence that known Catholic clergy perpetrators in the state of Victoria, used network ties to share resources to facilitate child sexual abuse and effectively operate as an illicit dark network.

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Country: Australia

Supervisor/s: Rosalind Mason, Richard Johnstone

Thesis title:

Practitioners' Perspectives: Experiences Adhering to Legal and Ethical Regulatory Standards

Description:

There is an absence of literature regarding how Australian insolvency practitioners go about their work, how they seek to reconcile and comply with their legal and ethical regulatory obligations. This has propagated unrealistic expectations with respect to practitioner performance and insolvency outcomes, engendered under-confidence in practitioners and threatened the effectiveness of the Australian insolvency regime. This study contributes knowledge on the drivers, thought-processes and decision-making of corporate practitioners, through a phenomenological study undertaken between July to October 2017. It provides an understanding of the perceptions of practitioners and difficulties faced by practitioners in executing their legal and ethical regulatory obligations.

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Country: Austria

Supervisor/s: Maria Elena Juan Pardo, Dietmar Huttmacher,
Laura Bray

Thesis title:

A Patient-Derived Bioengineered Model to Investigate Stroma-Epithelium Interactions in Prostatic Diseases

Description:

The thesis describes the development of a patient-derived, three-dimensional, bioengineered prostatic model to examine interactions between the epithelium and surrounding connective tissue and therefore gain a better understanding of the role of the microenvironment already during the early phase of disease development. Formation of a basement membrane-like structure, representing a key component in cancer progression, was proven and functionality validated by analyzing expressed proteins, associated with basement membrane degradation, after adding highly invasive prostate cancer cells to the model.

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Supervisor/s: Frederic Maire, Anagiyaddage Jayalath

Thesis title:

Insect-Level Intelligence is Sufficient to Move Furniture

Description:

This thesis examines the claim that reactive behaviours are sufficient to enable a pair of robots to collaborate and move a piece of furniture. It shows that a small set of mostly reactive behaviours can be defined to enable a pair of robots to complete complex collaborative tasks in a domestic environment such as moving a table to the wall. The reactive behaviours can be re-used to execute other tasks such as robots moving fruits and vegetables from a delivery truck to a warehouse. These reactive behaviours can also be adapted to allow robots to collaborate with humans in a natural way.

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Country: Australia

Supervisor/s: Luke Nothdurft, Ana Pavasovic, Peter Prentis

Thesis title:

Clast Assimilation and Substrate Attachment in *Acropora millipora*

Description:

Tropical storms cause large sediments to settle on top of and between the branches of coral colonies where they cannot be removed, leading to disease and higher rates of mortality. It is imperative that we understand how corals respond to fragmentation and large clast sedimentation as tropical storms are projected to intensify as earth's climate changes. This study identifies the complex physiological and immune response leading to the assimilation of the sediment into the coral colony and how coral fragments attach to a substrate in the reef-building coral *Acropora millipora*. Thereby providing a baseline for coral transplantation restoration practices.

Introduction

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Country: Australia

Supervisor/s: Susan Fuller, Ramona Maggini, Gillian Lawson
(Lincoln University)

Thesis title:

Using Ecoacoustic Monitoring of Biodiversity to Inform Urban Development in Peri-Urban Settings

Description:

Acoustic recording has recently been identified as an effective tool for monitoring biodiversity and ecosystem health. This study used a novel approach to visually and statistically model the sounds produced within an ecosystem across space and time to identify hot spots and hot moments of biodiversity activity. It was demonstrated that biodiversity can be successfully measured through an integrated approach of ecoacoustic monitoring and highlights the potential to inform future ecological urban design decisions and conservation planning strategies.

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Country: Australia

Supervisor/s: Timothy Dargaville, Damien Harkin, Traian Chirila (Queensland Eye Institute)

Thesis title:

Combining Melt Electrowritten Scaffolds and Silk Fibroin Films for Ocular Surface Regeneration

Description:

This thesis focusses on the interfaces between materials for the advancement of devices in biofabrication. The first project involves embedding scaffolds printed by melt electrowriting in silk fibroin for corneal tissue engineering. The scaffolds provide mechanical reinforcement and topographical patterning for the silk film. Cell studies were conducted on various topographies. The second project investigates the suitability of two polymers, processed by melt electrowriting, as sacrificial templates to create microfluidic channels in glass. Material compatibility at the glass-polymer interface was investigated. Such devices could be useful as advanced microfluidics.

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Country: China

Supervisor/s: Emilie Sauret, Willem Dekkers, Thomas Rainey

Thesis title:

A Modelling Study of Filtration Mechanisms for Micron-Particles Filtration in Fibrous Diesel Particulate Filters

Description:

Diesel exhaust has a particle size less than 10 μm ; for the visualisation of micron-particles' motion, the numerical method is applied. A coupled lattice Boltzmann method and discrete element method is implemented to investigate the mechanism that governs particle-gas flows and particle fouling in idealised 2D fibrous DPFs. The open-source library, Mechsys, is validated and then implemented for idealised filter configurations. The initial parameters of simulations are filter configurations, initial velocities of fluid, the density of the particles, porosity of the filters, with the particle diameter being 10 μm . These results consider the numbers of particle deposition, filtration time, pressure drop, and location of particle deposition. The results have shown that the different filter configurations have different filtration performances for different velocities or densities. The filters of 75% porosity have better than 90% porosity filtration performance for 10 μm particles.

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Supervisor/s: Clinton Fookes, Jasmine Banks

Thesis title:

Characterisation of Cardiac Signals Using Level Crossing Representations

Description:

This study examines a type of event-based sampling known as Level Crossing - its behaviour when applied to noisy signals, and an application to cardiac arrhythmia detection. Using a probabilistic approach, it presents a mathematical description of events sampled from noisy signals, and uses the model to estimate characteristics of the underlying clean signal. It evaluates the use of segments of polynomials, calculated from the Level Crossing samples of real cardiac signals, as features for machine learning algorithms to identify various types of arrhythmia.

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Country: United States of America

Supervisor/s: Jennifer Firn, Anthony Clarke, Amanda Rasmussen (University of Nottingham), Susanne Schmidt (The University of Queensland)

Thesis title:

The Roots of Invasion: Belowground Traits of Invasive and Native Australian Grasses

Description:

Non-native grasses, originally introduced for pasture improvement, threaten Australia's iconic low-resource grasslands and a thorough understanding of the life-history strategies associated with these species is essential for effective management. Comparing invasive qualities across four congener pairs of native and non-native grasses, it was revealed that non-natives displayed a unique combination of morphological and physiological traits compared to natives. This study applied a novel technique of microdialysis and found that native and non-native grasses use soil nitrogen differently, likely contributing to the competitive advantage shown by non-native grasses across Australia.

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Supervisor/s: Scott Mccue, Timothy Moroney

Thesis title:

Analytical and Numerical Results for a Curvature-Driven Geometric Flow Rule

Description:

This research studies a particular curvature-driven geometric flow rule in the plane using techniques from differential geometry, computational mathematics, and formal asymptotics. The flow rule is a combination of the well-studied curve shortening flow, which is governed by a parabolic system of partial differential equations, and the Eikonal equation, which is governed by a hyperbolic system. The physical motivations for considering our model include propagating fire fronts and phase separation. The focus is on a variety of mathematical problems related to the flow rule, such as the explicit form of travelling wave solutions, linear stability, self-intersection, singularity formation, and the extinction problem for convex curves.

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Supervisor/s: Chaminda Gallage, Jayasiri Rajapakse

Thesis title:

An Experimental Investigation on Performance of Geogrid-Reinforced Subgrade in a Small Laboratory Testing Environment

Description:

This experimental study focuses on developing a new laboratory testing model that expedites the performance verification process for future geosynthetic products, for use in foundation stabilisation. Through a series of tensile and pullout tests on geosynthetic and CBR tests on geosynthetic reinforced subgrade using a bespoke CBR mould, this research highlights the benefits of including geosynthetics in granular pavement design. Further research will allow future road pavement designs in Australia to include geosynthetics as part of design specifications and reduce the environmental impact of pavement construction by minimising the required subbase layer thickness without compromising on foundation strength.

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Country: Australia

Supervisor/s: Jasmine Banks, Troy Farrell, Neil Kelson
(Australian National Centre for Ocean Resources and
Security)

Thesis title:

Solving Diagonally Dominant Tridiagonal Linear Systems with FPGAs in an Heterogeneous Computing Environment

Description:

The primary motivation for this research is to determine the feasibility of targeting FPGAs for use in accelerating general purpose scientific computing on heterogeneous computing platforms. This has been explored through the lens of a common scientific computing problem, solving a diagonally dominant tridiagonal linear system. With this focus, a comparative analysis of solver implementations for FPGA, GPU, CPU and heterogeneous combinations thereof has been completed using OpenCL as a common programming framework.

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Supervisor/s: Ashish Bhaskar, Marc Miska, Edward Chung
(Hong Kong Polytechnic University)

Thesis title:

Emergency Vehicle Pre-emption (EVP): A Review with a Case Study on Brisbane EVP

Description:

Emergency Vehicle Pre-emption is used to provide emergency vehicles with an early and/or extended green traffic signal to reduce its travel time. A comprehensive literature review has been done to classify different Emergency Vehicle Pre-emption strategies based on unique characteristics, advantages and disadvantages, and show which strategies are best suited to certain situations. A case study for Brisbane EVP has been done, finding that travel times reduced by 34.6-53.1% and is influenced by route length, direction and whether it's a weekday or weekend.

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Supervisor/s: Jennifer Macleod, Kathryn Fairfull-Smith

Thesis title:

Modification of Small-Molecule Organic Thin Films Using Energetic Beams and Plasma

Description:

This project investigated directed energy techniques for modifying organic films. These techniques show great promise for creating materials with unique, tailored properties. In this work, ion and electron beams were used to fabricate spatially-defined polymer features in nanometre-scale film of small molecules. An alternative pathway to the direct on-surface fabrication of polymer surface coatings was also investigated and showed that a room temperature, atmospheric pressure plasma can facilitate coupling of small molecules at a catalytic surface. In all cases, it was possible to control the optical properties, chemistry, solubility and hardness of the polymer films by varying the processing parameters.

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Supervisor/s: Lucy Reading, Valentino Te'O

Thesis title:

Groundwater Chemistry and Microbiology in a Wet-Tropics Agricultural Catchment

Description:

Groundwater ecosystems can moderate the concentrations of agricultural contaminants that discharge into marine zones like the Great Barrier Reef. However, the analysis of microorganisms in our wet-tropics groundwater aquifers has received little attention. This study monitored seasonal changes in groundwater chemistry in aquifers underlying sugarcane in north Queensland and identified microorganisms that inhabit the groundwater and soil. The results indicate a strong connectivity between agricultural soil ecosystems and groundwater aquifers. There was spatial variability in groundwater chemistry due to the heterogeneous nature of the groundwater aquifer alluvium.

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Supervisor/s: James Dale, Benjamin Dugdale

Thesis title:

Development of an Excisable Selectable Marker System for Banana

Description:

This study describes the development of a recombinase-based platform for the removal of selectable marker genes from transgenic bananas. Using a steroid-inducible recombinase enzyme and dual selection vector containing the green fluorescent protein reporter gene, a protocol based on Agrobacterium-mediated transformation of Cavendish banana embryogenic cells was established. The system was then practically applied to generate the first ever marker-free banana plants with potential resistance to banana bunchy top virus. This platform will provide an effective means of improving this economically important crop into the future and is a major step towards public acceptance of genetically modified bananas.

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Supervisor/s: Massimiliano De Antoni Migliorati, Clemens Scheer, David Rowlings, Peter Grace

Thesis title:

Improving Fertiliser Nitrogen Recovery and Mitigating Nitrous Oxide Emissions from Intensive Vegetable Cropping Systems in South East Queensland

Description:

This thesis is a study into the efficacy of cropping methods Australian vegetable growers can adopt to increase nitrogen fertiliser efficiency, reduce nitrogen fertiliser application rates and reduce nitrous oxide emissions. The experiment, conducted in the Lockyer Valley (South East Queensland, Australia) investigated the utilization of the DMPP and Piadin nitrification inhibitors to achieve these research objectives. Outcomes from this research will help growers to reduce nitrogen fertiliser application rates and reduce greenhouse gas emissions without reducing yields.

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Supervisor/s: Kerrie Mengersen, Kate Helmstedt

Thesis title:

Communication of Statistical Uncertainty to Non-expert Audiences

Description:

This study contributes to a growing body of literature on uncertainty communication. It uses quantitative and qualitative methods to explore a user-centred framework for uncertainty communication design for the non-expert audience, and a user study investigating how uncertainty representation methods influence behaviour of non-expert audiences in an online game.

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Country: Australia

Supervisor/s: Mahadeva Mahendran, Siva Sivagnanasundram
(Engineering Innovations Group)

Thesis title:

Development of Modular Building Systems Made of Innovative Steel Sections and Wall Configurations

Description:

This study has presented a thorough review on steel Modular Building Systems including the execution of case studies on real-world MBS projects to establish an understanding of the current development and shortcomings of this emerging technology for which innovative solutions are later introduced. The review determined that the major limitations of this technology included lack of structurally-efficient designs, poor control of construction tolerances, impractical to construct designs and lack of measures to address fire-resisting performance. Several innovative design concepts were incorporated into a complete MBS module and proposed to address these shortcomings.

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Supervisor/s: Adalbert Meinert, Abbas Shafiee, Dietmar
Hutmacher

Thesis title:

Development of a Crosslinkable Hydrogel Derived from Placental Tissue

Description:

Human tissue-derived hydrogels are highly biocompatible and inherently possess cell-instructive cues that are important for repairing tissue, yet control over the physicochemical properties is severely limited. This thesis describes the creation of a photocrosslinkable hydrogel derived from human placental tissue. It outlines the procedure of removing cellular material, as well as the solubilisation and chemical functionalisation of extracellular matrix components to create hydrogels which irreversibly crosslink upon exposure to blue light. The findings demonstrate the formation of stable hydrogels with highly tuneable physicochemical properties which support cellular viability and growth, suggesting their suitability for tissue engineering applications.

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Supervisor/s: Don Vilathgamuwa, Yateendra Mishra

Thesis title:

DC Arc Faults in Photovoltaic Systems

Description:

This research presents a detailed study of DC Arc faults in Photo-voltaic systems. A unique DC arc model is proposed and the use of Wavelet transforms and Mathematical Morphology to successfully detect DC arcs in a PV system is investigated. The proposed DC arc model is applicable for arc length changes caused by moving conductive parts. The study also presents a test setup to capture arc waveform for analysis.

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Supervisor/s: Benjamin Dugdale, Robert Harding, James Dale

Thesis title:

Molecular Strategies for Resistance to Circular Single-Stranded DNA Viruses

Description:

This thesis describes how the ‘In Plant Activation’ (INPACT) expression platform was adapted into a molecular resistance strategy against circular single-stranded DNA viruses. The system was first optimized using a model geminivirus in the dicot host tobacco then applied to a commercially relevant pathosystem. When used in conjunction with RNAi, the platform provided immunity to the devastating bunchy top virus in the elite banana cultivar ‘Cavendish’. This work shows that a multi-faceted approach to engineered resistance may be a simple means of generating immunity to this important family of viruses.

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Supervisor/s: Devakara Epari, Michael Schuetz

Thesis title:

Utilisation of Injectable Fluorochromes for Quantification of Bone Growth in a Sheep Tibial Dynamic Fixation Model

Description:

This project examined the use of an augmented histological technique for bone tissue using fluorochrome labelling in a newly developed experimental sheep fracture model. The fracture model encompassed the surgical creation of an experimental fracture which was precisely controlled and independent of external mechanical forces in order to study the effect of the mechanical environment on fracture healing. This research outlined the development and a pilot study combining sequential fluorochrome labelling into the experimental fracture model as a means to enhance the histological analysis of fracture healing and guide development of improved fracture fixation and tissue engineering strategies.

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Supervisor/s: Timothy Dargaville, Laura Bray

Thesis title:

Developing Hydrogel Systems for Biofabrication

Description:

The two research projects cover the versatile applications of hydrogels in biofabrication. Hydrogels find application as synthetic matrices in bioprinting, can be easily modified with bioactive motifs and processed by robotic systems, enabling high-throughput screening (HTS) approaches. The first project targeted cellular response to cell adhesion peptides in poly(ethylene glycol)-based hydrogels. An upscalable platform using a robotic system was developed, enabling HTS of the peptide-modified hydrogel matrices, tailorable to different cell types. The second project aimed to develop a tailorable physical hydrogel for bioprinting, based on different architectures of a poly(2-oxazoline)-b-poly(2-oxazine) copolymer. Hydrogel properties were evaluated by rheology.

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Supervisor/s: Jennifer Macleod, Llewellyn Rintoul, Steven Bottle

Thesis title:

Synthesis and Characterisation of Covalent Organic Frameworks as Thin Films

Description:

This research tackles the challenge of synthesising a highly porous material, known as a covalent organic framework, as a self-supporting membrane, with potential applications in gas and chemical filtration and storage. Micrometer-thick freestanding membranes were successfully synthesised in this project through two different techniques, which allowed selection of the chemical, physical and mechanical properties of the membrane.

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Supervisor/s: Indira Prasadam, Ross Crawford, Robert Wellard, Yin Xiao

Thesis title:

Metabolomics Profiling of Amino Acids Metabolism in Osteoarthritis

Description:

The researcher studied the role of amino acid metabolism in osteoarthritis progression. The study suggests that this abnormal amino acid metabolism aids in the development of the disease. This data further suggests that amino acids could be potential circulatory markers for diagnosing OA and therapeutic strategies of amino acids supplementation could be considered as a potential treatment.

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Country: Australia

Supervisor/s: Timothy Dargaville, James Blinco, Paul Dalton
(University of Wuerzburg)

Thesis title:

Light-Activated Nitrile Imine Mediated Reaction Pathways for The Synthesis of Bioinks

Description:

This thesis combines two projects covering material development, characterization and standardization in the field of biofabrication. Novel materials pave the way towards more complex and biologically relevant tissue mimetic structures. The first project was a proof-of-concept study, developing and optimizing a novel synthesis pathway for light-activated initiator-free photocrosslinkable hydrogels to be used in spatiotemporally-controlled bioprinting. The second project focused on the challenge of reproducibility, particularly in natural polymer-based hydrogel systems. Molecular properties were determined through chemical and physical characterization methods and correlated to macromolecular effects observed during 3D-printing, allowing the determination of a window of printability.

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Country: Thailand

Supervisor/s: Cheng Yan, Esa Jaatinen, Peter Pivonka

Thesis title:

Experimental and Numerical Investigation of the Mechanical Properties of Spinal Units

Description:

This research presents an experimental and numerical study of the mechanical properties of the soft tissues. The elastic properties of the intervertebral disc (IVD) and the tear resistance of the connective tissues were evaluated to create insight into the mechanical characterization of the tissues. The optical and mechanical approaches used are promising for in vivo, and in vitro investigation of the mechanical behaviors. The outcomes will benefit the development of next generation biomedical devices for clinical diagnosis.

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Supervisor/s: Matthew Simpson, Elliot Carr

Thesis title:

Parameterising Continuum Models of Heat Transfer in Heterogeneous Living Skin Using Experimental Data

Description:

This research project looked to describe the heat transfer process associated with a burn injury using a mathematical model. The ability to theoretically infer the unknown parameters of the model is investigated through the consideration of different experimental designs. The results of this thesis can inform future experimentalists on how to maximise the information gained from their work.

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Supervisor/s: Sagadevan Mundree, Thi My Linh Hoang, Brett Williams, Sudipta Shekhar Das Bhowmik

Thesis title:

Establishment of High Throughput Transformation Systems for Australian Native Resurrection Plant *Tripogon loliiformis*

Description:

This thesis contributed to unlock the regeneration and transient transformation systems for *Tripogon loliiformis*, an Australian native extremophile. This resurrection grass has suitable structural, physiological and molecular mechanisms to survive in extreme desiccation. The regeneration and transient transformation systems will assist in establishing a stable transformation system for *Tripogon* which will enable more understanding of its unique genes for coping abiotic stresses. This may contribute to the bioengineering of these genes to important cereal crops like rice, wheat, maize and sorghum for the improvement of abiotic stress tolerance.

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Supervisor/s: Wasana Bandara, Moe Wynn, Mustafa
Yigitbasioglu

Thesis title:

Influence of Performance Measurements on Institutionalizing Process Improvement Initiatives

Description:

The thesis proposes process performance measurement systems as a mechanism to minimize the failures of process improvement initiatives done in organizations. With the use of structured literature reviews and two case studies, the study defines the essential characteristics of process performance measurement systems and introduces an institutionalization process of process improvement initiatives together with an evidence-based view on the influence of such process performance measurement systems' characteristics on the institutionalization process. The study contributes to the knowledge on performance measurements, business process management and institutional theory.

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Country: Iraq

Supervisor/s: Bouchra Senadji, Mahsa Baktashmotlagh, David Dean, Ganesh Naik (University of Technology Sydney), Vinod Chandran

Thesis title:

Forensic Speaker Recognition Under Adverse Conditions

Description:

The performance of forensic speaker recognition systems degrades significantly in the presence of environmental noise and reverberant conditions. This research developed new techniques to improve forensic speaker recognition performance under these conditions using fusion feature extraction techniques and speech enhancement based on the independent component analysis algorithm. A range of forensic speaker recognition applications will benefit from the research outcomes including criminal investigations and law enforcement agencies.

Introduction

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Aiden Price

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Thesis by Monograph

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Country: Australia

Supervisor/s: Harold Bartlett, Edward Dawson, Joanne Hall
(RMIT University)

Thesis title:

Improved Constructions of Low-Density Parity-Check Codes

Description:

There is an ongoing need to improve the efficiency and error-correcting performance of error correcting codes, which are widely used to enhance accuracy when retrieving or communicating information. This research investigates several potential improvements to a high-performing class of error correcting codes known as low-density parity-check (LDPC) codes. The results presented here further the known literature surrounding a specific class of functions (Alltop functions). Additionally, this work demonstrates ways of manipulating existing LDPC code constructions using relaxed difference sets to provide constructions with far more flexible code parameters. These constructions have competitive performance when compared to relevant modern codes.

Introduction

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Aihong Zou

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Thesis by Monograph

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Country: China

Supervisor/s: Emilie Sauret, Yuantong Gu, Wei Li (Central Queensland University)

Thesis title:

Uncertainty Quantification in High-density Fluid Radial-inflow Turbo-expanders and Diffusers for Renewable Low-grade Temperature Cycles

Description:

This research investigated the radial-inflow turbo-expander, the conical diffuser, and the annular-radial diffuser using high-density working fluid in typical renewable energy power system. This study highlights the need to achieve a high performance of a whole radial-inflow turbine including a radial-inflow turbo-expander and a new designed annular-radial diffuser in order to improve overall energy conversion efficiency, which is critical to further development of renewable power solutions.

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Akmal Jahan Mohamed Abdul Cader

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Thesis by Monograph

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Country: Sri Lanka

Supervisor/s: Jasmine Banks, Kien Nguyen Thanh, Vinod Chandran

Thesis title:

Finger Biometric System Using Bispectral Invariants and Information Fusion Techniques

Description:

Contactless hand biometric systems are better accepted than contact prints as they are hygienic and accelerate data acquisition. This research is one of the few investigating contactless biometrics of the full hand by proposing a novel algorithm based on ridge orientation information along lines connecting key points, higher order spectral features, and fusion. It was investigated with contactless finger images acquired from 81 users, and found to be robust to hand orientation and image size, and provide acceptable performance using two fingers with fusion. The algorithm has potential to use in high throughput applications where contact sensing may be slow.

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Akwasi Asumadu-Sakyi

Doctor of Philosophy

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Thesis by Publication

Institute of Health & Biomedical Innovation (IHBI)

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Country: Ghana

Supervisor/s: Lidia Morawska, Adrian Barnett, Phong Thai

Thesis title:

Quantitative Assessment of Temperature in Urban Residential Settings and Its Implications for Extreme Temperature Exposure to Humans, Energy Consumption and Indoor Air Pollution

Description:

This thesis presents a research on quantitative assessment of temperature in urban residential settings and its influence on extreme temperature exposure to humans, energy usage and indoor air pollution in households, which is of significance at the time when climate change mitigation approaches are being considered. The work aimed to quantify indoor temperature profile; indoor-outdoor temperature relationship; indoor temperature occupant experience; and the association between temperature (indoor and outdoor) and air quality in houses. A temperature relationship model was developed applying advanced statistical methods to over one-year empirical temperature (indoor and outdoor) data sets of 90 houses in Brisbane, Australia.

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Thesis by Monograph

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Country: Saudi Arabia

Supervisor/s: Jose Alarco, Joshua Lipton-Duffin, Troy Farrell

Thesis title:

Electronic Band Structure Equations and Fermi Surface Evolution from 2D Materials to 3D Layered Superconducting Compounds

Description:

A simple approach for extracting the superconducting gap of materials from trendline fittings of key sections of their Electronic Band Structures (EBS), calculated using Density Functional Theory (DFT), is presented. The proposed approach works well for very different compositions, structure types and superconducting transition temperatures, indicating that it is robust, reliable and versatile. This approach provides many advantages in terms of required computational time and power, compared with similar information extracted from phonon dispersion calculations, making it accessible to wider DFT-computational chemistry and physics communities. The approach also identifies requirements for superconductivity and indirectly contributes towards understanding of superconductivity mechanisms.

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Alexandra Meier

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Thesis by Publication

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Country: Australia

Supervisor/s: Martin Sillence, Melody De Laat

Thesis title:

Equine Insulin Dysregulation and Laminitis: Developing a Framework for Testing Treatment and Preventive Strategies

Description:

Insulin-associated laminitis is a deadly and currently incurable disease of the horse's hoof. This project developed a series of new methods to cause laminitis experimentally, to accurately grade the severity of the disease, and to determine the risk of an individual horse developing the condition. Additionally, a novel drug treatment (velagliflozin) was shown to be able to prevent laminitis, and to be safe and effective when used for several months. If it is successful in reaching the market, velagliflozin will be the first veterinary treatment to be registered for this disease.

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Alfred Anim

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Thesis by Monograph

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Country: Ghana

Supervisor/s: Godwin Ayoko, Sobana Goonetilleke, Jochen Mueller (The University of Queensland)

Thesis title:

Occurrence and fate of selected organic contaminants in soils, sediment and estuarine water from South-East Queensland

Description:

This research contributed to the rather limited knowledge on the transport of organic contaminants in estuarine environments from South-East Queensland. Modelling studies were conducted to assess the fate of some current-use pesticides and pharmaceuticals in the Brisbane River estuary. The vertical transport of per- and polyfluoroalkyl substances (PFASs) in soils from a previous firefighting training ground was also assessed. The outcomes of this study contribute to the global stock taking of organic contaminants in the environments and are expected to be useful in designing effective containment or remediation strategies for organic contamination.

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Alireza Ostovar

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Thesis by Monograph

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Country: Iran

Supervisor/s: Marcello La Rosa, Abderrahmane Maaradji,
Arthur Ter Hofstede

Thesis title:

Business Process Drift: Detection and Characterization

Description:

This research contributes a set of techniques for the early detection and characterization of process drifts, i.e. statistically significant changes in the behavior of business operations, as recorded in transactional data. Early detection and subsequent characterization of process drifts allows organizations to take prompt remedial actions and avoid potential repercussions resulting from unplanned changes in the behavior of their operations.

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Alireza Raghmi

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Country: Iran

Supervisor/s: Gerard Ledwich, Yateendra Mishra

Thesis title:

A Novel Thevenin-Based Voltage Droop Control Improving Reactive Power Sharing with Structures to Identify Thevenin Parameters

Description:

In this research project, a low-cost local voltage compensation strategy is proposed that evenly utilises the capability of the customers' inverters spreading over a branched suburban utility network. The improved utilisation is based on a straightforward two-element equivalent of the network locally seen by each inverter. The network is simultaneously probed by all inverters, each one tries to identify its two-element perspective. Receiving an appropriate local response is challenged by the interference created by simultaneous probing and demand variation and also inverters' compensating nature. Identification structures are designed to suppress all challenges while probing remains effectively invisible to the customers.

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Alka Jagessar

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Thesis by Monograph

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Country: Australia

Supervisor/s: Prasad Yarlagadda, Cheng Yan, Hongxia Wang,
Tuquabo Tesfamichael

Thesis title:

A Study of Nanotextured Surface Production for Bactericidal Surfaces on Orthopaedic Implants Using the Hydrothermal Method

Description:

This research developed antibacterial titanium dioxide nanostructured surfaces using hydrothermal synthesis, for orthopaedic implant applications. In addition, this project was a step forward in developing new knowledge relating to hydrothermal process conditions and their effect on resulting structure and antibacterial properties. A model for predicting nanostructure height as a function of hydrothermal processing conditions was also developed as part of this work. The outcomes of this thesis will contribute towards developing antibacterial surfaces to fight bacterial infection.

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Amrita Kambo

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Country: India

Supervisor/s: Prasad Yarlagadda, Robin Drogemuller

Thesis title:

Regenerative Sustainability in the Design of Built Environment for Eastern Subtropical Australia

Description:

This thesis demonstrates how sustainable development may embrace values of the Ecological Worldview to reverse negative trends associated with climate change and environmental degradation. Instrumental knowledge is developed where complex theoretical aspects of the Ecological Worldview are applied in the systematic development of regenerative design methodologies bearing implications for the design of built environment. A framework is conceptualised for Design Methodology, onto which the values of the Ecological Worldview are mapped. A single iteration of the Design Methodology is run, to output a Benchmark Design Strategy which demonstrates range of outcomes for regenerative design in Eastern Australian subtropical regions.

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Thesis by Monograph

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Country: Colombia

Supervisor/s: Thierry Peynot, Peter Corke

Thesis title:

Robust and Dense Visual SLAM for Robot-assisted Minimally Invasive Orthopaedic Procedures

Description:

Orthopaedic surgeons are currently overburdened by physical and mental challenges that significantly increase the risk of injury to more than 2 million patients every year. This thesis proposes a robotic surgical-assistant for minimally-invasive orthopaedic surgeries that can alleviate surgeon workload and reduce the risk of unintended patient injury. A robotic prototype, along with a set of state-of-the-art robotic vision algorithms, was designed and validated in knee arthroscopy, the most common orthopaedic procedure worldwide. The proposed system can reliably inform surgeons of the location of an instrument within a detailed 3D map of the anatomy. Extensive experimentation, including cadaveric trials, demonstrated the system's unparalleled performance in real operative conditions.

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Thesis by Monograph

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Country: New Zealand

Supervisor/s: Gregory Timbrell, Kirsty Kitto

Thesis title:

Reporting Structures: Category Theory, Algebraic and Topological Properties

Description:

This thesis treats the logic of operations and governance of a large corporation as a single abstract mathematical object that expresses the web of dependencies and the coordinating hierarchies of corporate logic. The thesis initiates a study of the logic of high-level descriptions and the evolutionary dynamics of reporting structures. It provides a new way for an enterprise to investigate and characterise its own complex logic.

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Thesis by Monograph

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Country: Bangladesh

Supervisor/s: Ernest Foo, Kenneth Radke, Yue Xu

Thesis title:

Rare Sequential Pattern Mining of Critical Infrastructure Control Logs for Anomaly Detection

Description:

Supervisory Control and Data Acquisition (SCADA) systems are used to drive much of a nation's critical infrastructure, which by definition is essential for the nation's citizens' way of life. They are connected to the computer networks and internet systems to operate, control and monitor their operations. This connectivity enables these SCADA systems to be exposed to cyber-attacks. This thesis detects anomalies or cyber-attacks on SCADA systems. It analyses SCADA control logs to find abnormal process activities which are treated as anomalies. A novel rare sequential pattern mining approach is proposed and developed to find rare or abnormal behaviour in SCADA systems.

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Antonia Rujia Sun

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Thesis by Publication

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Country: Australia

Supervisor/s: Indira Prasadam, Ross Crawford, Yin Xiao

Thesis title:

Macrophage-Mediated Synovial Inflammation is a Key Link to Obesity-Associated Osteoarthritis

Description:

Obesity has been attributed in a major risk factor for developing and accelerating disease progression in osteoarthritis. To date, there is a lack of clinically proven therapies to halt osteoarthritis, the developments of such therapies are therefore a national as well as an international research priority. This research provides a new overview of the involvement of synovitis in promoting the destruction of synovial joints in obesity-induced osteoarthritis and might therefore be used as a therapeutic strategy for the development of disease-modifying anti-osteoarthritis drugs.

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Thesis by Monograph

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Country: Sri Lanka

Supervisor/s: Peter Grace, Clemens Scheer, David Rowlings,
Sudheera Ranwala (University of Colombo)

Thesis title:

The Impact of Using Urban Derived Compost on Nitrogen Use Efficiency, Greenhouse Gas Emissions and Productivity from Tropical Cropping Systems

Description:

This thesis is a multiyear study in Sri Lanka to evaluate the impact of using urban derived compost in combination with synthetic N fertiliser on nitrogen use efficiency, greenhouse gas emissions, and productivity from tropical cropping systems. The study demonstrated the high potential for N losses in low CEC tropical soils. However, the high relative cost of OA compared to synthetic N fertilisers requires substantial additional benefits above the value of the nutrients alone to make their use economical.

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Country: Australia

Supervisor/s: Peta Wyeth, Daniel Johnson

Thesis title:

Need Frustration and Short-Term Wellbeing: Restorative Experiences in Videogame Play

Description:

This thesis is a study of how videogames can improve player wellbeing after a negative experience. Two experimental studies showed that videogame play can reverse the short-term wellbeing deficits caused by need frustration. Experiencing high need satisfaction and low need frustration in the game was shown to improve player wellbeing afterwards. Interview findings suggest that people intentionally use videogames to support wellbeing in varied ways. The thesis shows that studying need satisfaction and frustration together can improve evaluation of wellbeing outcomes, and has implications for the design of videogames and other interactive systems.

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Bahareh Nakisa

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Country: Iran

Supervisor/s: Andry Rakotonirainy, Frederic Maire, Dian Tjondronegoro (Southern Cross University), Vinod Chandran

Thesis title:

Emotion Classification Using Advanced Machine Learning Techniques Applied to Wearable Physiological Signals Data

Description:

This research contributed to the development of advanced feature selection model, hyperparameter optimization and temporal multimodal deep learning model to improve the performance of dimensional emotion recognition. This study adopts different approaches based on portable wearable physiological sensors. It identified best models for feature selection and best hyperparameter values for Long Short-Term Memory network and how to fuse multi-modal sensors efficiently for assessing emotion recognition. All methods of this thesis collectively deliver better algorithms and maximize the use of miniaturized sensors to provide an accurate measurement of emotion recognition.

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Country: Iran

Supervisor/s: Hung Chan, David Thambiratnam, Khac
Duy Nguyen, Andy Nguyen (The University of Southern
Queensland)

Thesis title:
SHM-Based Structural Deterioration Assessment

Description:

This research has successfully developed an effective methodology to detect and locate deterioration as well as estimate its severity in the presence of environmental and operational (E&O) variations and high level of measurement noise. It developed a novel data normalization procedure to diminish the E&O variations and high level of noise content; and developed thirteen time-series based deterioration indicators to detect deterioration. The proposed methods were verified utilising measured data from different numerically simulated case studies and laboratory tests, and their efficiency is demonstrated using data acquired from a real-world instrumented building.

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Country: Australia

Supervisor/s: Kerrie Mengersen, Alan Woodley, Kim Lowell
(The University of Melbourne), Michael Schmidt (Department
of Science Information Technology and Innovation)

Thesis title:

Prediction of Large Spatio-Temporal Data Using Machine Learning Methods

Description:

This project was a step forward in statistical methodology for predicting green vegetation land cover in homogeneous grazing land. A supervised machine learning method, namely Boosted Regression Tree, was applied to satellite imagery. The predictive capabilities of the method was established using different data sets and approaches. Four research aims were achieved, including improved land-use prediction in a semi-arid region sensitive to climate variability.

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Country: Australia

Supervisor/s: Chaminda Gallage, Jothi Ramanujam, Gregory Stephenson (Brisbane City Council)

Thesis title:

Investigation into the Fatigue Performance of Multigrade Bitumen Asphalt Blended with Recycled Asphalt Pavement (RAP)

Description:

This thesis investigates the fatigue and stiffness properties of multigrade bitumen asphalt and the added effects of recycled asphalt pavements. Through vigorous four-point bending testing, this research highlighted the benefits multigrade bitumen and recycled asphalt has on the longevity of road pavements and the major environmental benefits. Future road pavement designers will be able to adopt these innovative materials and reduce required pavement thickness while utilising recycled materials.

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Thesis by Monograph

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Country: France

Supervisor/s: Steven Bottle, John Colwell, Christiane Lang

Thesis title:

Modification of Biodegradable Polymer Films

Description:

This project aimed at tuning the photodegradability of a biodegradable polyester by employing a photosensitizing molecule, 2-oxepane-1,5-dione (OPD), as an additive mixed with commercial polymer and as a monomer to be copolymerized. Various processing techniques were employed, such as reactive extrusion, film blending or synthesis of polymers. The accelerated artificial ageing of modified polyesters revealed that OPD accelerated the rate of photodegradation of the polyester, with the differing mechanisms of degradation found for blends and copolymers providing scope for tuning the photodegradability of the polyester via alteration of the method of OPD incorporation.

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Chenhui Han

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Thesis by Publication

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Country: China

Supervisor/s: Jingsan Xu, Eric Wacławik

Thesis title:

Nanomaterials Stabilized Pickering Emulsions and Their Applications in Catalysis

Description:

This thesis is an exploratory study of nanomaterials stabilized Pickering emulsions and their applications. The study illustrates some novel emulsion behaviour through dynamic observation and develops a mechanically switchable emulsion based on the microstructure design of nanomaterials. The droplets of emulsion are demonstrated as an effective microreactor for chemical reactions that happen at the oil-water interface, showing the potential application of Pickering emulsion in catalysis.

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Christopher Alan Carr

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Thesis by Monograph

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Country: England

Supervisor/s: Xavier Boyen, Matthew Mckague, Colin Boyd
(Norwegian University of Science and Technology)

Thesis title:

Towards Fairness and Decentralisation in Modern Cryptocurrencies

Description:

The thesis examines and improves upon the properties of both fairness and decentralisation in modern cryptocurrencies, re-examining public key infrastructure, client puzzles and useful proofs of work in the blockchain context. The thesis also develops a framework construction for a novel directed-acyclic-graph-based cryptocurrency scheme. This framework represents a major result, being both the first academic and practically realisable proposal for using directed acyclic graphs in decentralised cryptocurrencies.

Introduction

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Thesis by Monograph

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Country: Bangladesh

Supervisor/s: Travis Klein, Karsten Schrobback, Ross Crawford

Thesis title:

Effects of Anti-Angiogenic Factors in Two Different Models of Osteoarthritis

Description:

This project aimed to improve our understanding of the relationship between molecules involved in the formation and prevention of blood vessels and the joint disease osteoarthritis. A rat model of osteoarthritis, knee joint tissue model from human patients and cell culture model were used to achieve the goals of this project.

Significant findings from this study included detailed blood vessels and nerve networks in the knee joint tissues, as well as a close relationship between the molecules involved in preventing blood vessels and the degree of disease severity in the knee joint. The thesis also described the development of the technique to stain blood vessels, nerve fibers, and bone marrow lesions in more detail using thick tissue sections from the knee joint.

Introduction

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Daniel Kennedy

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Thesis by Monograph

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Country: Australia

Supervisor/s: Kerrie Mengersen, Rodney Lea, Nicole White,
Lynette Griffiths

Thesis title:

Statistical Inference for the Investigation of Cell-Type Heterogeneity in DNA Methylation Data

Description:

This thesis developed statistical methods for investigating chemical changes at the level of the human genome. The project worked to differentiate signals from different cell-types in data derived from mixed tissue samples, to provide clues to the etiology of disease. Multiple methods were developed to estimate the cell-type makeup, and to infer epigenetic changes at the level of specific cell-types. The research presented new ways of examining data from blood for use in studies of human disease markers and patterns.

Introduction

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Country: Ghana

Supervisor/s: Godwin Ayoko, Emad Kiriakous, Anthony O'Mullane

Thesis title:

Ultra Trace Detection of Toxicants Using Nanosensors

Description:

This research presented the fabrication of nanosensors and the use of surface enhanced Raman spectroscopy (SERS) and electrochemistry for the analysis of toxicants in various matrices. The new methods presented are cost-effective, sensitive and can be used in the field to detect toxicants at trace levels.

Introduction

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Danielle Maree Fitzgerald

Doctor of Philosophy

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Thesis by Publication

QUT ePrints URL: eprints.qut.edu.au/134255

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Country: Australia

Supervisor/s: Melody De Laat, Martin Sillence

Thesis title:

Pasture-Associated Metabolic Derangements of Horses: Pathogenesis and Identification

Description:

Equine metabolic syndrome (EMS) is a cluster of metabolic derangements that are important to manage in order to prevent associated diseases. The overarching purpose of this thesis was to examine the metabolic and gastrointestinal response to grazing in horses with EMS, and to evaluate the effectiveness of techniques currently used to identify EMS. The work showed that EMS occurs on a spectrum of severity and that the approach to diagnosis and management needs to account for the stage of disease. These outcomes will aid veterinary clinicians and horse owners in identifying EMS and provide new knowledge about disease management.

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David Ahmedt Aristizabal

Doctor of Philosophy

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Thesis by Monograph

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Country: Colombia

Supervisor/s: Clinton Fookes, Kien Nguyen Thanh,
Subramanian Sridharan, Sasha Dionisio (Mater Hospital)

Thesis title:

Multi-modal Analysis for the Automatic Evaluation of Epilepsy

Description:

Motion recognition technology is proposed to support neurologists in the study of patients' behaviour during epileptic seizures. This system can provide clues on the sub-type of epilepsy that patients have, it identifies unusual manifestations that require further investigation, as well as better understands the temporal evolution of seizures, from their onset through to termination. The incorporation of quantitative methods would assist in developing and formulating a diagnosis in situations where clinical expertise is unavailable. This research provides important supplementary and unbiased data to assist with seizure localization. It is a vital complementary resource in the era of seizure-based detection through electrophysiological data.

Introduction

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David Forrestal

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Thesis by Monograph

Institute of Health & Biomedical Innovation (IHBI)

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Country: Australia

Supervisor/s: Maria Woodruff, Travis Klein, Benjamin Simpson
(Griffith University)

Thesis title:

Flow Control in Perfusion Bioreactors for Improved Cell Culture within Porous Tissue Scaffolds

Description:

This thesis presents the development of cell culture systems capable of generating large, anatomically-accurate biological tissue substitutes. These tissue substitutes can be used to study fundamental interactions of cells with materials and structures, assess the clinical potential of new prosthetic implants, and be developed further into therapeutic treatments consisting of medical implants integrated with live-cell cultures.

Introduction

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David Myers

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Thesis by Monograph

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Country: Australia

Supervisor/s: Ernest Foo, Ian Lim, Kenneth Radke

Thesis title:

Detecting Cyber Attacks on Industrial Control Systems using Process Mining

Description:

Industrial control systems conduct processes which are core to our lives, from the generation, transmission, and distribution of power, to the treatment and supply of water. These industrial control systems are moving from dedicated, serial-based communications to switched and routed corporate networks to facilitate the monitoring and management of an industrial processes. However, this connection to corporate networks can expose industrial control systems to the Internet, placing them at risk of cyber-attack. In this study, we develop and evaluate a process-mining based anomaly detection system to generate process models of, and detect cyber-attacks on, industrial control system processes and devices.

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Diana Binny

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Thesis by Publication

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Country: Australia

Supervisor/s: Jamie Trapp, Konstantin Momot, Scott Crowe,
Tanya Kairn (Wesley Medical Centre)

Thesis title:

Radiotherapy Quality Assurance Using Statistical Process Control

Description:

The work presented in this thesis was a step forward in applying statistics to the important problem of monitoring machine performance and quantifying optimal treatment quality assurance in radiotherapy. This research investigated the use of an analytical decision making tool known as Statistical Process Control (SPC) that employs statistical means to measure, monitor and identify random and systematic errors in a process based on observed behaviour. In this research, several treatment machine and planning system parameters were investigated and a method of calculating SPC based tolerances to achieve optimal treatment goals was highlighted in this study.

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Dilesha Nilakshi Seneviratne Dissanayake Wasala Mudiyanseelage Hakmana Walawwe

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Thesis by Monograph

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Country: Sri Lanka

Supervisor/s: Shlomo Geva, Guido Zuccon, Gabriela Ferraro
(National ICT Australia), Magali Meireles (Pontifical Catholic
University of Minas Gerais)

Thesis title:
Patent Link Discovery

Description:

Patents contain useful technical information about inventions; however, accessing the knowledge in patents requires considerable effort, which results in an under-usage of patent knowledge. This research investigated the core techniques that are required to create hyperlinks for patents similar to the hyperlinks in the Wikipedia. Such a system can make knowledge captured in patents more accessible to a wide range of patent users including scientific communities. In doing so, a new context matching technique was proposed to improve the accuracy of linking. In general, the research has extended the understanding of linking methods in the patent domain.

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Country: Sri Lanka

Supervisor/s: Esa Jaatinen, Kristy Vernon

Thesis title:

Measuring Intensity Dependent Optical Nonlinearities Without Sample Damage Using Higher Order Vortex Beams

Description:

This study developed a beam shaping based method to avoid nonlinear sample damage in high intense pulse laser applications. This is achieved by developing a complete theoretical and experimental framework for Z-scan experiments to utilise higher order vortex beams instead of common Gaussian beam. An image processing based extension was introduced to Z-scan experiments, which can be utilised to achieve results of different Z-scan modes from a single experimental dataset efficiently. The results of this study will have a positive impact on utilising different beam profiles to achieve profile specific advantages in nonlinear applications.

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Dissanayake Mudiyanseelage Mahasen Dehideniya

Doctor of Philosophy

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Thesis by Publication

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Country: Sri Lanka

Supervisor/s: James McGree, Christopher Drovandi

Thesis title:

Optimal Bayesian Experimental Designs for Complex Models

Description:

The complexity of statistical models that are used to describe biological processes poses significant computational challenges in design of [experiments](#). To address such challenges, in this thesis, new methods are developed in optimisation and approximate inference, and are applied in real-world experiments. The proposed methods enable practitioners to gain greater insight and understanding into the biological processes they are studying, and this is demonstrated by designing experiments to understand important biological processes in epidemiology and ecology such as the spread of infectious diseases and interactions between predator and prey in environmental systems.

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Eamon Conway

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Thesis by Monograph

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Country: Australia

Supervisor/s: Troy Farrell, Steven Psaltis, Ian Turner

Thesis title:

Mathematical Modelling of Ionic Transport through Nanopores

Description:

The transport of ionic species through nanopores is important in determining the underlying behaviour of electrolytes on the nanoscale; the understanding of which has important applications in the development of bio-molecular sensors and nanofluidic diodes. Importantly, this thesis has developed a novel mathematical model of ionic transport through a nanopore that can be quantitatively compared to experimental results. In doing so, we have been able to further understand the mechanisms behind ionic transport and explain previously unexplained experimental results.

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Eleanor Velasquez

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Thesis by Monograph

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Country: Australia

Supervisor/s: Jennifer Firn, Scott Bryan

Thesis title:

Unique Island Habitats - A Comparison of Community Assembly in Marine and Terrestrial Contexts

Description:

This project investigated the fundamental principles of the Theory of Island Biogeography. How biodiversity is influenced by habitat age, size, isolation and quality was studied in two little-known ecosystems; pumice-rafter marine communities that travel through the Pacific Ocean and strand on shorelines, and Queensland's critically endangered *Melaleuca irbyana* forests. This research found that while habitat age, size and isolation were important for species richness; habitat quality, defined by resource availability and climate, was more influential for predicting biodiversity levels. Small pumice stones and small remnant forests can provide the conditions species need to prosper. Therefore, small and isolated habitats are also important to conserve.

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Eloise Tredenick

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Thesis by Monograph

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Country: Australia

Supervisor/s: Troy Farrell, Scott Mccue, Wilhelmina Forster-Schou (Plant Protection Chemistry New Zealand)

Thesis title:

Mathematical Modelling of Ionic Agrochemical Diffusion in Plant Cuticles: A Mechanistic Approach

Description:

Weeds cost Australian farmers four billion dollars annually. In this work theoretical models have been developed that simulate the uptake of agrochemicals in plant leaves. These models provide tools for understanding and testing the efficacy of chemicals in treating weeds, which can be used by industry to develop more effective agrochemicals.

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Thesis by Monograph

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Country: Sri Lanka

Supervisor/s: Godwin Ayoko, Huai Yong Zhu, Sarina Sarina

Thesis title:

Product Selectivity Control in Synthetic Organic Reactions by Metal Nanoparticle Photocatalysis

Description:

In this thesis, an in-depth study on alloying effect of non-plasmonic metals with gold nanoparticles to selectively control product formation under light and dark conditions was done. Overall, it was demonstrated that fine tuning the alloying effect could enhance product selectivity switch. This may open up a new research pathway for many important organic syntheses.

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Country: Iraq

Supervisor/s: Bo Xia, Ka Hung Hon, Ian Stewart, Dongping Fang (Tsinghua University)

Thesis title:

Investigating the Relationship between Safety Climate and Safety Performance of Retrofitting Works

Description:

This research aims to examine the relationships between safety climate and safety performance of retrofitting works. Eight interviews with managers/supervisors to investigate safety problems and a questionnaire survey receiving 264 responses from 41 retrofitting projects were conducted in Queensland, Australia. The most common accidents and causes were revealed and challenges of implementing safety were detected. Using structural equation modelling (SEM) data analysis techniques, results show positive significant relationship between safety climate and safety performance, which contributed to strengthen theoretical foundation and validate empirical relationships. This research has enriched the literature of retrofitting works safety and filled the knowledge gap.

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Ezzat Abu-Azzah

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Thesis by Monograph

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Country: Saudi Arabia

Supervisor/s: Jamie Trapp, John Bell

Thesis title:

A 4D Ultrasound Imaging Automation Platform for Modelling and Assessment of Ultrasound Target Dynamics Using Direct Visual Servoing and Machine Learning

Description:

Tracking tumors during radiotherapy treatments in real-time using 4D ultrasound imaging is an emerging field that promises great advances in delivering the planned treatment radiation accurately to the tumors. Based on direct ultrasound visual servoing, this study introduces a new ultrasound target tracking technique that can enhance the accuracy and real-time performance of the US target tracking techniques currently used in practice. The developed technique employs machine learning approaches to achieve highly accurate estimations of ultrasound target detection and dynamics. The technique has been developed as part of a provenance-enabled software solution to advocate reproducible research.

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Thesis by Monograph

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Country: Saudi Arabia

Supervisor/s: Kerrie Mengersen, Christopher Drovandi

Thesis title:

The Development and Application of New Statistical Vine Copula Models

Description:

This thesis contributes to research in multivariate statistics by developing regular vine copula-based models that are more flexible and provide improved model fit. The main focus of the research is on mixture pair-copula based models as they can describe a range of multivariate dependency patterns. The research makes four main contributions related to the new models and provides mathematical and numerical results that showcase the advantages of the proposed approaches.

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Thesis by Publication

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Country: Iran

Supervisor/s: Mahsa Baktashmotlagh, Michael Milford, Sareh Rowlands, Gordon Wyeth

Thesis title:

Human Action Recognition and Prediction for Robotics Applications

Description:

This study is a step forward in developing two different methods; one recognises human actions in an unbiased environment, the other predicts the next human action. The proposed methods that are based on deep learning, convolutional neural networks and long-short term memories, work regardless of camera motion, viewpoint variation, and irrelevant background context. The key outcome of this research is to enable an assistive robot to help a human peer performing an assembly task, using the proposed algorithms.

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Country: Saudi Arabia

Supervisor/s: Yuchu Tian, Maolin Tang

Thesis title:

Profile-based Virtual Machine Management for More Energy-efficient Data Centers

Description:

This research develops a resource management framework for improved energy efficiency in cloud data centers through energy-efficient virtual machine placement to physical machines as well as application assignment to virtual machines. The study investigates static virtual machine placement, dynamic virtual machine placement and application assignment using ant colony optimization to minimize the total energy consumption in data centers.

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Thesis by Monograph

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Country: Australia

Supervisor/s: Tan Yigitcanlar, Jonathan Bunker

Thesis title:

Built Environment Impact on Pedestrian Route Choice Behaviour: Shortest vs. Least Directional Change Routes

Description:

This study investigates how students choose their walking routes to a university. Their observed walking routes were compared against the shortest path routes and against the least directional change routes. The urban design features (e.g. streets, benches, fountains, buildings) of these routes were also examined through physical and virtual (e.g. Google Earth image) surveys. The study reveals that students' route choice decision is highly influenced by street configuration - less directional changes are preferred over the shortest path distance - highlighting the need to design urban streets straighter to promote walking.

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Country: Pakistan

Supervisor/s: Tuquabo Tesfamichael, Hongxia Wang, John Bell, Kostyantyn Ostrikov

Thesis title:

Investigation of Metal Oxides Thin Films Developed by PVD System for Perovskite Solar Cells

Description:

This research presents thin film deposition and characterization of metal oxides using industrially viable Physical Vapour Deposition (PVD) techniques. The research examines low temperature processed electron and hole transport metal oxides for high performance and stable perovskite solar cells. The physical, chemical, optical and electronic properties of the films were investigated and their device performance has been evaluated. The performance of the device improved and the materials cost reduced by replacing the expansive organic materials with more stable inorganic metal oxides.

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Country: Iran

Supervisor/s: Paul Donehue, Douglas Baker

Thesis title:

Ambiguity at the Peri-Urban Interface and its Influences on Flood Management

Description:

This study explores how current flood management policy-making has been influenced by a lack of accurate knowledge - and the substantial ambiguities that exist as an integral part of the peri-urbanisation phenomenon in South East Queensland, Australia. The central conclusion of this research is that land use management in a flood prone area is directly impacted by the peri-urban phenomenon with its spectrum of ambiguities. It was also found that an understanding of peri-urban characteristics differs substantially amongst key stakeholders, and, combined with both ambiguity and a context of rapid, often fragmented development, this difference in understanding may influence policy-making in flood prone areas.

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Thesis by Publication

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Country: Sri Lanka

Supervisor/s: Dhaval Vyas, Jinglan Zhang, Hakim Usoof
(University of Colombo), K P Hewagamage (University of
Colombo)

Thesis title:

Human Money Interaction: Designing For Personal Finances In The Developing Countries

Description:

This study focuses on designing user-driven applications to provide an engaging experience around personal finances for rural Sri Lankan communities. It employs two diverse design cases to explore how to design for personal finances through an experience focused HCI perspective. The first case involved working around the practices related to microfinance while the second case explored aspects pertaining to financial literacy. The findings suggest that since current practices of these communities are strongly attuned with their everyday lives and those practices shape the use of technology, the designs should fit meaningfully with the local traditions to guarantee sustained use.

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Country: Iran

Supervisor/s: Ka Hung Hon, Robin Drogemuller

Thesis title:

Adoption of Building Information Modelling Innovations to Reduce Occupational Fatalities in the Australian Construction Industry

Description:

The potential uses of building information modelling (BIM) can drastically alter the occupational health and safety (OHS) practices in the construction industry. However, there is no established framework to employ BIM for construction OHS management. A mixed methods research design was adopted to address this research gap. Case study analysis, semi-structured interviews, and a questionnaire survey were conducted to develop the innovation adoption model of this research. The most significant contributions of this research are the identification of the critical areas in construction accidents, the effectiveness of BIM applications in these areas, and success factors for the adoption of BIM.

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Thesis by Monograph

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Country: Singapore

Supervisor/s: Wayne Kelly, Colin Fidge, Tony Sahama

Thesis title:

A Practice-Based Evidence Approach For Clinical Decision Support

Description:

This thesis studies the conceptualisation and evaluation of a Practice-Based Evidence approach to decision making in healthcare. It examines the existing ICT architecture of a public hospital in Singapore to design a decision support system that leverages practical clinical evidence meaningfully captured in electronic health records. In doing so, healthcare professionals are supported in decision making through findings from past similar patients that can be generalised to the current patient population.

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Country: Germany

Supervisor/s: Kathryn Fairfull-Smith, Christopher Barner-Kowollik, James Blinco

Thesis title:

Nitroxides at the Interface: Bioinspired Polymer Adhesives for Controlling Biofilm-related Infections

Description:

This research reports a sophisticated avenue for the fabrication of bio-inspired, multifunctional and substrate-independent polymer coatings for versatile applications. Of particular interest was the design of nitroxide functional surfaces as a new strategy to combat bacterial biofilm formation on medical devices and to reduce biofilm-related infections in hospitals worldwide. Furthermore, nitroxide-coated surfaces served as a versatile platform for the precision design of reprogrammable surfaces with additional spatial control over the surface properties applying photolithography.

Introduction

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Hoang Nguyen

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Thesis by Monograph

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Country: Vietnam

Supervisor/s: Marcello La Rosa, Arthur Ter Hofstede, Marlon Dumas Menjivar (University of Tartu)

Thesis title:

Stage-Aware Business Process Mining

Description:

Process mining enables the analysis of event logs to gain actionable insights into an organisation's operations. However, state-of-the-art process mining techniques do not exploit the natural decomposition characteristics of business processes. 'Process stages' are a generic type of business process decomposition prevalent in multiple domains, e.g. the stages of loan processing, the support levels in IT helpdesk, or the clinical stages in patient treatment. This study contributes a novel approach to process mining based on process stages. The approach is grounded on four techniques that allow the mining of process stages, the automated discovery of process models, the mining of process performance and the multi-perspective comparison of process variants. The approach has been implemented in an open-source toolset and evaluated with real-life datasets from different domains.

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Thesis by Monograph

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Country: China

Supervisor/s: Peter Bruza, Hsuanwei Michelle Chen (San Jose State University), Sharmistha Dey

Thesis title:

Understanding the Role of Social Media in Enhancing Participatory Services in Public Libraries

Description:

To help librarians understand the impact of emerging technologies on participatory service building, this study takes social media as an example to explore how to use different engagement strategies that social media provides to engage more users. This research provides three major contributions to the library system. The libraries can use the resultant engagement strategies to engage its users. Additionally, the best-fit strategy can be inferred and designed based on users' preferences. Lastly, the users' preferences can be understood based on data analysis of social media. Three such contributions have been put together to fully address the proposed question.

Introduction

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Thesis by Monograph

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Country: Indonesia

Supervisor/s: Sobana Goonetilleke, James McGree,
Weerawickramage Egodawatta

Thesis title:

Optimisation of Climate Change Adaptation for Urban Stormwater Management

Description:

This project was a step forward in developing new knowledge relating to the optimisation of the flood mitigation measures adaptation against climate change and urbanisation impacts by considering their uncertainty. The generic outcomes of this study are expected to contribute to the optimisation of design of flood mitigation measures into the future based on costs and the capability to reduce the flood damage.

Introduction

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Thesis by Monograph

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Country: Russian Federation

Supervisor/s: Marcello La Rosa, Arthur Ter Hofstede, Fabrizio Maggi (University of Tartu), Marlon Dumas Menjivar (University of Tartu)

Thesis title:

Explainable Predictive Monitoring of Temporal Measures of Business Processes

Description:

This thesis explores data-driven, predictive approaches to monitor business process performance. These approaches allow process stakeholders to prevent or mitigate potential performance issues or compliance violations in real time, as early as possible. To help users understand the rationale for the predictions and build trust in them, the thesis proposes two techniques for explainable predictive process monitoring: one based on deep learning, the other driven by process models. This is achieved by decomposing a prediction into its elementary components. The techniques are compared against state-of-the-art baselines and a trade-off between accuracy and explainability of the predictions is evaluated.

Introduction

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Jasmin James

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Thesis by Publication

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Country: Australia

Supervisor/s: Jason Ford, Timothy Molloy

Thesis title:

Quickly Detecting Aircraft in Image Sequences

Description:

This thesis explores the problem of detecting an aircraft on a mid-air collision course encounter with the goal of contributing to the development of vision-based SAA systems for use in the national airspace. Contributions are made in the vision-based aircraft detection application as well as in advancing quickest change detection theory.

Introduction

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Johnny Morales

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Thesis by Publication

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Country: Australia

Supervisor/s: Jamie Trapp, Scott Crowe

Thesis title:

Advances in Very Small X-Ray Field Dosimetry for Circular Cones Used in Stereotactic Radiosurgery

Description:

This project presents recent advances in small field dosimetry for radiosurgery treatments with Brainlab circular cones using 6 MV x-rays. The specific advances included: the use of a new microDiamond detector, the use of radiochromic film and OSLD detectors with an extrapolation technique, skin dose measurements and Monte Carlo simulation of radiosurgery treatments. There is limited published data on the output factor for the 4 mm circular cone. This thesis provides methodology and guidelines on how to perform such difficult measurements.

Introduction

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Jonathan Bradford

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Thesis by Monograph

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Country: Australia

Supervisor/s: Nunzio Motta, Jennifer Macleod, Mahnaz Shafiei
(Swinburne University of Technology)

Thesis title:

Growth and Characterisation of Two-Dimensional Materials and Their Heterostructures on SiC

Description:

Atomically thin two-dimensional materials and their hybrids represent an elegant approach to designing and synthesizing functional nanomaterials and are expected to find applications across a broad range of new technologies. This project explored scalable synthesis of various two-dimensional layered materials and their hybrid counterparts on silicon carbide, an industrially relevant device substrate. It demonstrates the integration of graphene, hexagonal boron nitride and transition metal dichalcogenide layers which were characterised by high resolution scanning probe microscopy and electron spectroscopy. The procedures developed in this work are expected to facilitate a route towards large-scale synthesis of novel nanoscale devices directly on-chip.

Introduction

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Julie Lee

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Thesis by Monograph

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Country: Australia

Supervisor/s: Helen Partridge, Kate Davis

Thesis title:

The Information Experience of Going Mobile for Health and Wellness: A Grounded Theory Study

Description:

This qualitative study investigated the nature of people's everyday information experience in using mobile devices for health and wellness. Participants discussed how they use their mobile devices (such as smartphones, tablet computers and wearable technologies) for everyday self-care rather than institutional healthcare. The constructivist grounded theory developed through this study titled Going mobile for health and wellness consists of five interrelated categories of experience: Knowing myself; Feeling connected; Facing uncertainty; Doing my own research; and Motivating myself. The findings present an unconventional yet faithful view of information as experienced by participants beyond the traditional notions of information seeking and retrieval.

Introduction

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Julie Ross

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Thesis by Monograph

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Country: Northern Ireland

Supervisor/s: Helen Partridge, Sylvia Edwards

Thesis title:

Teaching and Assessing for Information Literacy Learning: A United Arab Emirates Case Study

Description:

This thesis explores how instructors of Academic Writing in a UAE higher education institution conceive, teach and assess for information literacy learning. Using a case study the research included interviews, observations of classroom and instructor-student conferencing sessions, written assessment feedback, and curriculum-related materials. Findings provide insight into instructors' understanding and practice framed through the academic writing task, the challenges that students from a range of multicultural backgrounds face, and the utility that a formative assessment approach affords. Outcomes are significant for local institutions responding to international accreditation mandates, and practitioners who seek to understand the overlap between writing and research.

Introduction

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Kailani Poloika Marlow

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Thesis by Monograph

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Country: United States of America

Supervisor/s: Tracy Washington, George Brymer, Robert Schweitzer

Thesis title:

A Phenomenological Investigation of the Lived Experience of Wellness through Significant Experiences of Nature, in Natural World Contexts

Description:

Human-nature connection is essential to wellness and especially important in the built environment context. This research investigates the lived experience of significant nature experiences in remote natural landscapes to unveil essential elements that can be integrated into biophilic urban design philosophy. In-depth interviews and phenomenological analysis explored the lived experiences of people in programs conducted in remote natural landscapes. Three emergent themes characterized significant nature experiences: attuning to interconnectedness with nature, moving through changing human perspectives, and experiencing restoration through attuning with nature. The findings are relevant to urban planning because to some degree human health is dependent on sensory input that features elements of the natural world.

Introduction

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Thesis by Monograph

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Country: United States of America

Supervisor/s: Elham Sayyad Abdi, Lili Luo (San Jose State University), Sylvia Edwards

Thesis title:

Sociocognitive Relevance of Information Literacy: The Impact on Student Academic Work

Description:

This thesis is an investigation of the relevance of information literacy to student academic work. The study specifically looks at student perceptions of information literacy as sociocognitively relevant when used to complete an assignment. This research provides quantitative and qualitative data to explain student perceptions of the information literacy experience through their work. The factors that make information literacy relevant and how users perceive information literacy to be useful and meaningful are shared and the implications of these findings are presented.

Introduction

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Country: Poland

Supervisor/s: Scott Bryan, Charlotte Allen, Christopher Fielding

Thesis title:

Investigating Far-Field Tectonic Events as Drivers of Provenance Change in Sedimentary Basins

Description:

This thesis greatly enhanced our understanding of the continental-scale links between sedimentary basins and far-field tectonic processes. A novel, multi-method approach was used to reveal a previously unknown, major mountain building event in southwest Queensland that fundamentally altered the history of the Drummond Basin in central Queensland. An unusually large river system was identified, which transported the gravel and sand across the basin from a distant source region. This thesis has provided new insights into the mid-Paleozoic geological history of the Australian continent, established new approaches to tracing the origin of sediment and resolving the complex histories of sedimentary basins.

Introduction

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Country: Vietnam

Supervisor/s: Ashish Bhaskar, Boon Lee, Jonathan Bunker

Thesis title:

Performance Evaluation of Transit Routes

Description:

Transit agencies aim to allocate limited resources properly and maximise ridership. Measuring the performance of individual transit routes within a transit system plays a critical role in identifying operational issues and increasing transit ridership. Addressing this need, this research develops a framework to evaluate operational effectiveness and spatial and temporal performance of individual bus routes within a transit network. With case study on Brisbane a network Data Envelopment Analysis (DEA) model is adopted for efficiency analysis, and the double bootstrap model is applied for sensitivity analysis of DEA efficiency scores obtained to external factors. The developed framework enables transit agencies to evaluate and rank the performance of given bus routes, and then identify both internal and external sources of inefficiency. This should lead to better public transport design and operations.

Introduction

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Country: Sri Lanka

Supervisor/s: Cheng Yan, Godwin Ayoko

Thesis title:

Synthesis and Characterization of Modified Graphene for Energy Storage Applications

Description:

This thesis presents the synthesis and characterization of modified graphene materials and investigates their role in sustainable energy storage applications by using both experimental methods and density functional theory simulations. The outcomes obtained provide a better understanding of the structure-property relationship in modified graphene and its role in electrochemical process in rechargeable batteries, benefiting the development of high-performance electrode materials.

Introduction

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Country: Sri Lanka

Supervisor/s: Clinton Fookes, Subramanian Sridharan, Amalka Pinidiyaarachchi (University of Peradeniya), Amirthalingam Ramanan (University of Jaffna)

Thesis title:

Appearance Based Online Visual Object Tracking

Description:

This thesis presents research contributions to the field of computer vision based visual object tracking. This study investigates appearance based object tracking by using traditional hand-crafted and deep features. The thesis proposes a real-time tracking framework with high accuracy which follows a deep similarity tracking strategy. This thesis also proposes several deep tracking frameworks for high-accuracy tracking and to manage the spatial information loss. The research findings of the study would be able to be used in a range of applications including visual surveillance systems.

Introduction

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Country: India

Supervisor/s: Ashish Bhaskar, Edward Chung

Thesis title:

Origin-Destination Matrix Estimation Using Big Traffic Data: A Structural Perspective

Description:

With ever increasing traffic demand, cities are facing more serious problems from traffic congestion. It is extremely important to have an accurate estimation of travel demand for strategic planning and control. Lack of such knowledge before implementing major transport infrastructure projects could result in huge economic losses. Thus, this research develops new methods using big traffic data and are thoroughly tested on the Brisbane network. These methods can be readily integrated into the existing state-of-the-art and practice for a better estimation of travel demand.

Introduction

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Country: Australia

Supervisor/s: Daniel Johnson, Robin Drogemuller, Joanne Tomkins (The University of Queensland), Michael Docherty

Thesis title:

Authenticity In Digital Archaeological Reconstructions: A Workflow Pipeline and Data Classification System to Inform and Validate the Digital Reconstruction Process

Description:

Virtual reality (VR) modelling is increasingly used to reconstruct lost structures in highly realistic detail. These technologies offer archaeologists the ability to objectively study reconstruction scenarios and alternative hypotheses without having to interact with extant remains. As the use of digital reconstructions increases, so does consensus that there are dangers inherent in creating highly realistic outputs that are based on limited information with an associated lack of transparency of process. This thesis presents a methodology and data classification system for the digital reconstruction process and premises that the certainty of data employed in digital reconstructions is core to reconstruction authenticity.

Introduction

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Thesis by Publication

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Country: Australia

Supervisor/s: Christopher Drovandi, Anthony Pettitt

Thesis title:

Contributions to Computational Bayesian Statistics

Description:

Current statistical methods for facilitating data-driven decision making are too computationally intensive when the phenomenon of interest is complex. This thesis develops novel statistical algorithms and software that can be used to obtain timely, reliable insights when the underlying physical system is complex. The new methods will allow practitioners in areas such as ecology, biology, finance and astronomy to gain more understanding of their field and to make better-informed decisions.

Introduction

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Country: Australia

Supervisor/s: Gerard Ledwich, Wendy Miller

Thesis title:

Investment Planning Under Daily Operation: A Sustainable Housing Community Context

Description:

This research develops a systematical tool to recommend the best short-term operation and long-term investment planning to manage energy bills for neighbourhoods and precincts. Building energy efficiency measures, rooftop solar systems and batteries are evaluated with detailed operational simulation to estimate yearly bill savings across the economic lifetime of investment options. The outcome of this work is that integrated operation and investment options can provide the best return on energy investment for community cases.

Introduction

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Libo Feng

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Thesis by Publication

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Country: China

Supervisor/s: Fawang Liu, Ian Turner, Qianqian Yang

Thesis title:

Numerical Investigation and Application of Fractional Dynamical Systems

Description:

This thesis mainly concerns the numerical investigation and application of fractional dynamical systems. Two main problems are considered: fractional dynamical models involving the Riesz fractional operator, such as the time-space fractional Bloch-Torrey equation, and complex viscoelastic non-Newtonian Maxwell and Oldroyd-B fluid models. The two main contributions of the research are the treatment of the Riesz space fractional derivative on irregular convex domains and presenting a unified numerical scheme to solve a class of novel multi-term time fractional non-Newtonian fluid models. A rigorous stability and convergence analysis of the computational models is also established.

Introduction

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Country: Sri Lanka

Supervisor/s: Mahadeva Mahendran, Anthony Ariyanayagam

Thesis title:

Structural Behaviour and Design of Innovative Hollow Flange Steel Plate Grinders

Description:

This thesis proposes a new Hollow Flange Steel Plate Girder (HFSPG) by welding industrially available cold-formed Rectangular Hollow Sections (RHS) to a web plate for use in long span construction. Design procedures presented in the national and international design guidelines were reviewed and suitable improvements were made to accurately predict the structural behaviour and capacities of HFSPGs by undertaking detailed experimental and numerical studies into their unique structural behaviour. Local buckling/yielding, global buckling and local-global interaction failures were all considered in this thesis.

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Luke Cravigan

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Thesis by Monograph

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Country: Australia

Supervisor/s: Zoran Ristovski, Branka Miljevic, Melita Keywood (Commonwealth Scientific and Industrial Research Organisation), Robyn Schofield (The University of Melbourne)

Thesis title:

The Role of Marine Biota on the Composition and Concentration of Potential Cloud Condensation Nuclei

Description:

Aerosol-cloud interactions in remote marine environments are poorly represented in atmospheric modelling, which contributes to uncertainties in climate prediction. This work reports on in-situ observations which highlight the importance of biogenic marine aerosols, and their spatial and seasonal variability, to the uncertainty in modelled aerosol-cloud interactions. Measurements were taken during four voyages in the Southern and South Pacific Ocean spanning summer to winter. The observations were used to test the applicability of existing empirical models for the Southern Hemisphere.

Introduction

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Country: Australia

Supervisor/s: Theodore Steinberg, Troy Farrell, Barry Newton

Thesis title:

Evaluation of a Near-Adiabatic Compression Process to Increase Fire Safety within Oxygen Systems

Description:

The research presented in this thesis investigated fire safety in oxygen systems, focusing on the ignition of non-metallic materials via the adiabatic compression process. Threshold pressures at which two different types of non-metallic materials (fluorinated and non-fluorinated) would/would-not ignite were identified and parameterized. Results indicated that it takes a certain amount of energy for a material to ignite, that is, a critical enthalpy value. Once this value is known for a given non-metal, designers can determine the amount of heat required to ignite the material from a pressure surge and, by staying below this, prevent ignition from occurring. Data collected can be used in system design, maintenance, and operation processes for oxygen systems to minimize the risk and occurrence of a fire by adiabatic compression ignition.

Introduction

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Country: Iran

Supervisor/s: Jennifer Macleod, Joshua Lipton-Duffin, Nunzio Motta

Thesis title:

Molecular Reactions on Surfaces: Towards the Growth of Surface-Confined Polymers

Description:

High-quality low-dimensional polymer synthesis is a promising route to fabricating high-performance functional nanomaterials. The Ullmann reaction is a frequently-employed reaction with the drawback of unwanted metal-halide byproducts. This project investigates two approaches for the formation of byproduct-free ordered polymers: (a) employing decarboxylation coupling as a “clean reaction” and (b) removal of the metal-halide byproduct by etching with a beam of atomic hydrogen after Ullmann coupling. Both approaches provide new insight into molecule-substrate interactions, intermolecular interactions and the halogen’s effect on the polymerization reaction and products.

Introduction

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Matthew Sutton

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Country: Australia

Supervisor/s: Kerrie Mengersen, Benoit Liquet, Christopher Drovandi

Thesis title:

Variable Selection and Dimension Reduction for Structured Large Datasets

Description:

Recent advances in biomedical technology have allowed us to collect massive quantities of data in the hopes of gaining a better understanding of biological phenomena. This research develops new methods to tackle the challenging problem of determining which parts of these data sets provide useful information. The new methods have been used as a tool to help determine the efficacy of a new HIV vaccine.

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Thesis by Monograph

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Country: Germany

Supervisor/s: James Blinco, Christopher Barner-Kowollik,
Kathryn Fairfull-Smith

Thesis title:

Polymeric Nanocarriers for the Visualisation and Quantification of Molecular Release

Description:

This thesis is focused on the establishment on novel approaches towards drug release systems. The polymer-based nanocarriers presented herein are aimed at providing new building blocks for the highly controlled delivery of drug molecules towards tissue. A variety of triggers to facilitate the efficient release of the drug at the site including physiological factors and the utilisation of blue light are explored. In addition, a modern approach towards the visualisation of effective release is demonstrated. Fluorescence is used as a universal indicator to quantify the efficiency of release.

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Country: Iran

Supervisor/s: Ghavameddin Nourbakhsh, Gerard Ledwich, Ali Arefi (Murdoch University)

Thesis title:

Distribution Network State Estimation, Time Dependency and Fault Detection

Description:

In this research work, the combination of three novel approaches is established to estimate the states of three-phase balanced and unbalanced distribution networks and using the developed methods for high impedance fault detection. The effectiveness of the developed methods are proposing a fast real-time state estimator with a low number of measurement devices, avoiding bad data detection in state estimation, and dynamically updating fault current thresholds to detect high impedance faults in the distribution networks.

Introduction

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Country: Australia

Supervisor/s: Mery Thompson, Christopher Drovandi

Thesis title:

Transformed Statistical Distributions with Applications to Financial Data and Modelling of Financial Systems

Description:

The ability to model extreme events is important across many applications, including extreme weather events, length of long hospital stays and large price changes in financial markets. This thesis uses statistical methods to describe the chance of extreme events occurring. Different methods for estimating the chance of extreme events are compared, and some new methodologies for describing the chance of these events are presented.

Introduction

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Country: China

Supervisor/s: Manicka Dhanasekar, Tatheer Zahra

Thesis title:

Effectiveness of Steel Bars in Reinforced Masonry Walls under Concentric Compression

Description:

This PhD thesis aims at developing an economical and safe reinforced masonry structural walling system suitable for usage in the heavily loaded lower stories of the multi-storeyed residential or commercial buildings. Through a systematic experimental investigation of more than 50 walls and a finite element modelling incorporating material and geometric nonlinearities, design formulae have been developed and incorporated in the Australian Masonry Design Standard AS3700 (2018). With this significant contribution, the outcomes of this PhD thesis can address some of the recent problems of huge societal costs involving cracked walls in several residential apartments in Australia.

Introduction

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Country: China

Supervisor/s: Yuantong Gu, Kevin Burrage, Neha Gandhi

Thesis title:

Atomic-Scale Biophysics Modelling of Type I Collagen in the Extracellular Matrix

Description:

This thesis explores the biophysics of collagen in the extracellular matrix under external stimuli, by performing cutting edge MD simulations. The obtained results provide significant insights into the design and manufacturing of artificial biomaterials for surgical tissue treatments, of collagen for regenerative medicine applications, and of gold nanoparticles for biomedical applications. The probed biophysical properties consist of the structural properties and the mechanical properties, where the mechanical properties of collagen are regulated by its structure at different levels of hierarchies.

Introduction

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Country: Bangladesh

Supervisor/s: Leslie Dawes, Paul Donehue, Rezaur Rahman
(Bangladesh University of Engineering and Technology)

Thesis title:

Impact of Structural Development Projects on Vulnerability of Coastal Communities to Disaster

Description:

This research helps understand the complex human-environment relationships in an ecologically sensitive deltaic plain in the southwest coast of Bangladesh. It explores how large-scale physical infrastructure leads to transformation of an entire social-ecological system through alteration of natural environments, which eventually causes vulnerability of the community to disaster. This research also sheds light on development planning processes and their implications from a political ecology perspective. The findings highlight that, nature-humans coexistence is essential for development to be sustainable. The study proposes Social-Ecological System to be considered as a unit in formulating development plans for limiting the unintended negative consequences of infrastructure development.

Introduction

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Country: Bangladesh

Supervisor/s: Erwin Fieft, Guy Gable, Meng Zhang

Thesis title:

Business Value of Information Technology: A Complex Adaptive Systems Theory View

Description:

This thesis explores a dynamic perspective on the business value of IT (BVIT) in contemporary organisations. Using two theoretical concepts from Complex Adaptive Systems theory, emergence and coevolution, it presents a conceptual BVIT framework explaining how IT-enabled capabilities emerge from IT assets in contemporary organisations and how the coevolution of these capabilities can help organisations obtain competitive advantage. The emergence perspective demonstrates how IT-enabled capabilities arise via bottom-up interactions between the components of IT assets and organisational resources. The coevolution perspective includes micro coevolution, which emphasises how these capabilities improve within organisations, and macro coevolution, which highlights action-based competitive relationships among firms and how they vie for advantage.

Introduction

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Country: Iran

Supervisor/s: Andry Rakotonirainy, Frederic Maire, Dian Tjondronegoro (Southern Cross University), Vinod Chandran

Thesis title:

Driver Stress Level Detection Based on Multimodal Measurements

Description:

Successful driver performance is fundamental in preventing vehicle crashes. Stress can negatively affect driver performance and significantly increase the risk of a crash. Therefore, an in-vehicle warning system for driver stress levels is needed to continuously predict dangerous driving situations and proactively alert drivers to ensure safe and comfortable driving. As a result of the recent developments in sensing technologies and context recognition, driver stress can be detected using multimodal measurements. This thesis proposes a general framework for building a driver stress level detection system based on multimodal measurements and adopts different approaches to maximise the performance of the system.

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Country: Iran

Supervisor/s: Don Vilathgamuwa, Negareh Ghasemi (The University of Queensland), Geoffrey Walker

Thesis title:

On Metaheuristics For Design And Modulation of Multilevel Inverters

Description:

Multilevel inverters are introduced as a promising technology for high voltage applications. Associated design limits and control complexities hinder the wide use of multilevel converters. Motor drive overall efficiency is largely affected by the applied modulation technique. Selective Harmonic Elimination (SHE) Pulse Width Modulation (PWM) is a modulation technique which gives an excellent outcome suppressing low-order detrimental harmonics. Solving of the associated highly nonlinear equation set in SHE PWM has been one of the widely discussed numerical problems in power electronics. Three key innovations are presented in this thesis. Firstly, two modulation techniques are applied to the Cascaded H-bridge (CHB) multilevel configuration. The investigation proceeds by integrating dominant metaheuristic methods and proposing amendments in mathematical modelling. Finally, a systematic approach is reported for developing customised configurations based on 3D Pareto-optimal fronts.

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Supervisor/s: Tan Yigitcanlar, Duzgun Agdas, Md
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Thesis title:

Development and Testing the Validity of a Methodological Framework To Assess Transport-Related Social Exclusion

Description:

Transport-related social exclusion describes a situation where there are transport barriers or limitations for individuals to access basic needs, such as essential goods and services. It, hence, puts individuals at risk of being socially excluded. This thesis develops a methodology to build a comprehensive framework to assess common causes of transport barriers. The study also identifies the individuals that are part of the transport-related social exclusion population.

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Country: Iran

Supervisor/s: Kirsty Kitto, Peter Bruza

Thesis title:

Modelling the Human Mental Lexicon Using the Formalism of Quantum Theory

Description:

Quantum cognition (QC) is a new interdisciplinary research field which applies the mathematical structure of quantum mechanics to explain and understand puzzling aspects of cognitive phenomena. This study focuses on improving the current QC models of language and memory. The researcher provides a better understanding of measurement and contextuality in processes involving language and memory. This will impact upon the field of QC, strengthening its position as a well-founded branch of mathematical psychology.

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Country: Sri Lanka

Supervisor/s: Konstantin Momot, Andrew Fielding, Samantha Weerasinghe (University of Colombo), Siyath Gunawardene (University of Colombo), Tony Sahama

Thesis title:

Molecular Dynamics Studies of Liquids and Hydrated Biopolymers

Description:

This research presents a computational study of the dynamics of molecules in pure liquids, as well as its extension to the dynamics of water molecules associated with biological macromolecules. The results presented in this study advance the fundamental understanding of how molecules in liquids behave. The results presented also provide new insights into Magnetic Resonance Imaging properties of collagenous connective tissues, with applications in experimental and clinical radiology.

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Country: Papua New Guinea

Supervisor/s: Yateendra Mishra, Don Vilathgamuwa

Thesis title:

Smart Protection System For Future Power System Distribution Networks with Increased Distributed Energy Resources

Description:

This thesis investigates the impact of increased penetration of distributed energy resources (DERs) on the power system distribution network protection system which has been designed on the premise of passive radial network with unidirectional power flow. The investigation involved developing a multistage morphological fault detection and diagnostic tool called the decomposed open-close alternating sequence algorithm using a signal processing technique called mathematical morphology. This investigation culminated in proposing new strategies for; adaptive overcurrent protection in AC radial distribution network with increased DER penetration and high impedance arc-fault detection in AC and DC power distribution networks.

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Country: Bangladesh

Supervisor/s: Madhav Nepal, Ronald Skitmore

Thesis title:

Modelling Cost Overrun Risks in Power Plant Projects

Description:

Cost overruns in power plant projects frequently occur, and this very alarming phenomenon requires proper risk assessment and management in the early phase of power plant project development. A modified fuzzy group decision-making approach (FGDMA) was developed and the critical risks in different phases of thermal power plant project were identified. Further, a novel fuzzy canonical model (FCM) was developed and the complex causal risk-networks were modelled to understand the root causes of cost overruns. The benefits of this research to practitioners are such that it provides greater understanding of the risks involved in power plant projects and sound analytical methods to assess the risks.

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Country: Pakistan

Supervisor/s: Marc Miska, Edward Chung

Thesis title:

Development of Selective Parking Discovery Algorithm for Parking Guidance

Description:

Balancing on-street parking supply with demand is a challenging issue faced by today's metropolis. Parking guidance equips drivers with parking availability information so they can make smarter decisions about their parking choice. This thesis introduces a selective parking discovery algorithm that takes drivers preferences and outputs the ideal parking location instead of letting drivers choose from a list of all available parking locations.

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Country: Iran

Supervisor/s: Yunfei Xi, Godwin Ayoko, Graeme Millar

Thesis title:

Synthesis and characterisation of mineral based composite materials for the remediation of contaminated aqueous solutions

Description:

Expanding urbanisation and industrialisation have increased aqueous concentrations of organic contaminants which are toxic to human health and the environment. Hence, remediation of these contaminants from aqueous solutions has become an important environmental concern. This research project aims to synthesize novel mineral-based composite materials, namely diatomite/Fe/Ni, palygorskite/Fe/Ni and sepiolite/Fe/Ni and study their applications for the removal of Orange II and 2,4-dichlorophenol from water. Experimental investigations contain material characterization, batch removal experiments, kinetic studies and contaminant removal mechanisms. Finally, complete removal of the contaminants showed promise of these composite materials for the treatment of organic contaminants from aqueous solutions.

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Country: Vietnam

Supervisor/s: David Thambiratnam, Hung Chan, Ba Ky Thuat Huynh (National University of Civil Engineering), Theanh Nguyen (University of Southern Queensland)

Thesis title:

Structural Damage Identification Using Static and Modal Flexibility-Based Deflections

Description:

This research contributes towards the safe and efficient operation of our infrastructure which are vulnerable to progressive deterioration and damage. Innovative damage detection (DD) methods are proposed herein to detect such damage at the onset to enable appropriate retrofitting and prevent structural failure. These DD methods overcome current difficulties in using popular DD methods based on changes in static and/or modal flexibility-based deflections. First, an innovative deflection-based method is proposed based on explicit relationships between static deflection change and damage characteristics. Next, this method is enhanced for cases where static deflections are estimated indirectly from dynamically measured modal flexibility. The capability of the methods is numerically and experimentally validated for various structures including beams, girder bridges and concrete gravity dams and confirm that the proposed DD methods are reliable to safeguard key civil infrastructure.

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Supervisor/s: Hongxia Wang, Geoffrey Will, Wayde Martens

Thesis title:

Efficiency Enhancement in Solution-Processed Organic-Inorganic Perovskite Solar Cells

Description:

Organic-inorganic lead halide perovskite is a promising candidate in the photovoltaic field due to the combined merits of impressive power conversion efficiencies and relatively cost-effective solution processes. Despite its remarkable success, there is still room for further improvement. This thesis aims to investigate the impacts of morphological microstructure and elemental composition of organic-inorganic lead halide perovskite light absorber on power conversion efficiency, stability and current-voltage hysteresis behaviour of perovskite solar cells.

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Country: Vietnam

Supervisor/s: Don Vilathgamuwa, Troy Farrell

Thesis title:

On The Development of Electrochemical-Based Lithium-Ion Battery Models For Battery Management Systems

Description:

The main objective of the thesis is to construct high-performance, reduced order, electrochemical models incorporating thermal and degradation phenomenon that can be used in advanced battery management systems. These models have been developed to be computationally simple, whilst maintaining their ability to accurately represent the major electrochemical and thermodynamical degradation mechanisms of grid-connected lithium ion batteries. The performance of these models is validated numerically by comparing their output with solutions of a more sophisticated (and computationally expensive) pseudo-two-dimensional electrochemical model. Furthermore, an electrochemical-based adaptive state estimation algorithm is proposed and validated via experiment.

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Supervisor/s: Peta Wyeth, Daniel Johnson

Thesis title:

Engaging in Activities: The Flow Experience of Gameplay

Description:

This research examines how players engage in gameplay activities in videogames, and how these activities shape their experience of enjoyment. Three qualitative studies were conducted to produce new insights about the player experience, in a domain dominated by quantitative experiments and survey studies. Results demonstrate how conflict-based activities, narrative components, game stimuli, and immersive elements contribute to flow in games. More broadly, the research contributes to our understanding of Activity Theory, a theory that frames Human-Computer Interaction in terms of the goals and outcomes people produce through their interactions with technology.

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Country: Bangladesh

Supervisor/s: Ashish Bhaskar, Marc Miska, Zuduo Zheng (The University of Queensland)

Thesis title:

Microscopic Modelling of the Area-Based Traffic Flow

Description:

Area-based (i.e., non-lane based) heterogeneous traffic (as in developing countries) differs significantly from lane-based homogeneous traffic (as in developed countries). In area-based traffic, drivers generally ignore the lane markings and perceive the entire road space while progressing longitudinally. Traditional car-following and lane-changing models are not directly applicable to modelling such driving behaviour. This research aimed to microscopically model the dynamic of the subject vehicle in area-based traffic flow. The modelling was conducted in two steps. In Step 1, discrete choice-based modelling was conducted to identify the area-based movement direction of the subject vehicle. In Step 2, a vehicle-following behaviour model was developed to simulate the next position of the subject vehicle (along the direction of a selected alternative, as modelled in Step 1 of this modelling). The macroscopic validation of the model was performed to ensure the robustness of the model.

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Supervisor/s: Ian Stoodley, Sylvia Edwards, Christine Bruce
(James Cook University), Virginia Tucker (San Jose State
University)

Thesis title:

Mapping the Neural Activities and Affective Dimensions of the ISP Model: Correlates in the Search Exploration, Formulation, and Collection Stages

Description:

The affective and neurological components of information retrieval system design have increasingly become an essential part of research in human-information interaction and interactive information retrieval. These sophisticated processes are composed of not only human cognitive processes but also emotional and neuropsychological responses. This research contributes three original findings to the field of Information Science, positioned in Neuro Information Science. This experimental research 1) mapped the neurophysiological dimensions of information search processes model, 2) integrated the three disciplines of Neuroscience, Information Science, and Cognitive Psychology, and 3) helped detect dimensions of emotions using EEG devices. This study collected brain frequencies through the EMOTIV EEG neuroheadset. The results indicated that there were clear differences in the brain frequencies/waves within different locations of the brain, depending on the ISP stage and the emotional state.

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Country: Iran

Supervisor/s: Nunzio Motta, Hongxia Wang, Mahnaz Shafiei
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Thesis title:

Investigation of The Doping Effect on Cu₂ZnSnS₄ Thin Film Properties for Photovoltaic Applications

Description:

The aim of this research is to increase the efficiency of thin film solar cells made by Copper, Zinc, Tin and Sulfur (CZTS). By including a small amount of chromium in the absorber layer has improved dramatically the light absorption of CZTS films in the infrared region, making use of a portion of solar spectrum never accessed before. This study revealed that a 4% Cr concentration produced a 90% increase in the efficiency, due to a double step absorption of low energy photons. These findings open the way to highly efficient CZTS solar cells.

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Country: Iran

Supervisor/s: Tan Yigitcanlar, Mirko Guaralda, Md Kamruzzaman (Monash University)

Thesis title:

A Methodological Approach for Establishing Place Quality in Australian Innovation Districts

Description:

This research study aims to develop an integrated perspective of place quality in the context of knowledge economy; since place quality is recognised as an effective tool for attracting talented workers and knowledge-intensive industries. The study adopts a multi-scalar investigation to explore place quality in different geographical scales and specialise it for the district scale. A mixed-method approach including both qualitative and quantitative techniques has been designed to conduct the project. This doctoral study develops robust frameworks to theoretically define and practically evaluate place quality in innovation districts. These frameworks deliver significant directions for planning and designing of innovation districts.

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Country: India

Supervisor/s: Ross Broadfoot, Floren Plaza, Geoffrey Kent

Thesis title:

Investigating the Effect of Tube Dimensions and Operating Conditions on Heat Transfer Performance in Rising Film Vertical Tube Evaporator

Description:

This study reports on an investigation to determine the effects of tube dimensions (different lengths and diameter) and operating conditions on the heat transfer coefficient of a single tube pilot rising film evaporator. The HTC data and the capital cost model developed as part of the study can be used to design an industrial Robert type evaporator with superior performance in terms of higher heat transfer efficiency and reduced costs associated with the design, fabrication, installation of the equipment. The study has also resulted in a better understanding of the boiling mechanism in rising film evaporators and operational recommendations are postulated to increase the performance of existing Robert type evaporators.

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Country: India

Supervisor/s: Prasad Yarlagadda, Zhiyong Li, Yuantong Gu

Thesis title:

Atherosclerotic Plaque Tissue Characterization By Combining Imaging, Pathological and Mechanical Analysis

Description:

This thesis was a step forward in understanding the behaviour and variations of structural and mechanical characteristics of the atherosclerotic plaque tissue, to better assess the plaque vulnerability. A framework is developed for the comprehensive characterization of the plaque tissue and enhance our knowledge of the plaque heterogeneity and its response to the complex interactions between systemic, hemodynamic and biological factors. The outcomes of this research and the framework developed when applied on long-term longitudinal studies will be useful for developing a risk stratification plan for improving treatment strategies before an acute event happens.

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Country: Sri Lanka

Supervisor/s: David Thambiratnam, Hung Chan, Nimal Perera

Thesis title:

Mitigating Ground Vibration Using In-Filled Trenches and Predicting Performance through Artificial Neural Network

Description:

This project is a step forward for developing an effective and economical technique to mitigate ground vibration generated by different types of vibration sources using in-filled trenches. The method is based on a comprehensive parametric study using validated numerical models supported by experimental measurements. The information from this parametric study is used to develop an artificial neural network that can predict trench dimensions and in-fill material properties to suit the propagation medium and receiver requirements for steady-state vibration sources.

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Gallage, Leslie Dawes

Thesis title:

Modelling Pollutants Leaching from Recycled Construction Materials

Description:

This research developed new models to replicate metal leaching characteristics from recycled concrete aggregate (RCA) and reclaimed asphalt pavement (RAP). Model development was supported by a comprehensive experimental and analytical program with multiple influential factors. New models were developed so that they are readily applicable in commercial models to replicate pollutant leaching and solute transport in soil environments. Outcomes of this study will enhance the sustainable use of waste products such as RCA and RAP in the construction industry and relieve the stresses on natural quarry products.

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Country: Sri Lanka

Supervisor/s: Anthony Pettitt, Samantha Low Choy

Thesis title:

Improving Species Distribution Modelling: Selecting Absences and Eliciting Variable Usefulness for Input into Standard Algorithms or a Bayesian Hierarchical Meta-factor Model

Description:

This thesis explores and proposes methods to improve species distribution models. Throughout this thesis, a rich class of statistical modelling techniques has been developed to address crucial and interesting issues related to the data input into these models. The overall contribution of this research is the advancement of knowledge on species distribution modelling through an increased understanding of extraneous zeros, quality of the ecological data, variable selection that incorporates ecological theory and evaluating performance of the fitted models. Though motivated by the challenge of species distribution modelling from ecology, this research is broadly relevant to many fields, including bio-security and medicine. Specifically, this research is of potential significance to researchers seeking to: identify and explain extraneous zeros; assess the quality of their data; or employ expert-informed variable selection.

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Country: Iran

Supervisor/s: Ka Hung Hon, Glen Murphy, Karen Manley

Thesis title:

Adoption of Social Media for Professional Knowledge Sharing by Construction Professionals in Australia

Description:

This study examines the adoption of social media for work-related knowledge sharing (KS) in the Australian construction industry. A new model has been developed. Mixed research methods including a survey and interviews were conducted. Performance expectancy, knowledge sharing self-efficacy, and facilitating conditions were the factors affecting the adoption of social media for KS by construction professionals in Australia. Trust played a critical role in enhancing potential enablers and reducing barriers for social media Verification, and monitoring mechanisms are suggested for improving levels of trust. The findings contribute to improving KS in the construction industry.

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Country: Argentina

Supervisor/s: Yan Lamari, Ronald Skitmore

Thesis title:

Development of a Model to Risk Manage Construction Defects in the Residential Sector

Description:

This research unfolds the frequently occurring defects in the residential construction sector and examines those key defects in depth. In particular, the research extends existing knowledge about defects causation and management and assesses the practical barriers and nature of trade work in Queensland residential construction. Findings of this research suggest that key risk management strategies and causes for defects are specific to each construction trade and only a few risk-management strategies can be administered through all the residential trades. This study provides building professional stakeholders with a comprehensive mapping of defects causation and management synthesised in a risk-management model that can be used as a guide to prioritise the management of significant construction defects, so that efforts can be directed at strengthening key pitfall areas.

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Country: China

Supervisor/s: Kateryna Bazaka, Derek Richard, Erik Thompson, Kostyantyn Ostrikov

Thesis title:

Direct and Indirect Activation of Biological Objects Using Cold Atmospheric Plasma

Description:

This project was a step forward in the development and application of chemically reactive physical plasmas for direct and indirect treatment of biological objects. The project unravelled the link between plasma-generated chemistry and resultant bioactivity, so as to improve the cold plasma devices for specific applications. The project investigated the interactions of cold plasmas with biological objects including plant seeds, living cells and microorganisms, to provide some theoretical and experimental bases for the development of plasma applications.

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Country: Kenya

Supervisor/s: Philip Hobson, Geoffrey Kent

Thesis title:

Development of Bioenergy Systems and Models for Optimised Recovery and Delivery of Biomass to Biorefinery Operations

Description:

This research explores the feasibility of recovering cane residue and bagasse as well as siting and sizing of a bio-refinery in Australia. It provides a framework that integrates spatial distribution of biomass supply, bio-refinery size and site locations, logistical flows and process engineering by integrating economic, environmental and social values using versatile and integrated approaches of stochastic multi-objective optimization, simulation and techno-economic modelling to design a recovery and energy production systems using sugarcane derived biomass. These approaches enabled the analysis of key techniques required to significantly reduce the uncertainties associated with the cost and industrial engineering impacts of lignocellulose biomass as a feedstock for the renewable production of fuels, chemicals and bio power.

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Country: China

Supervisor/s: Subramanian Sridharan, Clinton Fookes, Simon Denman

Thesis title:

Homography Estimation: From Geometry to Deep Learning

Description:

Homography is an important area of computer vision for scene understanding and plays a key role in extracting relationships across different viewpoints of a scene. This thesis focuses on studying homography transformations between images from both geometric and deep learning perspectives. We have developed an accurate and effective homography estimation system for sports scenes analysis an efficient and novel 3D perspective feature to improve 3D object recognition especially for the vehicle recognition.

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Supervisor/s: Connie Susilawati, Sobana Goonetilleke

Thesis title:

Development of Asset Optimisation Strategy for the Public Sector in Indonesia

Description:

Asset optimisation strategy in the public sector is essential in the improvement of public service delivery. It assists by resolving problems in asset management, such as a large number of unregistered and underutilised land and buildings, high costs of operation and maintenance, as well as lack of control in the improvement of asset performance. This research aims to develop a robust strategy for asset optimisation by utilising the balanced scorecard as a strategy tool. It examines key elements and alternatives of asset optimisation of public land and building. As a comprehensive approach, this thesis distilled practical aspects of asset management from certain countries and applied mixed method to evaluate not just explore the elements but also determination of prioritisation using Analytic Hierarchy Process. The framework of asset optimisation is validated and tested in the Directorate General of State Asset and Management as a model of public asset manager in Indonesia.

Introduction

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Sahan Kuruneru

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Thesis by Publication

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Country: Hong Kong

Supervisor/s: Emilie Sauret, Yuantong Gu, Suvash Saha
(University of Technology Sydney)

Thesis title:

A Coupled Finite-Volume & Discrete-Element Method to Investigate Particle-Laden Gas Flows and Particle Deposition in Metal Foam Heat Exchangers

Description:

This thesis focuses on the development and implementation of an advanced numerical model to investigate complex fluid flow behaviour through novel metal foam heat exchangers used in various industrial applications such as computer heat sinks and air-conditioners. The developed numerical model permits engineers to better optimize heat exchanger designs. Moreover, the project delves into heat exchanger fouling which is a multifaceted issue in the industry. In this regard, a non-toxic and cost-effective anti-fouling heat exchanger fouling is proposed.

Introduction

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Sainan Lyu

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Thesis by Monograph

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Country: China

Supervisor/s: Ka Hung Hon, Albert Chan (Hong Kong Polytechnic University), Ronald Skitmore

Thesis title:

Improving the Safety Communication of Ethnic Minority Workers in the Construction Industry

Description:

This study aims to improve the safety communication of ethnic minority workers (EMWs) in the construction industry. A mixed methods research design was adopted. Semi-structured interviews, Delphi survey and questionnaire surveys were conducted to examine safety and health problems of EMWs, critical safety communication factors, safety communication networks of EM crews, and the effects of safety communication factors and networks on the safety performance of EMWs. The research findings would help industry practitioners to diagnose deficiencies in safety communication management with EMWs, develop effective communication network patterns for EMWs, and improve the safety performance of EMWs.

Introduction

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Sam Liao

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Thesis by Monograph

Institute of Health & Biomedical Innovation (IHBI)

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Country: Australia

Supervisor/s: Maria Woodruff, Zhiyong Li, Sean Powell

Thesis title:

The Interaction Between Left Ventricular Assist Devices and Intraventricular Flow: An in silico Evaluation

Description:

The thesis focused on improving patient outcomes after receiving an artificial heart pump. This involved the investigation of blood flow patterns within the heart and predicting the risks of blood clots forming. The thesis indicated that the device design, surgical implantation technique and operating strategy can have an influence on the risk of blood clot formation.

Introduction

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Thesis by Monograph

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Country: Australia

Supervisor/s: Wageeh Boles, Michelle Mukherjee, Andrea Goncher (Charles Sturt University)

Thesis title:

Enhancing Student Conceptual Understanding and Learning Experience through Automated Textual Analysis

Description:

Supporting students to develop a strong foundation for thorough understanding, and assisting educators in teaching effectively, both require the utilization of meaningful feedback. The contributions presented in this thesis aimed to provide instantaneous, and individualised feedback for both students and educators through the use of text analysis. The methodologies and models described are all automated, therefore once implemented can provide feedback routinely and recurrently. These solutions facilitate both learning and teaching for students and educators, respectively, helping to close the quality assurance loop.

Introduction

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Samuel Smith

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Thesis by Monograph

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Country: Australia

Supervisor/s: James Hogan, Markus Rittenbruch, Daniel Johnson

Thesis title:

Visual Analytics for Transcriptional Regulatory Networks

Description:

This thesis is an exploration of the visualisation of large data sets in the transcriptional regulatory space. Advances in technology have resulted in large volumes of bioinformatics data, including those relating to interactions between regulatory proteins and target genes. Visualisation is an important step in the scientific workflow, allowing researchers to gain insights and communicate their findings to wider audiences. This study examined the effect of display size, visual encodings and network representations in the context of transcriptional regulation, using a series of user studies to evaluate current approaches and to identify strategies for improved visualisation in this domain.

Introduction

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Sean McMahon

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Thesis by Publication

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Country: Australia

Supervisor/s: Michael Milford, Niko Suenderhauf

Thesis title:

Direct Visual Hazard Affordance Detection

Description:

This research investigates how robotic and autonomous perceptual systems can detect the action possibilities, or affordances, of objects in their environment. Specifically, hazard affordances are detected, as they are a type of detrimental action allowed by some objects. Trip hazard detection on construction sites is the primary, but not the only application domain of this direct visual affordance detection approach.

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Shojaeddin Jamali

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Country: Iran

Supervisor/s: Hung Chan, Khac Duy Nguyen, David Thambiratnam, Theanh Nguyen (University of Southern Queensland)

Thesis title:

Assessing Load Carrying Capacity of Existing Bridges Using SHM Techniques

Description:

This research provides a multi-tier framework for load carrying capacity assessment of bridges using structural health monitoring techniques. In this framework, four tiers are developed ranging from simplified to detailed tiers for holistic bridge assessment. Performance of each tier has been validated using various numerical and experimental examples of bridges and beam-like structures.

Introduction

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Country: Australia

Supervisor/s: Lin Ma, Michael Cholette

Thesis title:

System Functional Reliability Modelling and Safety Analysis Using Covariates

Description:

The research presents a hybrid approach to assess the real-time reliability of a complex system using system function and component health condition indicators. Different from the traditional reliability analysis methods, this study focuses on the system functional reliability rather than failure. The novelty is in the design of the approach specifically that the system reliability is estimated and predicted using the measurements at both system and component levels. A cost model is also developed to optimize maintenance thresholds at system-level and component-levels for enhancing safety. These innovative approaches are illustrated using simulation and industrial case studies.

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Country: India

Supervisor/s: Jacob Coetzee, Anagiyaddage Jayalath

Thesis title:

Refinements to Design of Waveguide Slot Arrays

Description:

Existing design techniques for waveguide slot arrays have certain limitations. This doctoral thesis presents a detailed mathematical derivation to account for higher-order coupling between main line slots and neighbouring radiating slots. New expressions are derived for the coupling slot equivalent impedance that accommodate phase differences between scattering parameters and higher-order coupling. The thesis also presents a design method that accounts for arbitrary levels of waveguide loss, and one that takes asymmetry of slot fields into account. In addition, a new single-layer feed structure capable of providing arbitrary complex power split ratios to variable branch line impedance is proposed.

Introduction

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Country: India

Supervisor/s: Michael Milford, Niko Suenderhauf

Thesis title:

Robust Visual Place Recognition under Simultaneous Variations in Viewpoint and Appearance

Description:

This thesis explores the problem of visual place recognition and localization for a mobile robot, particularly dealing with the challenges of simultaneous variations in scene appearance and camera viewpoint. The proposed methods draw inspiration from humans and make use of semantic cues to represent places. This approach enables effective place recognition from similar or opposing viewpoints, despite variations in scene appearance caused by different times of day or seasons. The research contributions presented in the thesis advance visual place recognition techniques, making them more useful for deployment in a wide range of robotic and autonomous vehicle scenarios.

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Country: India

Supervisor/s: Aijun Du, Anthony O'Mullane

Thesis title:

Computational Exploration of Two-dimensional (2D) Materials for Solar Energy Applications

Description:

This project is to find innovative and alternate Nano-sized materials for solar energy applications. This include conversion of solar light energy into electricity or generate clean environment friendly fuels by breaking water into Oxygen and Hydrogen. The study has explored material characteristics at electronic level to reveal new properties. These revelations then compared amongst some of the organic and inorganic materials for the intended purpose. Innovative design of new carbon-compounds (termed as carbon Quantum dots) included in the study for use in the new generation Perovskite solar cells for charge transfer.

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Country: Saudi Arabia

Supervisor/s: Prasad Yarlagadda, Robert Burdett

Thesis title:

Strategic and Operational Issues in the Integrated Management of an Airport - An Operations Management Approach

Description:

This thesis contributes to the area of integrated management of outbound and inbound passenger flows at an international airport terminal for optimal utilisation of resources with maximum comfort to the passengers. The main goal of this research is to develop a holistic model based on the combination of simulation, airport resource management algorithms and analytical optimisation approaches. This model provides an important step forward in the development of a fully-fledged holistic decision support tool. The model can be used for strategic and operational requirements for multi-terminal International/Domestic.

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Country: Pakistan

Supervisor/s: Wasana Bandara, Erica French, Glenn Stewart

Thesis title:

Leadership in Public Sector Business Process Management Initiatives - A Developing Country Perspective

Description:

This research is an exploratory study of leadership in business process management. It examines the notion of effective leadership and its complexity dynamics in the socio-technological context of public sector business process improvement initiatives. The study explains how the nature of leadership is shaped by multi-actor interactions and shifts from formal positions of authority to self-organising units. The study theorises two interchangeable roles of Visible-Catalyst and Invisible-Enabler to balance the leadership interventions with complexity dynamics. The combination of the two roles result in effective development and adoption of process-centric thinking in organisations leading to sustainable management of business process transformations.

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Country: Bangladesh

Supervisor/s: Jayasiri Rajapakse, Graeme Millar, Leslie Dawes

Thesis title:

Applicability of Coagulation Technologies for High-Turbidity Coal Seam Gas Water Treatment

Description:

This project developed new strategies to facilitate reuse of water from the coal seam gas (CSG) industry. Both chemical coagulation and electrocoagulation were examined for their ability to protect downstream reverse osmosis (RO) desalination systems from detrimental fouling and scaling. Electrocoagulation in particular was highly effective at removing dissolved silicates, alkaline earth ions and suspended solids; thus RO operation was expected to be improved. In addition the purification of resultant brine was demonstrated, thus potentially enabling the recovery of salt as a product. It was recommended to scale-up electrocoagulation testing to pilot plant.

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Country: Sri Lanka

Supervisor/s: Subramanian Sridharan, Clinton Fookes

Thesis title:

Context Modelling for Single and Multi Agent Trajectory Prediction

Description:

This research addresses the problem of predicting future agent behaviour in both single and multi agent settings where multiple agents can enter and exit an environment, and the environment can change dynamically. Both short-term and long-term context was captured in the given domain and utilised neural memory networks to use the derived knowledge for the prediction task. The efficacy of the techniques was demonstrated by applying it to aircraft path prediction, passenger movement prediction in crowded railway stations, driverless car steering, predicting next shot location in tennis and for predicting soccer match outcomes.

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Country: Vietnam

Supervisor/s: Richi Nayak, Shlomo Geva

Thesis title:

Clustering Methods For Multi-Aspect Data

Description:

With the rapid growth of computational technology, multi-aspect data has become ubiquitous and popular. Multi-aspect data is able to represent the information with multiple perspectives or multiple types of features. This thesis explores this hot topic of machine learning and presents several methods of clustering by exploiting the multi-aspect data properties under the Non-negative Matrix Factorization framework with manifold learning. The proposed methods have shown superiority to identify subgroups for the high-dimensional, sparse and complex data. The proposed methods have applicability to wider fields such as vision, signal processing, bio-informatics, text mining, web mining and recommender systems.

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Thesis by Publication

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Country: Vietnam

Supervisor/s: Prashant Sonar, John Bell

Thesis title:

Electron Deficient Solution Processable Organic Semiconductors for Optoelectronic Devices

Description:

This research is a study of novel developed electron deficient semiconducting materials for optoelectronic devices. It investigates the molecular engineering aspects of new conjugated small molecular electron acceptors with desirable properties such as strong and broad absorption, high electron mobility, and suitable energy levels and good solubility for organic solar cell and organic thin film transistor applications. Furthermore the effect of alkyl chain length on solubility, thermal, optical, electrochemical properties, and device efficiencies is also studied.

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Tonima Ali

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Thesis by Publication

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Country: Canada

Supervisor/s: Konstantin Momot, Yin Xiao

Thesis title:

Transverse Relaxation Based Magnetic Resonance Techniques for Quantitative Assessment of Biological Tissues

Description:

Using transverse relaxation based MRI, this thesis has developed new quantitative approaches to characterise the progression of Osteoarthritis in animal models and has introduced this type of characterisation for the assessment of mammographic density. For the first time, it has identified the collagen architecture in the kangaroo knee cartilages using MRI. The three case studies presented in this thesis have experimentally investigated and evaluated the analytical efficacy of the transverse relaxation based techniques and quantitative T2 measurements. It has also identified previously unknown information on the composition of native and pathological tissues and thereby demonstrated the suitability of the application of transverse relaxation based techniques for comprehensive assessment of biological tissues and organs. The imaging and analysis protocols developed in these works are completely non-invasive and are transferrable to clinical scanners in principle.

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Tran Le

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Thesis by Monograph

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Country: Vietnam

Supervisor/s: Anagiyaddage Jayalath, Jacob Coetzee

Thesis title:

Spectral and Energy Efficient Resource Allocation in OFDMA Femtocell Heterogeneous Networks

Description:

This thesis presents novel resource allocation algorithms for energy and power efficient transmissions in future mobile wireless networks. Algorithms presented in thesis incorporate a combination of practical conditions: mixed services, rate fairness, the density of deployment of femtocells and non-linear power consumption. The resource allocation problem of sparse and dense deployment of Orthogonal Frequency Division Multiple Access based heterogeneous femtocell networks is solved by optimising spectral efficiency, energy efficiency and spectral and energy efficiency trade-off respectively. In general, this research proposes several resource allocation algorithms that are practical, efficient and lower in computational complexity.

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Tristan Reddan

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Institute of Health & Biomedical Innovation (IHBI)

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Country: Australia

Supervisor/s: Kerrie Mengersen, Wenbiao Hu, Fiona Harden
(Hunter Industrial Medicine), Jonathan Corness (Mater
Hospital)

Thesis title:

Statistical Modelling of Paediatric Appendix Ultrasonography and the Predictive Value of Secondary Sonographic Signs

Description:

This thesis evaluated the role of ultrasonography in children with suspected appendicitis. Diagnostic criteria and important secondary sonographic signs of appendicitis were identified through statistical analysis of data collected at two children's hospitals. Findings were used to create predictive models, including a Bayesian network incorporating ultrasound and clinical variables. This thesis raised awareness of the utility of secondary sonographic signs of appendicitis, which have predictive value even when the appendix isn't seen on ultrasound. This has improved performance of appendix ultrasound at the Queensland Children's Hospital through provision of more definitive ultrasound results, potentially reducing unnecessary surgery.

Introduction

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Country: Sri Lanka

Supervisor/s: Douglas Stebila, Matthew Mckague, Xavier Boyen

Thesis title:

Next-Generation Web Public-Key Infrastructure Technologies

Description:

This research is a study of public key infrastructure (PKI) technologies, present and future. It models a currently deployed PKI technology, designs a new technique by extending that model and lastly investigates the future aspects of public-key infrastructure. The work provides significant and broad knowledge on PKI trust models and technologies to enhance security and efficiency. The thesis examines Certificate Transparency and develops an abstract model of a logging scheme to capture its security properties, which is then extended using blockchain technology to cover distributed properties. Finally, this research examines how PKI can transition to support secure communication in a post-quantum world.

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Country: Australia

Supervisor/s: Steven Bottle, James Blinco, Kathryn Fairfull-Smith

Thesis title:

The Synthesis and Evaluation of Polyaromatic Profluorescent Nitroxide Probes for the Detection of Photo-oxidative Polymer Degradation

Description:

This study focused on the synthesis and evaluation of novel photo-stable profluorescent nitroxide probes. The stability and performance of the newly synthesised probes were assessed under harsh environmental environments and compared with previously synthesised PFN probes. Analysis of their physical characteristics revealed that the nitroxide-fluorophore probes displayed strongly suppressed fluorescence in comparison to their corresponding non-radical derivatives. Evaluation of these probes confirmed their enhanced ability to detect radical polymer degradation in the laboratory and in true weathering conditions over any previously synthesized profluorescent nitroxides or other laboratory techniques.

Introduction

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Country: Egypt

Supervisor/s: Emad Kiriakous, Godwin Ayoko

Thesis title:

Novel Nanoscale Platforms for the Isolation and Ultra-Trace Detection of Bioactive Molecules

Description:

This thesis demonstrates novel nanoscale analytical platforms for the selective and sensitive detection of biomolecules for pharmaceutical, environmental and biomedical applications. The new platforms comprised functionalized nanomaterials, disposable sensors and portable detectors for the combined Raman and electrochemical determination of biomolecules. The new nanosensing methodology utilizes the thiol chemistry of biomolecules for their label-free detection by SERS and DPV. Therefore, it can be applied to numerous biomolecules that have disulfide bonds structure. In terms of sensitivity, sample processing, analysis time and cost, the new methodology has significant advantages over the other current techniques such as chromatography and enzyme-linked immunosorbent assay.

Introduction

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Country: Australia

Supervisor/s: Jonathan Bunker, Ashish Bhaskar

Thesis title:

Saturation Flow at a Signalised Intersection Approach with a Downstream Bus Stop and Bicycle Lane

Description:

As the demand for transit service rises, buses are more prevalent on roadways; hence, it is important to evaluate the impact of transit buses on the local traffic stream. This research employed a novel methodology to study the influence of offline bus stops on traffic flow rate at signalised intersections. The re-entry process of stopping buses at signalised intersections causes impact on general traffic flow. In the past, no study has been analysed the impact of a downstream, offline bus stop with adjacent bicycle lane upon traffic flow rate across the stop line at a signalised intersection. Data analysis confirmed that re-entering buses impacted the general traffic flow across the stop line more than the other events analysed. However, traffic flow returned to steady state after the second car crossed the stop line. An adjustment factor to traffic flow rate was developed to reflect the impact of the re-entering buses of the far-side off line bus stops at signalised intersections.

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Yue Zhou

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Thesis by Monograph

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Country: China

Supervisor/s: Ashish Bhaskar, Michael Cholette, Edward Chung (Hong Kong Polytechnic University)

Thesis title:

Trajectory Planning Strategies of Connected Automated Vehicles for Cooperative On-Ramp Merging and Mainline Facilitating Maneuvers

Description:

This work develops two trajectory planning strategies for future connected automated vehicles (CAVs) to carry out automatic on-ramp merging and mainline facilitating (i.e. gap development) maneuvers. Both proposed strategies are based on constrained optimal control problems. The second strategy features the ability to mitigate the impact of a mainline gap development movement on the traffic following behind so as to enhance traffic safety. Analytical solutions are rigorously derived for the optimal control problems using the Pontryagin Maximum Principle without making any assumptions or ad hoc treatments in order to reduce the analytical difficulty. The obtained analytical solutions are implemented in a model predictive control framework to accommodate constantly changing external environments. Large scale simulations indicate that both the strategies, particularly the second strategy, are beneficial to traffic safety under mixed environments of CAV and human-driven vehicles.

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Country: China

Supervisor/s: Manicka Dhanasekar, David Thambiratnam, Hossein Askarinejad (Christchurch Polytechnic Institute of Technology)

Thesis title:

Dynamics of Road Vehicles Crossing Rail - Road Intersections

Description:

This project was a step forward in redesigning level crossing for improved safety of level crossing infrastructure. A vehicle-tire-obstacle model capable of predicting the vehicle dynamic behaviour as well as the tire-obstacle contact forces was developed from basic equations of motion. The thesis investigated the profile of redesigned level crossing from the perspective of road vehicle dynamics including the safety risk to the occupant and the dislodgement risk of the freights in the road vehicles. It was shown that the redesigned level crossings can save lives and avoid damages to trains, road vehicles and the related infrastructure.

Introduction

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Thesis by Monograph

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Country: Malaysia

Supervisor/s: David Thambiratnam, Hung Chan, Hashim Razak
(University of Malaya)

Thesis title:

Detecting, Locating and Quantifying Damage in Slab-on-Girder Bridge Using Vibration Based Techniques

Description:

Bridges are designed for long life spans and the slab-on-girder bridge is one of the most commonly used bridge types in Australia and also in the world. However, changes in load characteristics, random loading, deterioration with age and environmental influences may inflict damage to the structures. This research developed a method to detect, locate and quantify damage in the slab-on-girder bridge structure at an early stage before the problem becomes visible to human eyes. Findings of this research will help to enhance the safety and efficiency of slab-on-girder bridges.

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