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Preface

These are the proceedings of the 10th International Conference on Advances in Computer Entertainment (ACE 2013), hosted by the Human Media Interaction research group of the Centre for Telematics and Information Technology at the University of Twente, The Netherlands.

The ACE series of conferences, held yearly since 2004, has always been lively and interactive events. There are not just mainly paper presentations, but also many creative showcases, demonstrations, workshops, and often a game competition as well. For ten years now, ACE has shown itself to be a strong and vibrant community. Throughout the years, there has been a common element that ties together many of the different types of work presented at ACE. In their contributions, authors not only present solutions to known problems, or observe and describe aspects of the technological reality that is out there, but also actively explore what new things they can make, and why these new things might be important or interestingly different.

During ACE 2011, held in Lisbon (Portugal), Hiroshi Ishii challenged the ACE community by asking for the real value of entertainment computing, and especially the relevance of research in this field. At ACE 2012, held in Kathmandu (Nepal), this question was raised again during the panel session. We can try to address this question through some viewpoints on entertainment technologies. Clearly, entertainment can be a valuable goal in itself. People need to experience fun, engagement, social connectedness, and many other things achieved through entertainment. Entertainment can also be used as a powerful means for changing people's perceptions, ideas, and behavior. Entertainment with and through computers is a fact of daily life. It is there, and it has a huge economic impact that is not likely to decrease.

At ACE, we look at entertainment computing as the subject of our research. We look at changing perceptions and behaviors using serious games and other persuasive technologies. We try to analyze and understand various aspects of computer entertainment: besides "making new things", we "analyze the things that we find in the world of computer entertainment", how people use technology or play games. We explore the creative design space to find new forms of beauty, experience, and fun. Also, we attempt to re-create existing human experiences in an interestingly new way. New developments in multimodal interactive technology are used to re-create certain experiences as faithfully as possible; subsequently, we attempt to find out whether we can fundamentally enhance the experience, due to the technological innovation. What can we do better, differently, in a more interesting way, because we implemented technology for this particular experience?

The latter is also reflected in the theme of this anniversary edition, which was "Making New Knowledge". As already noted in last year's introduction to

the proceedings of ACE 2012, creating has always been an important form of entertainment. People paint for a hobby, play music, build model airplanes, or write amateur poetry in their free time. Just for the fun of designing and creating their own entertainment; the final result may be less important than the process. Tinkering can also be a strong source of learning, something that has been known at least since the seminal work of Seymour Papert. In a video lecture on Carnegie Commons, John Seely Brown suggests that the role of a teacher partly shifts from imparting knowledge to building a learning community. Clearly, tools for programming and physical computing can serve as tinkering materials in such a community, and maybe there are further roles that computer entertainment technology can play in building and facilitating such a learning community.

These thoughts are not only reflected in a number of papers and extended abstracts in these proceedings, but also in several of the additional activities that were organized during this year's conference. There were panels, workshops in which the participants sit down together to actively make things or to discuss the role (and challenges!) of tinkering in scientific education, the Kids' Workshop Track featuring activities for children making stories, animations, and elements for games, and there were special efforts to include more students at various levels in their education in the conference. All this took place at the beautiful resort Bad Boekelo, situated in the pastoral countryside of Twente.

Of course, there cannot be a conference without the submission of many good papers. This year, 133 papers were submitted to the various tracks. With an acceptance rate of 22% for long regular presentations, and 54% for all contributions including extended abstracts for the poster presentations, these proceedings represent the very interesting and relevant work currently carried out by the ACE community.

Like every year, many people worked hard to make this 10th edition of ACE a success. To the Program Committee, reviewers, authors, track chairs, workshop organizers, delegates visiting the conference, and the sponsors supporting the conference in various ways: Thank you! We are proud to have served as this year's general and program chairs to bring everything together in the lovely countryside of Boekelo, The Netherlands!

November 2013

Dennis Reidsma
Haruhiro Katayose
Anton Nijholt

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Keynote Talks

“Mindful or Mindless Entertainment?”

Yvonne Rogers

University College London

Abstract. We are increasingly living in our digital bubbles. Even when physically together – as families and friends in our living rooms, outdoors and public places – we have our eyes glued to our own phones, tablets and laptops. The new generation of ‘all about me’ health and fitness gadgets, wallpapered in gamification, is making it worse. Do we really need smart shoes that tell us when we are being lazy and glasses that tell us what we can and cannot eat? Is this what we want from technology – ever more forms of digital narcissism, virtual nagging and data addiction? In contrast, I argue for a radical rethink of our relationship with future digital technologies. One that inspires us, through shared devices, tools and data, to be more creative, playful and thoughtful of each other and our surrounding environments.

Yvonne Rogers is the director of the Interaction Centre at UCL and a professor of Interaction Design. She is internationally renowned for her work in HCI and ubiquitous computing. She has been awarded a prestigious EPSRC dream fellowship to rethink the relationship between ageing, computing and creativity. She is known for her visionary research agenda of user engagement in ubiquitous computing and has pioneered an approach to innovation and ubiquitous learning. She is a co-author of the definitive textbook on Interaction Design and HCI now in its 3rd edition that has sold over 150,000 copies worldwide.

Disney Research – “Haptics for Entertainment: Context without Content”

Ali Israr

Disney Research

Abstract. Haptics is an emerging field for enhancing interactivity and immersion. As a result, many new haptic technologies are developed and introduced in recent years for entertainment, education, communication, surgical, therapeutic and sensory substitution. In the last decade, there exists a buzz for haptics to be a ‘game-changer’ for gaming, mobile and VE applications, however, the main-stream consumers have yet to see compelling and popular haptic products. We have identified two main factors which must be addressed for success of haptics in gaming and entertainment markets. These are (1) novel haptic technologies and (2) new tools to create haptic content.

In this talk, I will present the background and vision for recent haptic technologies developed in the Disney Research labs (such as Tesla Touch, Surround Haptics, Aired haptics devices) and our on-going efforts towards producing haptic products and content. I will highlight the challenges for us to generate interests and strategies for successful transfer of technology from research to product.

Ali Israr is a Haptic Researcher and Engineer working in Disney Research, The Walt Disney Company. He holds a doctoral degree in Mechanical Engineering and has been working in haptics research for the last 12 years. His research has been published in premium conferences and journals, presented in elite forums and has been successfully transferred in to consumer and amusement park product lines. Dr. Ali Israr obtained his Bachelors of Science from University of Engineering and Technology, Lahore Pakistan.

Introduction to the Special Session on Serious Game Technology

Arjan Egges ^{*} and Kařka Porayska-Pomsta ^{**}

1 Session Overview

Over the last decade serious gaming has become a prominent and important field of research. Serious games are increasingly used to support learning of and training in diverse and traditionally unrelated domains. These domains range from formal learning of traditional subjects such as mathematics, vocational training for professions such as air pilots or dentists, coaching individuals in acquiring better job interview skills, to therapeutic applications which aim to support the development of skills associated with socio-emotional coping, e.g. in schizophrenia or autism. Serious games leverage both the intrinsic motivation associated with playing computer games as well as a serious intent to furnish their players with skills that are useful in the real world. As such, these games present their own set of challenges to game designers and developers. First, as most serious games will have some sort of educational goal, the design of a game should ensure that these educational goals are reached when someone plays the game. Second, a serious game should be able to measure the success of the player within the game itself. Although tracking a player's progress is something that any game should do, for serious games this is even more important to get right, since the quality of the training in part determines the performance of the trainee in the real world.

Serious games are also challenging from the technological and engineering point of view. In many cases, serious games use specific hardware such as 3D screens, plates that can measure exerted forces, motion trackers, or 3D sound generators. Incorporating all of these modalities into a coherent and seamless game environment is complex. Designing and developing serious games becomes even more challenging when one wants to incorporate capabilities such as tracking of individual players over different sessions, allowing for simultaneous participation of multiple players over a network connection. Furthermore, games often need to be adapted to different languages and cultures—this process is

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commonly referred to as *localization*. Finally, serious games increasingly require the availability of authoring tools for creating scenarios by users who are not game designers, which imposes the demand on the serious games technology to be robust and transparent in its design.

Much research is presently done on serious game technology in Europe. This special session will focus on a variety of current work related to serious game technologies, showcasing examples of research concerned with the challenges that are unique to serious games. The goal of the session is to bring serious gaming professionals together in an informal way, and to promote collaboration and exchange of experiences and future directions in this rapidly emerging field. Specifically, the session presents the ongoing work conducted within three European projects concerned with the development of serious games: TARDIS (EU-FP7), SHARE-IT (UK-EPSRC), and MASELTOV (EU-FP7). Each project has contributed a paper to the session.

The first paper is titled ‘The TARDIS framework: intelligent virtual agents for social coaching in job interviews’ and it describes the TARDIS serious game framework for building an intelligent training and coaching environment for young adults at risk of social exclusion from unemployment through which they can practice and improve their social interaction skills needed for conducting successful job interviews.

The second paper: ‘Building Intelligent, Authorable Serious Game for Autistic Children and Their Carers’ introduces the SHARE-IT project, which creates a serious game for children with Autism Spectrum Disorders through which they can learn and explore skills which are important to engaging in social communication with others. The paper focuses on the SHARE-IT game’s architecture which enables the engineering of an intelligent game (in the AI sense) that is also authorable by parents and teachers.

The third paper is entitled: ‘Advances in MASELTOV Serious Games in a Mobile Ecology of Services for Social Inclusion and Empowerment of Recent Immigrants’. As part of a comprehensive suite of services for immigrants, the MASELTOV game seeks to develop both practical tools and innovative learning services via mobile devices, providing recent immigrants across Europe with readily usable resource that would help in their integration within their adopted cultures and countries.

2 Program Committee

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Table of Contents

Long Presentations

Web Analytics: The New Purpose towards Predictive Mobile Games	1
<i>Mathew Burns and Martin Colbert</i>	
An Author-Centric Approach to Procedural Content Generation	14
<i>Rui Craveirinha, Lucas Santos, and Licínio Roque</i>	
Providing Adaptive Visual Interface Feedback in Massively Multiplayer Online Games	29
<i>Chris Deaker, Masood Masoodian, and Bill Rogers</i>	
Persuasive Elements in Videogames: Effects on Player Performance and Physiological State	45
<i>Luís Duarte and Luís Carriço</i>	
Evaluating Human-like Behaviors of Video-Game Agents Autonomously Acquired with Biological Constraints	61
<i>Nobuto Fujii, Yuichi Sato, Hironori Wakama, Koji Kazai, and Haruhiro Katayose</i>	
Comparing Game User Research Methodologies for the Improvement of Level Design in a 2-D Platformer	77
<i>Marcello Andres Gómez Maureira, Dirk P. Janssen, Stefano Gualeni, Michelle Westerlaken, and Licia Calvi</i>	
Touch Me, Tilt Me – Comparing Interaction Modalities for Navigation in 2D and 3D Worlds on Mobiles	93
<i>Wolfgang Hürst and Hector Cunat Nunez</i>	
Virtual Robotization of the Human Body via Data-Driven Vibrotactile Feedback	109
<i>Yosuke Kurihara, Taku Hachisu, Katherine J. Kuchenbecker, and Hiroyuki Kajimoto</i>	
BOLLOCKS!! Designing Pervasive Games That Play with the Social Rules of Built Environments	123
<i>Conor Linehan, Nick Bull, and Ben Kirman</i>	
Cuddly: Enchant Your Soft Objects with a Mobile Phone	138
<i>Suzanne Low, Yuta Sugiura, Kevin Fan, and Masahiko Inami</i>	
GuideMe: A Mobile Augmented Reality System to Display User Manuals for Home Appliances	152
<i>Lars Müller, Ilhan Aslan, and Lucas Krüßen</i>	

Petanko Roller: A VR System with a Rolling-Pin Haptic Interface for Entertainment	168
<i>Ken Nakagaki, Keina Konno, Shuntaro Tashiro, Ayaka Ikezawa, Yusaku Kimura, Masaru Jingi, and Yasuaki Kakehi</i>	
Emoballoon: A Balloon-Shaped Interface Recognizing Social Touch Interactions	182
<i>Kosuke Nakajima, Yuichi Itoh, Yusuke Hayashi, Kazuaki Ikeda, Kazuyuki Fujita, and Takao Onoye</i>	
Theory and Application of the Colloidal Display: Programmable Bubble Screen for Computer Entertainment	198
<i>Yoichi Ochiai, Alexis Oyama, Takayuki Hoshi, and Jun Rekimoto</i>	
Return of the Man-Machine Interface: Violent Interactions	215
<i>Duncan Rowland, Conor Linehan, Kwamena Appiah-Kubi, and Maureen Schoonheydt</i>	
Non-branching Interactive Comics	230
<i>Edirlei Soares de Lima, Bruno Feijó, Antonio L. Furtado, Simone Diniz Junqueira Barbosa, Cesar T. Pozzer, and Angelo E.M. Ciarlini</i>	
 Short Presentations	
The Art of Tug of War: Investigating the Influence of Remote Touch on Social Presence in a Distributed Rope Pulling Game	246
<i>Thomas Beelen, Robert Blaauboer, Noraly Bovenmars, Bob Loos, Lukas Zielonka, Robby van Delden, Gijs Huisman, and Dennis Reidsma</i>	
Singing Like a Tenor without a Real Voice	258
<i>Jochen Feitsch, Marco Strobel, and Christian Geiger</i>	
An Experimental Approach to Identifying Prominent Factors in Video Game Difficulty	270
<i>James Fraser, Michael Katchabaw, and Robert E. Mercer</i>	
Goin' Goblins - Iterative Design of an Entertaining Archery Experience	284
<i>Christian Geiger, Simon Thiele, Laurid Meyer, Stefan Meyer, Lutz Hören, and Daniel Drochert</i>	
Engaging Users in Audio Labelling as a Movie Browsing Game with a Purpose	296
<i>Jorge M.A. Gomes, Teresa Chambel, and Thibault Langlois</i>	

Creating Immersive Audio and Lighting Based Physical Exercise Games for Schoolchildren	308
<i>Jaakko Hakulinen, Markku Turunen, Tomi Heimonen, Tuuli Keskinen, Antti Sand, Janne Paavilainen, Jaana Parviainen, Sari Yrjänäinen, Frans Mäyrä, Jussi Okkonen, and Roope Raisamo</i>	
Game Flux Analysis with Provenance	320
<i>Troy C. Kohwalter, Esteban G.W. Clua, and Leonardo G.P. Murta</i>	
The Challenge of Automatic Level Generation for Platform Videogames Based on Stories and Quests	332
<i>Fausto Mourato, Fernando Birra, and Manuel Próspero dos Santos</i>	
Six Enablers of Instant Photo Sharing Experiences in Small Groups Based on the Field Trial of Social Camera	344
<i>Jarno Ojala, Kaisa Väänänen-Vainio-Mattila, and Arto Lehtiniemi</i>	
Attack on the Clones: Managing Player Perceptions of Visual Variety and Believability in Video Game Crowds	356
<i>Sean Oxspring, Ben Kirman, and Oliver Szymanczyk</i>	
A Framework for Evaluating Behavior Change Interventions through Gaming	368
<i>Valentina Rao</i>	
eVision: A Mobile Game to Improve Environmental Awareness	380
<i>Bruno Santos, Teresa Romão, A. Eduardo Dias, and Pedro Centieiro</i>	
Why Does It Always Rain on Me? Influence of Gender and Environmental Factors on Usability, Technology Related Anxiety and Immersion in Virtual Environments	392
<i>Mareike Schmidt, Johanna Xenia Kafka, Oswald D. Kothgassner, Helmut Hlavacs, Leon Beutl, and Anna Felnhofer</i>	
Meaning in Life as a Source of Entertainment	403
<i>Robby van Delden and Dennis Reidsma</i>	
D-FLIP: Dynamic and Flexible Interactive PhotoShow	415
<i>Chi Thanh Vi, Kazuki Takashima, Hitomi Yokoyama, Gengdai Liu, Yuichi Itoh, Sriram Subramanian, and Yoshifumi Kitamura</i>	
PukaPuCam: Enhance Travel Logging Experience through Third-Person View Camera Attached to Balloons	428
<i>Tsubasa Yamamoto, Yuta Sugiura, Suzanne Low, Koki Toda, Kouta Minamizawa, Maki Sugimoto, and Masahiko Inami</i>	

Special Session on Serious Game Technology

Advances in MASELTOV – Serious Games in a Mobile Ecology of Services for Social Inclusion and Empowerment of Recent Immigrants	440
<i>Lucas Paletta, Ian Dunwell, Mark Gaved, Jan Bobeth, Sofoklis Efremidis, Patrick Luley, Agnes Kukulska-Hulme, Sara de Freitas, Petros Lameris, and Stephanie Deutsch</i>	
Building an Intelligent, Authorable Serious Game for Autistic Children and Their Carers	456
<i>Kaška Porayska-Pomsta, Keith Anderson, Sara Bernardini, Karen Guldberg, Tim Smith, Lila Kossivaki, Scott Hodgins, and Ian Lowe</i>	
The TARDIS Framework: Intelligent Virtual Agents for Social Coaching in Job Interviews	476
<i>Keith Anderson, Elisabeth André, T. Baur, Sara Bernardini, M. Chollet, E. Chryssafidou, I. Damian, C. Ennis, A. Egges, P. Gebhard, H. Jones, M. Ochs, C. Pelachaud, Kaška Porayska-Pomsta, P. Rizzo, and Nicolas Sabouret</i>	

Extended Abstracts

Development of a Full-Body Interaction Digital Game for Children to Learn Vegetation Succession	492
<i>Takayuki Adachi, Hiroshi Mizoguchi, Miki Namatame, Fusako Kusunoki, Masanori Sugimoto, Keita Muratsu, Etsuji Yamaguchi, Shigenori Inagaki, and Yoshiaki Takeda</i>	
Assessing Player Motivations and Expectations within a Gameplay Experience Model Proposal	497
<i>Samuel Almeida, Ana Veloso, Licínio Roque, and Óscar Mealha</i>	
OUTLIVE – An Augmented Reality Multi-user Board Game Played with a Mobile Device	501
<i>Edward Andrukaniec, Carmen Franken, Daniel Kirchhof, Tobias Kraus, Fabian Schöndorff, and Christian Geiger</i>	
Onomatrack: Quick Recording of User’s Rhythmic Ideas Using Onomatopoeia	505
<i>Jo Arima, Keiko Yamamoto, Itaru Kuramoto, and Yoshihiro Tsujino</i>	
Musical Interaction Design for Real-Time Score Recognition towards Applications for Musical Learning and Interactive Art	509
<i>Tetsuaki Baba, Yuya Kikukawa, Toshiki Yoshiike, and Kumiko Kushiyama</i>	

How to Make Tangible Games and Not Die in the Attempt	513
<i>Eva Cerezo, Javier Marco, and Sandra Baldassarri</i>	
Touch, Taste, and Smell: Multi-sensory Entertainment	516
<i>Adrian D. Cheok, Jordan Tewell, Gilang A. Pradana, and Koki Tsubouchi</i>	
Between Music and Games: Interactive Sonic Engagement with Emergent Behaviors	519
<i>Insook Choi and Robin Bargar</i>	
Linear Logic Validation and Hierarchical Modeling for Interactive Storytelling Control	524
<i>Kim Dung Dang, Phuong Thao Pham, Ronan Champagnat, and Mourad Rabah</i>	
GlowSteps – A Decentralized Interactive Play Environment for Open-Ended Play	528
<i>Linda de Valk, Pepijn Rijnbout, Mark de Graaf, Tilde Bekker, Ben Schouten, and Berry Eggen</i>	
Eat&Travel: A New Immersive Dining Experience for Restaurants	532
<i>Mara Dionísio, Duarte Teixeira, Poan Shen, Mario Dinis, Monchu Chen, Nuno Nunes, Valentina Nisi, and José Paiva</i>	
Evaluation of the Dialogue Information Function of Interactive Puppet Theater: A Puppet-Show System for Deaf Children	536
<i>Ryohei Egusa, Kumiko Wada, Takayuki Adachi, Masafumi Goseki, Miki Namatame, Fusako Kusunoki, Hiroshi Mizoguchi, and Shigenori Inagaki</i>	
Music Puzzle: An Audio-Based Computer Game That Inspires to Train Listening Abilities	540
<i>Kjetil Falkenberg Hansen, Rumi Hiraga, Zheng Li, and Hua Wang</i>	
Enabling Interactive Bathroom Entertainment Using Embedded Touch Sensors in the Bathtub	544
<i>Shigeyuki Hirai, Yoshinobu Sakakibara, and Hironori Hayashi</i>	
Audio-Haptic Rendering of Water Being Poured from Sake Bottle	548
<i>Sakiko Ikeno, Ryuta Okazaki, Taku Hachisu, Michi Sato, and Hiroyuki Kajimoto</i>	
Living Chernoff Faces: Bringing Drama and Infotainment to Public Displays	552
<i>Ido Aharon Iurgel, Andreas Petker, Björn Herrmann, Christina Martens, and Pedro Ribeiro</i>	

Character Visualization in Miniature Environments with an Optical See-through Head-Mounted Display	556
<i>Dongsik Jo, Daehwan Kim, Yongwan Kim, Ki-Hong Kim, and Gil-Haeng Lee</i>	
MARIO: Mid-Air Augmented Reality Interaction with Objects	560
<i>Hanyuool Kim, Issei Takahashi, Hiroki Yamamoto, Takayuki Kai, Satoshi Maekawa, and Takeshi Naemura</i>	
A Face-Like Structure Detection on Planet and Satellite Surfaces Using Image Processing	564
<i>Kazutaka Kurihara, Masakazu Takasu, Kazuhiro Sasao, Hal Seki, Takayuki Narabu, Mitsuo Yamamoto, Satoshi Iida, and Hiroyuki Yamamoto</i>	
Tinkering in Scientific Education	568
<i>Maarten H. Lamers, Fons J. Verbeek, and Peter W.H. van der Putten</i>	
Modeling Player-Character Engagement in Single-Player Character-Driven Games	572
<i>Petri Lankoski</i>	
Paintrix: Color Up Your Life!	576
<i>Dimitri Slappendel, Fanny Lie, Martijn de Vos, Alex Koplá, and Rafael Bidarra</i>	
The ToyVision Toolkit for Tangible Games	580
<i>Javier Marco, Eva Cerezo, and Sandra Baldassarri</i>	
Ball of Secrets	584
<i>Ben Margines, Ranaq Gupta, and Yoram Chisik</i>	
‘P.S.(Postscript)’ : Hearing of Your Heartstring	588
<i>Myongjin Moon and Yeseul Kim</i>	
Children Ideation Workshop: Creative Low-Fidelity Prototyping of Game Ideas	592
<i>Christiane Moser</i>	
<i>Dosukoi</i> -Tap: The Virtual Paper Sumo Game	600
<i>Yuta Nakagawa, Kota Tsukamoto, and Yasuyuki Kono</i>	
DropNotes: A Music Composition Interface Utilizing the Combination of Affordances of Tangible Objects	604
<i>Musashi Nakajima, Hidekazu Saegusa, Yuto Ozaki, and Yoshihiro Kanno</i>	

Could the Player's Engagement in a Video Game Increase His/Her Interest in Science?.....	608
<i>Stéphane Natkin, Delphine Soriano, Grozdana Erjavec, and Marie Durand</i>	
Block Device System with Pattern Definition Capability by Visible Light.....	612
<i>Huu Nguyen Nguyen Tran and Junichi Akita</i>	
Multi-sensor Interactive Systems for Embodied Learning Games	616
<i>Nikolaos Poullos and Anton Eliens</i>	
Photochromic Carpet: Playful Floor Canvas with Color-Changing Footprints	622
<i>Daniel Saakes, Takahiro Tsujii, Kohei Nishimura, Tomoko Hashida, and Takeshi Naemura</i>	
Mood Dependent Music Generator	626
<i>Marco Scirea</i>	
A Tangible Platform for Mixing and Remixing Narratives	630
<i>Cristina Sylla, Sérgio Gonçalves, Paulo Brito, Pedro Branco, and Clara Coutinho</i>	
Network Shogi Environment with Discussion Support after Games	634
<i>Yoshikazu Tagashira, Hiroyuki Tarumi, and Toshihiro Hayashi</i>	
Hospital Hero: A Game for Reducing Stress and Anxiety of Hospitalized Children in Emergency Room	638
<i>Sara Tranquada, Monchu Chen, and Yoram Chisik</i>	
Toinggg: How Changes in Children's Activity Level Influence Creativity in Open-Ended Play.....	642
<i>Bas van Hoeve, Linda de Valk, and Tilde Bekker</i>	
ZooMor: Three Stages of Play for a Sleeping Creature	646
<i>Daniël van Paesschen, Mark de Graaf, and Tilde Bekker</i>	
Social Believability in Games	649
<i>Harko Verhagen, Mirjam Palosaari Eladhari, Magnus Johansson, and Joshua McCoy</i>	
Computer Entertainment in Cars and Transportation.....	653
<i>David Wilfinger, Alexander Meschtscherjakov, Christiane Moser, Manfred Tscheligi, Petra Sunström, Dalila Szostak, and Roderick McCall</i>	

Possibility of Analysis of "Big Data" of Kabuki Play in 19th Century Using the Mathematical Model of Hit Phenomena	656
<i>Yasuko Kawahata, Etsuo Genda, and Akira Ishii</i>	
Ouch! How Embodied Damage Indicators in First-Person Shooting Games Impact Gaming Experience	660
<i>James E. Young, Ibrahim Shahin, and Masayuki Nakane</i>	
Author Index	665