

*FACULTY OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY*  
*RESEARCH UPDATE 2000 - 2005*



UNIVERSITI MALAYSIA SARAWAK  
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## CONTENTS

Foreword by Dean	02
News and Highlights	03
Members of Faculty	06
Visitors	08
Research Activities	
i. Knowledge Systems Group	09
ii. Imaging and Spatial Information Systems Group	10
iii. Information Infrastructure	12
Publications	13
Consultation & Professional Activities	27
Postgraduate Students	
i. PhD	31
ii. MSc by Research	32
ii. Masters of Advanced I.T (MAIT)	37
Research Projects	39

**T**his edition of Research Focus IT highlights the research carried out by the Faculty of Computer Science and Information Technology for the period 2000-2005. This edition is both timely and important to promote our research activities and to strengthen research collaboration and networking.

The Faculty has always placed due importance on building strong research capabilities in our core areas. The core research areas of the Faculty are Information Infrastructure, Image Processing and Spatial Information Systems, and Knowledge Systems. These areas provide a platform for potential research collaborations both across institutions within the country and abroad. The Faculty has to date received almost RM 3 million (USD 0.75 million) in research grants from both national and international sources. The effort of producing this research output is important as it will provide insights into the research performance indicators to be developed for the Faculty.

The R&D efforts of the Faculty has brought about the establishment of the Geographical Information Systems (GIS) Laboratory, Web Intelligence Consortium - Malaysia Research Centre and the Centre Of Excellence (COE) in Community Informatics.

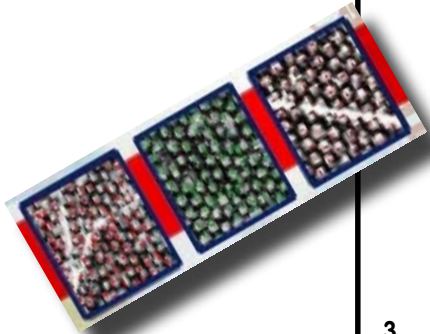
The image processing core group has to date won a number of national and international awards through its R&D outputs. The WIC Malaysia Research Centre is a national level research centre coordinated by the Knowledge Systems Core Group and is affiliated to the Web Intelligence Consortium, with linkages to research institutions in the country. Besides this the eBario team of Unimas, has won prestigious national and international awards in rural ICT development.

The Faculty continues to undertake scholarly activities which include the biennial Conference on IT in Asia (CITA), the publication of the Journal of IT in Asia, and Symposiums in our core areas, Postgraduate Colloquiums, and research workshops.

It is my hope that researchers in the Faculty will strive for the highest standards in all our R&D initiatives and that the results of this will be reflected in our teaching and learning activities as well. I also hope that our staff will be able to work together to foster a research culture that will provide an ideal environment for catalysing our R&D outputs.

**Associate Professor Narayanan Kulathuramaiyer**

**Dean  
Faculty of Computer Science and Information Technology  
Universiti Malaysia Sarawak**



1. **The 4<sup>th</sup> International Conference on Information Technology in Asia (CITA '05) : Pervasive and Ubiquitous Computing: Computing Anytime, Anywhere for Everyone, 12 – 16<sup>th</sup> December 2005, Kuching, Sarawak, Malaysia.**

The Fourth International Conference on Information Technology in Asia 2005 (CITA '05) organized by FCSIT in collaboration with the ICT Unit, Sarawak Chief Minister's Office had been held recently in a leading hotel in Kuching. Participants from all over the world came to join in this conference with the theme "Pervasive and Ubiquitous Computing: Computing Anytime, Anywhere for Everyone". Among those who came were Professor Nickolai Scerbakov (Graz University of Technology, Austria), who was the keynote speaker, Prof Dato' Dr Mashkuri Yaakob (MIMOS Berhad), Prof P.S. Grover (University of Delhi, India) and Mark Palmer (Motorola, Fort Lauderdale, USA). Over 150 papers were submitted under these 8 tracks: Knowledge Networks and Management Ubiquitous Computing Infrastructure, Community Informatics, Ubiquitous Information Management, Human Computer Interaction, Ubiquitous Systems Engineering, Agents & Autonomous Systems, Computational Models and Systems. Of these, 60 papers were accepted and presented during this 5 days conference.

2. **Institusi Pendidikan Tinggi Awam ( Public Higher Education Institutions ) R&D 2005, Research and Development Expo. PWTC, 30 Sept – 2 Oct 2005, Kuala Lumpur.**

Three projects submitted by the Faculty managed to bag the bronze medal in the recent Research and Development Expo held in Putra World Trade Centre in the capital. These projects are:

- » Image Finder: A Content Based Information Retrieval System - Assoc. Prof Dr. Wang Yin Chai & Assoc. Prof. Narayanan Kulathuramaiyer
- » Oil Palm Tree Crown Delineation and Enumeration: Using IKONOS Satellite Images – Assoc. Prof. Dr Wang Yin Chai & Chai Soo See
- » Bario Lakuh Digital Library - Dr Alvin Yeo & Poline Bala

3. **Mondialogo Engineering Award 2005, 30 May 2005, Berlin, Germany.**

On 30 May 2005, Universiti Malaysia Sarawak through its award-winning project, eBario yet again added another trophy to its mantel by winning the Mondialogo Engineering Award 2005 and also the Special Jury Recognition Award. This time around, Unimas teamed up with the Organisation of Sustainable Engineering in South East Asian Nations (OSEAN) and the Engineering Department, University of Cambridge, U.K to present a project proposal entitled "Photovoltaics In Rural ICTs – Creating Sustainable Energy In Remote Settings".

The Mondialogo Engineering Award is an initiative of DaimlerChrysler and UNESCO to promote intercultural dialogue among young engineers around the world. The international jury assessed project ideas for sustainability, feasibility

and quality of intercultural dialogue within the project group. More than 1,700 young engineers and students from 79 nations had registered for the contest to form a total of 412 teams.

**4. MoU Between Universiti Malaysia Sarawak and SUN Microsystem for Sun Academic Initiative, 27 May 2005, Universiti Malaysia Sarawak.**

Sun Microsystems Malaysia Sdn. Bhd and Encoral Digital Solutions Sdn. Bhd. have signed a Memorandum of Understanding (MOU) with Universiti Malaysia Sarawak here at its Kota Samarahan campus. Vice Chancellor, Professor Abdul Rashid Abdullah represented UNIMAS while Sun Microsystems Malaysia Sdn. Bhd. was represented by Mr. Cheam Tat Inn, Managing Director of Sun Microsystems Malaysia. Encoral Digital Solutions Sdn. Bhd was represented by Mr. Mohammad Amin Abd. Karim, its Managing Director.

The MOU signed provides a platform for collaborative activities between UNIMAS and Sun Microsystems in the areas of education & training, and research & development through the Sun Academic Initiative program (SAI), especially in IT skills development. As part of this program, non-profit institutions become authorized, enabling those institutions to deliver training on Sun technologies to their faculty, staff and students. In addition, faculty, staff and students can obtain free access to selected online courses through the Sun Learning Center.

**5. The First Postgraduate Colloquium, Faculty of Computer Science And Information Technology, October 6, 2004, Universiti Malaysia Sarawak.**

The First Post-Graduate Colloquium of the Faculty of computer Science and Information Technology was held on 6<sup>th</sup> October 2004. The aim of the colloquium was to showcase outstanding research conducted at the Faculty while fostering the exchange of ideas and research results amongst researchers across educational institutions in Sarawak. There were 22 papers presented by the postgraduate students of the Faculty. Of these papers, nine papers were from the Image Processing and Spatial Information Systems core groups; ten papers were from Knowledge System core group and three papers from Information Infrastructure core group.

Awards were also presented for :

- » Best presenter
  - Patrick Then Hang Hui.
- » Most Innovative Project
  - Liew Lee Hung with the project titled "Intra-class Variability Modeling For On-line Signature Using Multi-resolution Approach"
- » Best Paper
  - Patrick Then Hang Hui with the paper titled "Towards Using Neutral Network as Digital Watermark Detector In Zero-Knowledge Proofs".





**6. 2004 eASIA Award AFACT ( Asia Pacific Council for Trade Facilitation and Electronic Business ).**

On 24 September 2004, eBario, the joint pilot project by Universiti Malaysia Sarawak (UNIMAS) and the Bario community won the eAsia Award in the Digital Divide Category at the recent 2004 eAsia Week. The eAsia Award is sanctioned by AFACT (Asia Pacific Council for Trade Facilitation and Electronic Business). On hand to receive the Award was Deputy Vice-Chancellor (Development) and eBario Project Leader, Professor Dr. Khairuddin Ab Hamid. The "2004 eASIA Week" is hosted by the Ministry of Economic Affairs, Chinese Taipei, and co-organised by AFACT and the Institute for Information Industry.

**7. eBario Wins Prime Minister's Award 2003 (Information Technology Premier Award), 18th December 2003, Kuala Lumpur.**

A joint project by Universiti Malaysia Sarawak (UNIMAS) and the Bario community –won the Information Technology Premier Award (ITPA) (Socio-Economic Sector). The ITPA is jointly coordinated by MAMPU under the Prime Minister's Department, and the Malaysian Association of Computer and Multimedia Industry (PIKOM). It is presented to organizations, which have demonstrated excellence in the application of information technology and awarded in three categories: public, private and socio-economic sector.

eBario is a pilot research project involving the innovative application of ICTs with the goal of continually sustaining social and economic programs in a rural community, in Sarawak, which does not have the basic amenities such as electricity, water and telecommunications. This is the third award won by the eBario Project. Other awards include the Industry Innovators Award for System Development & Applications from the Society of Satellite Professionals International, and the World Teleport Association named Bario one of the Top Seven Intelligent Communities in 2001.

**8. The Third International Conference on Information Technology in Asia (CITA '03): Transforming Knowledge into Insight, 17-18th July 2003, Kuching, Sarawak, Malaysia.**

The CITA'03 conference was organized by Universiti Malaysia Sarawak in collaboration with the ICT Unit, Chief Minister's Department of Sarawak, and the Global Information and Telecommunication Institute, Japan. It is the aim of the conference to showcase applications of Information and Communications Technology (ICT) in the Asian region while fostering the exchange of ideas and research results with researchers worldwide. We are pleased to have received an excellent response of over 120 submissions from over 12 countries. Of these, 48 papers were accepted under 5 major tracks: Community Informatics, Knowledge Management and Systems, E-learning, Intelligent Systems and Knowledge Infrastructure.



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Hamimah binti Ujir BSc (Hons)  
Irwandi Hipni bin Mohd Hipiny BSc (Hons)  
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Jacey Lynn Minoi, BIT (Hons), MSc  
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Shapiee Abdul Rahman, BSc (Hons), MSc  
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**Prof Nikolai Scerbakov**

Graz University of Technology, Austria, 2005

**Prof Sylvia Echeva**

Stord/Haugesund University College, Bjornsonsg, Norway, 2005

**Prof Dato' Dr Mashkuri Yaakob**

Head , Research Cluster Department, MIMOS Berhad, 2005

**Prof P.S. Grover**

Director & Head Department of Computer Science, University of Delhi, India, 2005

**Mark Palmer**

Senior Manager Human Factors and Design Research Motorola, Fort Lauderdale, USA, 2005

**Dr. Abdelhamid Abdesselam**

Department of Computer Science, College of Sciences, Sultan Qaboos University, Oman, 2001, 2004

**Assoc. Prof. Geoffrey Holmes**

Department of Computer Science Department, University of Waikato, New Zealand, 2002

**Dr. Timothy R. Ritchings**

Senior Lecturer, Department of Computation School of Sciences, University of Salford, UK, 2003

**Prof Sally-Jo Cunningham**

Department of Computer Science, University of Waikato, New Zealand, 2002 & 2003

**Prof. Terrence Fernando**

Director, North West Research Centre for Advanced Virtual Prototyping University of Salford, UK, 2003

**Dr. Martin Hope**

Lecturer, School of Acoustics and Electronics University of Salford, UK

**Dr. Khoo Guan Seng**

Physics Division, School of Science, Deputy Director, Center for Financial Engineering (CFE)/ MSc (Financial Engineering) program, NTU, Singapore, 2000

## **Research Groups**

As of year 2004, research conducted at the Faculty has been grouped under three niche areas: knowledge systems, geographic information system and information infrastructure.

### **1) Knowledge Systems**

The research interests of the knowledge systems group focuses on areas covering machine learning, ICT and society, knowledge-based systems, human computer interaction and modeling. Machine learning involves the application of Intelligent Systems in various fields such as data mining, bioinformatics and image processing. The knowledge-based systems focus on applying knowledge management and new concepts to improve the knowledge management process for certain communities, such as better information presentation in the organization, increase effectiveness and efficiency of web searching and navigations for virtual community.

ICT and Society covers the application of ICTs in empowering remote communities to improve their livelihood and including mobilization of communities as well as determining metrics of knowledge society readiness. The main studies of human computer interaction are concerned with the design, implementation and evaluation of usable websites and computing devices including mobile computing devices.

These researches intend to create better awareness in system development to support various types of system environments and to support broader range of users, such as disabled users.

Application of operational research and mathematical modeling are also covered in this research group. The research group also cover the development of the generic frameworks and domain models to support the industry needs, such as manufacturing industry.

## **Research Projects**

### **Knowledge Discovery**

- (i) Development of a Plagiarism Detection System
- (i) Empirical Method in Determining Natural Data Structure based on Cluster Analysis for Text
- (i) Feature Selection for Automated Text Categorization
- (i) Flexible and Adaptive Question Bank Framework
- (i) Latent Semantic Indexing for Automated Text Categorization
- (i) Latent Semantic Analysis (LSA) for Automated Marking Computer Programme Assignments
- (i) Using WordNet to Enhance Feature Selection in Automated Text Categorization
- (i) The Use of Fuzzy Clustering Approach for Chemical Compound Selection

### **Knowledge Based Systems**

- (i) Applying Knowledge Management in an Academic Context: A Case Study

at the Faculty of IT

- ⌚ Decision Support System Knowledge World Modelling
- ⌚ Knowledge Society
- ⌚ Semantic Web for a Virtual Community of Practice with Reference to Automatic Identification of New Concept
- ⌚ The Use of Fuzzy Clustering Approach for Chemical Compound Selection

### **Human-Computer Interaction**

- ⌚ Awareness for Distributed Synchronous Groupware System
- ⌚ Customer Centered Design Methodology (CCDM): Approach for Improving E-commerce Website Usability
- ⌚ Eye gaze drawing for the disabled
- ⌚ Improving Targeting Feedback for Users with Low Visibility Using Redundant Feedback
- ⌚ Multimodal Spatial Query
- ⌚ Usability Testing for E-recruitment Tool
- ⌚ Validation of Requirements from Software Specification

### **ICT and Society**

- ⌚ Agent Mediated Disability Learning
- ⌚ Digital Library: Capturing Indigenous Oral History
- ⌚ eBario : Providing Equal Access of ICTs for Rural Communities
- ⌚ eBedian: Application of ICT in Tourism to Improve Livelihood of Rural Communities
- ⌚ Impact Study of eBario on Community
- ⌚ K-Readiness of Sarawak
- ⌚ Preserving Cultures by Mobilising Minority Languages (of Sarawak) Online: Building the Conceptual Framework
- ⌚ Sustainability, Hydro and Hybrid Solar-fuel Cell System for the Rural ICT Telecenter
- ⌚ Virtual Classroom for Rural Area using Thin Client Architecture

### **Modelling/Simulation**

- ⌚ Developing the Architecture for the Production of a Generic Model for the Local Manufacturing Industries
- ⌚ Domain Model and Software Development: The Manufacturing Industry Information and Command Infrastructure
- ⌚ Modelling Manufacturing Process Flow in Malaysia Pepper Industries
- ⌚ Modelling System Behaviour Using Parsing Technique

## **2) Imaging and Spatial Information Systems Group**

The focus of the group is to promote research activities in the area of image processing and spatial information system especially in the development of algorithms and computer methods for solving imaging and GIS problems.

The current strengths of the group for Image Processing research are in developing different types of Content Based Image Retrieval (CBIR) techniques, focusing on the extraction of features such as shape, colour and texture of an image. Novel research on retrieval techniques have been developed based on the features extracted. The techniques have been tested and proven to be efficient for various applications such as trademark tile databases. Artificial intelligence techniques such as Fuzzy Logic, Neural network, and Genetic Algorithms have been incorporated to produce state-of-the-art solutions. Spiral representation has been proposed in a colour-based retrieval system to overcome limitations of existing systems.

Besides CBIR, the group has been conducting research in the areas of handwriting and signature analysis, focusing on similarity measurement techniques and features. Another research extracts height from satellite imagery (Synthetic Aperture Radar, in particular), whereby, spatial-based fuzzy clustering algorithm has been used to improve the height extraction algorithm i.e. phase unwrapping.

For GIS research, the group is focusing on the development of various tools and techniques such as the optimisation of redistricting algorithms. The use of genetic algorithms and fuzzy multi-criteria decision-making approach for spatial based redistricting algorithms has been applied in the area of plantation management.

A circle extraction and identification of Malaysian cadastral maps has been developed by incorporating Hough Transform techniques. The group has also been carrying out research on extracting oil palm information such as tree stand and tree age through various satellite images. The techniques developed have been tested and used by the industry as part of the oil palm plantation management system. In order to improve the GIS query processes, a sketch based query retrieval model and representation model have been introduced to improve the retrieval process.

The group is currently working on various projects such as the integration of digital watermarking using intelligent techniques, rainfall estimation model using GIS, butterfly species classification using CBIR techniques and spatial database transformation model.

The group also has strong linkages with government and private agencies in providing different consultation by applying research findings to solve real world problems.

### Research Projects

#### Image Processing & Visualisation

- ( ) 360 degree Panaromic Visualization Techniques for Mobile Phone
- ( ) Butterfly Identification and Species Classification Using CBIR Approach
- ( ) E-Pekak : Vision-based Hand Gesture Modeling For Continuous And Large Vocabulary Sign Language Recognition
- ( ) Finger Print Classification and Similarities Measurement
- ( ) Improving a 360 degree panoramic visualization technique Used on Standard Mobile Phones
- ( ) Intelligent Digital Watermarking





- ⌚ Intelligent Video Surveillance Monitoring
- ⌚ Medical Image Classification Using CBIR Approach
- ⌚ Oil Palm Fruit Bunches Extracting and Identification
- ⌚ Oil Palm Tree Information Extraction Through Satellite Imagery
- ⌚ Theory and Computation of Thread-Annular Flow

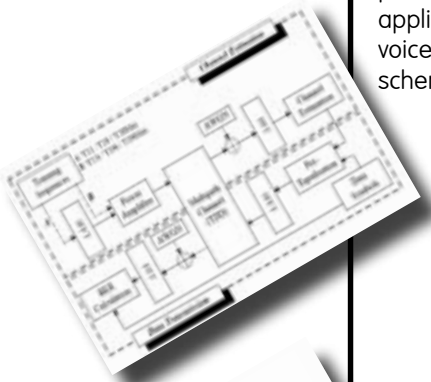
**Spatial Information System**

- ⌚ Multispectral Satellite Images For Individual Oil Palm Tree Identification
- ⌚ Land Parcel Construction through scanned image for GIS Database
- ⌚ Road Generator : Optimizing Road Construction For Plantation Management
- ⌚ Spatial based Terrace Generation Techniques based on Topographic Data

**3) Information Infrastructure**

The information infrastructure group aims to further improve network infrastructures including services for emerging network technologies, where its niche research areas mainly focus on network security and management, network design and planning, broadband and wireless communications, network protocol design and implementation, grid computing, mobile agent and open source software.

Current studies are focused on computational complexity reduction techniques for processing speed improvement, performance study of communication networks, application of Agent technology in automated network security management, data and voice communications in remote areas using wireless technology, and adaptive throughput scheme for wireless broadband networks.



**Research Projects**

**Parallel Processing**

- ⌚ Using Grid Computing to Speed Up String-Matching Algorithm

**Communication Protocols**

- ⌚ Enabling Agent in Security Management - An Argumentation Negotiation Approach
- ⌚ ID-based Mobile Agent towards Agents World (IMAW)
- ⌚ Low Computational complexity PAPR Reduction Scheme for OFDM based Broadband systems
- ⌚ Messaging Services for Integrating Networked Appliances with Learning Capabilities

**Wireless Networks**

- ⌚ Adaptive Throughput Scheme for Cooperative Broadband Wireless Networks
- ⌚ Performance Study of WLAN-ATM LAN Integration
- ⌚ User Authentication In Bluetooth Using Secure Socket Layer (SSL)
- ⌚ Voice Communications over Wireless Local Area Network (LAN) for Rural Communities





**Alvin Yeo Wee (Dr.)**

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Lim, T. Y., Khalid, H. M., & Yeo, A. W. (2005). Evaluating The Usability Of First-Level Collaborative Awareness Components In Synchronous Distributed Groupware, 10th International Conference on Human Aspects of Advanced Manufacturing: Agility and Hybrid Automation (HAAMAHA2005).San Diego, USA.

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#### ***Azman Bujang Masli***

Masli, A. B. (2003). A Software Tool For Reducing Web Navigation Problems. Paper presented at the Third International Conference on Advances in Strategic Technologies (ICAST2003), Kuala Lumpur, Malaysia.

#### ***Azni Haslizan Ab. Halim***

Haslizan, A., Zen, K., Ibrahim, D. H. A., & Tarmizi, S. (2005). Secure Mobile Financial Application (MFA) In Bluetooth Technology Using SSL. Paper presented at the Proceedings: International Conference on E-Commerce, UUM, Selangor, Malaysia.

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#### ***Bong Chih How***

Bong, C. H., & Kulathuramaiyer, N. (2004). An Empirical Study Of Feature Selection For Text Categorization Based On Term Weighting Scheme, IEEE/WIC/ACM International Joint Conference on Web Intelligence (WI2004).Beijing, China.

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### ***Cheah Wai Shiang***

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Then, P. H. H., & Wang, Y. C. (2001). Towards Hybrid 2d Phase Unwrapping Using Fuzzy Clustering And Neuro-Fuzzy Learning For Sar Images: A Case Study On Ifsar Phase Image, The International Symposium on Intelligent Multimedia, Video & Speech Processing.Hong Kong.

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Lau, B. T., & Wang, Y. C. (2000). Using Maximum Likelihood Approach To Enhance The Map Matching Technique In Positioning Systems, Sixth International Conference on Applications of Advanced Technologies in Transportation Engineering.Singapore.

### ***Wong Chee Weng (Dr.)***

Bong, C. W., Wang, Y. C., & Wong, C. W. (2004). Comparative Evaluation Between Multi-Objective And Single-Objective Decision Making For Political Districting, IEEE International Conference on Information Reuse and Integration.Las Vegas, Nevada, USA.

Bong, C. W., Wang, Y. C., & Wong, C. W. (2004). Interactive Multiobjective Decision Support For Zone Definition Procedure, Seminar Kebangsaan Sains Pemutusan (SKSP2004).Universiti Utara Malaysia, Malaysia.

Bong, C. W., Wang, Y. C., & Wong, C. W. (2004). Multiobjective Metaheuristic For Redistricting: The State-Of-The Art, International Conference of OCEANS2004 MTS/IEEE/ TECHNO-OCEAN2004 (OTO2004).Kobe, Japan.

Bong, C. W., Wang, Y. C., & Wong, C. W. (2004). A Multiobjective Spatial-Based Zone Design Model (Moszod), Conference of Oceans2004 MTS/IEEE/ TECHNO-OCEAN2004 (OTO2004).Kobe, Japan.

Wong, C. W. (2004). The Significance Or Insignificance Of Models, Regional Conference on Ecological & Environmental Modelling.USM, Malaysia.

Wong, C. W. (2003). Sensitivity Analysis Of The Decision Making Process, The LII Catchment: International Congress: on Modelling and Simulation.Townsville, Australia.

### ***Yanti Rosmunie Bujang***

Musa, N., Ibrahim, D. H. A., & Bujang, Y. R. (2004). Developing K-Readiness Index For Sarawak, 30th Asian Info-Communications Council (AIC) Conference.Kuala Lumpur, Malaysia.

### **Professional Activities**

#### **Jonathan Sidi**

International Conference on Information Technology in Asia: "Pervasive and Ubiquitous Computing: Computing Anytime, Anywhere for Everyone", Kuching: Head of Multimedia Committee, 2005.

Sarawak State Civil Service Website Competition 2004 ICT Unit, Chief Minister's Department, Sarawak: Evaluator Panel, 2005.

Sarawak State Civil Service Website Competition 2004 ICT Unit, Chief Minister's Department, Sarawak: Evaluator Panel, 2003.

International Conference on Information Technology in Asia: "Advanced ICT for the new Millenium", Kuching: Head of Multimedia Committee, 2001.

#### **Narayanan Kulathuramaiyer (Assoc. Prof.)**

Quality Assurance Department of Ministry of Higher Education: Assessor Panel, 2004.

Information Technology ISCG Technical Committee 6 on Graphics and Multimedia, Department of Standards, Malaysia: Chairman of Industry Standards Committee, 2004.

Web Intelligence Consortium-Malaysia Research Centre: Director, 2004.

MSC in Mobile Computing – University Technology Petronas: Expert Panel, 2004.

Special Session on Advances in Intelligent Data Processing Techniques and Applications at the 8th International Conference on Knowledge-Based Intelligent Information & Engineering Systems (KES2004): International Technical Committee Member, 2004.

Encyclopedia on Developing Regional Communities with ICT: Member of International Advisory Board, 2004.

Technical Committee for Information Services (TECIS), UNIMAS: Chairman, 2003 – Present.

5th International ItiRA Information Technology in Regional Areas Conference 2003, Caloundra, Queensland Australia, December 2003: Technical Programme Committee Member, 2003.

Conference on Information Technology in Asia: "Transforming Knowledge into Insight": Chairman, 2003.

International Multidisciplinary Journal of Business & Society, Association of Business Scholars' Publication: Member of the Editorial Board, 2000-2002.

International Journal of Education and Development using Information and Communication Technology (IJEDICT), member of editorial Board.

Symposium on Online Education, Kuala Lumpur (SOLE2001) - Programme Chair: Chairperson, 2001.

Conference on Information Technology in Asia: "Advanced ICT for the new Millenium", Kuching: Programme Committee Member, 2001.

Malaysian Journal of Distance Education, School of Distance Education, University Sains Malaysia: Member of International Advisory Board, 2001- current.

***Syahrul Nizam Junaini***

School of Informatics Science, Universiti Malaysia Sabah, Labuan International Campus: Invited Lecturer, 2004-05.

Sarawak State Civil Service Website Competition 2004 ICT Unit, Chief Minister's Department, Sarawak: Evaluator Panel, 2004.

***Wang Yin Chai (Assoc. Prof.)***

Malaysia IGS Grant Scheme: Panel, 2004.

***Editorial and Review Work for Journals and Conferences***

***Narayanan Kulathuramaiyer (Assoc. Prof.)***

- Journal of IT in Asia, 2005: Editor
- UNIMAS Info SERV Newsletter , Issues 13: Chief Editor
- UNIMAS Info SERV Newsletter , Issues 10-12: Editor, 2001- current.
- Fourth MIMOS Annual Technical Symposium, Kuala Lumpur: Reviewer, 2002.

***Alvin Yeo (Dr.)***

- Journal of IT in Asia, 2005: Editor
- International Workshop on Internationalisation of Products and Systems (IWIPS): Reviewer, 2001 - 2005.
- Conference on IT in Asia: Kuching : Reviewer, 2003 & 2005
- ACM Computer-Human Interaction (CHI): (Vienna, Austria): Reviewer, 2003-2004.
- Asia Pacific CHI 2004 (Jun 29 - 2 July): (Rotorua, New Zealand): Reviewer, 2004.

- Seventh International Conference on Work with Computing Systems. Kuala Lumpur. ISBN 983-41742-0-9 : Halimahtun, M.K., Helander, M. and Yeo, A. (2004): Editor, Reviewer, June 2004.
- Marshall, S., Taylor, W. and Yu, X. (Eds.). The Encyclopaedia of Developing Regional Communities with ICT: Reviewer, 2004.
- Seventh South East Asian Ergonomics (SEAMEC 2003): Reviewer, 2001.
- Fourth Malaysian Ergonomics Conference, Kuching: Reviewer, 2001.

***Wang Yin Chai (Assoc. Prof.)***

- BIMA 2005 International Conference on Information Management in Modern Enterprise, Lisbon, Portugal: Reviewer, 2005.
- International Business Information Management Conference (IBIM 2003), Cairo, Egypt: Reviewer, December 2003.
- Third International Conference on Information Technology in Asia (CITA '03), UNIMAS. Reviewer, 2003.
- Symposium on Online Education (SOLE2001), Kuala Lumpur: Reviewer, 2001.
- Second International Conference on Information Technology in Asia (CITA '01), UNIMAS: Technical Panel, 2001.

***Jane Labadin (Dr.)***

- Journal of IT in Asia, 2005: Editor
- Conference on IT in Asia 2003(July) : Kuching: Reviewer, 2003.

***Tan Chong Eng (Dr.)***

- The IEEE International Conference on Vehicular Technology, VTC Fall04: Reviewer, 2004
- The Forth International Conference on Information Technology in Asia (CITA '05), Kuching: Reviewer, 2005

***Syahrul Nizam Junaini***

- Pacific Asia Conference on Information Systems (PACIS05), Thailand: Reviewer, 2004-2005.
- International Journal of Electronic Commerce Research: Reviewer, 2004-2005.
- IEEE Communications Magazine: Reviewer, 2004-2005.

***Jonathan Sidi***

- International Journal of Electronic Commerce Research: Reviewer, 2004-2005.





































































