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Collaborative Environments for Creative Arts Research
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DAY 1 – TUESDAY – 2nd DECEMBER, 2014

	8:30-9:30	**REGISTRATION**	
Welcome	9:30-9:45	Welcome	Keith Nesbitt
KEYNOTE	9:45-10:30	Making Things Growl, Purr and Sing!	Stephen Barrass
	10:30-11:00	**MORNING TEA**	
SESSION 1	11:00-11:15	SpaceWalk: Movement and Interaction in Virtual Space with Commodity Hardware	Stefan Greuter and David J Roberts
	11:15-11:30	Comparing Animation with Video for Teaching Communication Skills	Hayley Croft, Keith Nesbitt, Rohan Rasiah and Joyce Cooper
	11:30-11:45	Measuring Learning in Video Games: A Case Study	Allan Fowler, Brian Cusack and Alessandro Canossa
	11:45-12:00	An Intuitive Tangible Game Controller	Jacques Foottit, Dave Brown, Stefan Marks and Andy Connor
	12:00-12:15	Comparing Order of Control for Tilt and Touch Games	Robert Teather and Scott MacKenzie
	12:30-13:20	**LUNCH**	Posters begin
DEMO	13:20-14:00	Protocol E: An Implementation of a Novel, Agent Based, Control Scheme for Real Time Strategy Games	Matt Cabanag
SESSION 2	14:00-14:15	Playful Game Jams: Guidelines for Designed Outcomes	William Goddard, Richard Byrne and Floyd Mueller
	14:15-14:30	Towards Quantifying Player's Involvement in 3D Games Based-on Player Types	Nader Hanna, Deborah Richards, Michael Hitchens and Michael Jacobson
	14:30-14:45	A Systematic Review of Cybersickness	Simon Davis, Keith Nesbitt and Eugene Nalivaiko
	14:45-15:00	The Mystery of Elin	Maria Guadalupe Alvarez Diaz, Marcus Toftedahl and Torbjörn Svensson
	15:00-15:15	Generating Funny Dialogue between Robots based on Japanese Traditional Comedy Entertainment	Ryo Mashimo, Tomohiro Umetani, Tatsuya Kitamura and Akiyo Nadamoto
	15:30-16:00	**AFTERNOON TEA**	
SESSION 3	16:00-16:15	Intelligent and Empathic Agents to Support Student Learning in Virtual Worlds	Ryan Villarica and Deborah Richards
	16:15-16:30	The Publishing Game: An Analysis of 'Game' Related Academic Publishing Patterns	Xin Gu and Karen Blackmore
	16:30-16:45	The Dawn of the Dark Ride at the Amusement Park	Joel Zika
	16:45-17:00	Reusing Simulated Evacuation Behaviour in a Game Engine	Mingze Xi and Shamus P. Smith
	18:30-21:30	**CONFERENCE DINNER**	

DAY 2 – WEDNESDAY – 3rd DECEMBER, 2014

	8:30-9:00	**REGISTRATION**	
SESSION 4	9:00-9:15	One person's culture is another one's entertainment	Cat Kutay
	9:15-9:30	Video Game Control Dimensionality Analysis	Moyen Mohammad Mustaquim and Tobias Nyström
	9:30-9:45	Putting a New Intelligent Virtual Face on a Medical Treatment Advice System to Improve Adherence	Deborah Richards, Scott Baker and Patrina Caldwell
	9:45-10:00	Software Development in the City Evolutions Project	Lei Tan, Ross Bille, Yuqing Lin, Stephan Chalup and Chris Tucker
	10:00-10:30	Urban Codes // Parallel Worlds	Troy Innocent and Indae Hwang
	10:30-11:00	**MORNING TEA**	
SESSION 5	11:00-11:15	Game Asset Repetition	Stefan Greuter and Adam Nash
	11:15-11:30	Perspective Shifting: Humour and Comedy in Games	Geoffrey Hookham and Michael Meany
	11:30-11:45	Extending Building Information Models into Game Engines	Ross Bille, Shamus Smith, Kim Maund and Graham Brewer
	11:45-12:00	Flow Theory, Evolution & Creativity: or, 'Fun & Games'	Jt Velikovsky
	12:00-12:15	A Scouting Strategy for Real-Time Strategy Games	Chen Si, Yusuf Pisan and Chek Tien Tan
	12:30-13:30	**LUNCH**	Posters end
SESSION 6	13:30-13:45	E is for Everyone? Best Practices for the Socially Inclusive Design of Avatar Creation Interfaces	Victoria McArthur and Jennifer Jenson
	13:45-14:00	Inferring Player Experiences Using Facial Expressions Analysis	Chek Tien Tan, Sander Bakkes and Yusuf Pisan
	14:00-14:15	Introducing a Revised Lexical Approach to Study User Experience in Game Play by Analyzing Online Reviews	Miaoqi Zhu and Xiaowen Fang
	14:30	**CLOSE**	

DAY 1 – TUESDAY – 2nd DECEMBER, 2014

KEYNOTE	9:45-10:30	Making Things Growl, Purr and Sing!	Stephen Barrass

Making Things Growl, Purr and Sing!

Ever since Star Wars, we have known that the soundscape of the future would be full of humming light sabers, whistling droids, and droning Tie fighters. Yet here we are 37 years on and all we have is the microwave that goes "beep". In his tutorials on Making Things Talk, Tom Igoe describes how to connect objects to the Internet of Things (IoT). However, although these Smart Things talk to each other, we humans can't hear their chatter. Could it be that when we do reach the stars, light sabers still just go "beep"? This talk presents more expressive sonic interfaces to Smart Things that growl, purr and sing. The talk begins with a brief history of sound design for film, and for products and appliances. Next is an overview of recent developments in sonic branding, auditory interfaces, sonic interaction design and sonic information design. Finally I will describe our open source Mozzi synthesiser for the Arduino which enables more interactive sounds to be embedded into smart Things. The capabilities of Mozzi will be illustrated with experiments on realtime sonic feedback in sports, and some artistic instruments and installations made by the global Mozzi community.

Stephen Barrass

Stephen Barrass is an Associate Professor of Digital Design and Media Arts at the University of Canberra, where he lectures in sound design and crossmedia storytelling, and supervises postgrads in data sonification, physical computing, and digital arts. Hs Ph.D. on Auditory Information Design from the ANU in 1998 has been an important influence on the theory and practice of data sonification. During a postdoc at the Fraunhoffer Institute in Bonn in 1999-2000 he explored interactive sound design and data sonification in the immersive Virtual Reality Cyberstage which featured an 3D sound system and haptic floor. From 2001-2005 he led research on advanced audio interfaces at the CSIRO ICT Centre in Canberra. In 2009 Stephen was a guest researcher in the Sound Design and Perception research Team at IRCAM in Paris. He was a member of the steering committee of the EU COST project on Sonic Interaction Design from 2008-2011. Stephen was commissioned to produce the Interactive Welcome Space for Gallery of First Australians at the National Museum of Australia, which has been a permanent exhibit since the opening in 2001. His interactive sound art installations have been curated by Experimenta Media Arts for exhibitions in Melbourne, Seoul, Beijin, Singapore, London and Liverpool. He was the sound designer for ZiZi the Affectionate couch which is now in the collection of the Museum of Old and New Art in Hobart.

DAY 1 – SESSION 1 - TUESDAY – 2nd DECEMBER, 2014

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SpaceWalk: Movement and Interaction in Virtual Space with Commodity Hardware

Stefan Greuter and David J Roberts.

We introduce SpaceWalk, an experimental approach to allow a person to move around a small room while wearing a Head Mounted Display. The goal is to get immersed users in everyday settings out of their seats and naturally experiencing movement within the simulation. SpaceWalk integrates a wireless solution around commodity equipment and requires no calibration by the user. This allows a low encumbrance full-body immersion in virtual reality while walking around living-room sized real-world spaces. The platform combines a commodity Head Mounted Display (Oculus Rift), with a depth-based camera (Kinect2) capturing movement of body and limbs within the space. A tablet computer, carried in a backpack, runs commodity VR software (Unity) with our own extensions that integrate the components. A brief survey of the literature demonstrates a gap in that other systems do neither allow a person's body to be routinely tracked without calibration, or movement around the space without the encumbrance of wires. The proposed full body immersive virtual reality platform opens the door to Virtual Reality in small environments, such as people's homes, that is compelling, easy to setup and use. After half a century, VR is coming of age, yet routine and unencumbered movement still needs to be achieved. This paper offers a method for doing so. Its contribution is to make Virtual Reality accessible to a wider group of users who do not have access to a professional virtual reality facility. In doing so it may help to unlock new paradigms for work, learning and entertainment.

Comparing Animation with Video for Teaching Communication Skills

Hayley Croft, Keith Nesbitt, Rohan Rasiah and Joyce Cooper

In this paper, we describe a case study that compares the use of animation and video for teaching communication skills to pharmacy students. We present an appropriate framework outlining the key communication criteria that were used to develop a three part, patient-pharmacist communication scenario. This scenario was scripted, filmed in a community pharmacy, and edited into a six minute sequence before being converted to an equivalent animation sequence by using digital filters. Both the video and animation were compared in a usability trial using 37 students studying pharmacy. These students were divided into two groups, each experiencing either the video or animation sequence before being asked to provide subjective feedback of the usefulness of the approach for teaching communication. Both the video and animation group provided equivalent positive feedback about the approach. The two groups then experienced the alternative representation, either video or animation and were asked to nominate a preference. Both groups indicated a significant preference for the video presentation. It is recognized that the design and style of the animation may impact on the general validity of these outcomes and as such the paper also provides a detailed discussion of relevant design issues.

Measuring Learning in Video Games: A Case Study

Allan Fowler, Brian Cusack and Alessandro Canossa.

There has been an active debate on the value and relevance of the use of video games for learning. Some of this interest stems from frustration with current educational tools. Some of this interest stems from observations of large numbers of people that play video It uses a method for evaluating indicators of cognition that take place within a commercial video game using psychophysiological methods. From the results, an interpretation has been developed that implies that there is potential for accelerated learning gained by playing commercial video games.

An Intuitive Tangible Game Controller

Jacques Foottit, Dave Brown, Stefan Marks and Andy Connor.

This paper outlines the development of a sensory feedback device providing a tangible interface for controlling digital environments, in this example a flight simulator, where the intention for the device is that it is relatively low cost, versatile and intuitive. Gesture based input allows for a more immersive experience, so rather than making the user feel like they are controlling an aircraft the intuitive interface allows the user to become the aircraft that is controlled by the movements of the user's hand. The movements are designed to allow a sense of immersion that would be difficult to achieve with an alternative interface.

Comparing Order of Control for Tilt and Touch Games

Robert Teather and Scott MacKenzie.

We conducted a study comparing two touch-based and two tilt-based game control methods using a Pong-like game over two one-hour sessions. Each input method was compared by order of control: position-control and velocity-control. Participants' performance was assessed for game-level reached and how frequently the ball was missed. Results indicate that order of control is a greater determinant of performance than input method. For both position-control modes (tilt and touch), participants reached game-levels roughly twice as high as with the velocity-control modes. Miss rates were about 40% higher with the velocity-control modes than with position-control.

DAY 1 – SESSION 2 - TUESDAY – 2nd DECEMBER, 2014

SESSION 2	14:00-14:15	Playful Game Jams: Guidelines for Designed Outcomes	William Goddard, Richard Byrne and Floyd Mueller
	14:15-14:30	Towards Quantifying Player's Involvement in 3D Games Based-on Player Types	Nader Hanna, Deborah Richards, Michael Hitchens and Michael Jacobson
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Playful Game Jams: Guidelines for Designed Outcomes

William Goddard, Richard Byrne and Floyd Mueller

Game jams are social events involving the integration of various game making disciplines (e.g. programming, art, design) to make games under constraints, such as a short fixed time. Game jams are emerging in areas such as research, education, and industry as events to facilitate game making for designed outcomes; i.e. outcomes elicited from appropriately designed game jams. Game jams continue to grow and be appropriated to new contexts, however, little is known about how to design game jams to facilitate designed outcomes. We identify participation in game jams as a constructive form of play defined as ludic craft. Consequently, we investigate the properties (e.g. rules) of game jams under the lens of play on the playful vs. gameful continuum. Reflecting on our experiences as facilitators and participants of jams in indie, industry, and academic contexts, we have derived a set of guidelines for game jams to facilitate ludic craft in its playful and gameful forms. We present this set of guidelines for jam facilitators to cultivate experiences that support designed outcomes in contexts such as research, education, and industry.

Towards Quantifying Player's Involvement in 3D Games Based-on Player Types

Nader Hanna, Deborah Richards, Michael Hitchens and Michael Jacobson

With the varied use of games, the need to measure player's involvement has become prominent. Several studies aimed to quantify users' involvement. However, none of these studies presented a robust framework to measure the player's involvement in games nor considered player types as a factor. In this paper, a framework to quantify automatically the players' involvement in games is presented. This framework consists of three levels and each level includes criteria to evaluate three aspects of 3D games: (1) application level, (2) usage level, and (3) content level. Additionally, the framework's criteria considers player types proposed by Bartle. To validate the results of the framework, player involvement was estimated manually on a case-by-case basis by three experienced evaluators. The manual estimation was then compared with the automatically generated-quantified result produced by the framework. The comparison revealed a significant match.

A Systematic Review of Cybersickness

Simon Davis, Keith Nesbitt and Eugene Nalivaiko

The uptake of new interface technologies, such as the Oculus Rift have generated renewed interest in virtual reality especially for private entertainment use. However, long standing issues with unwanted side effects, such as nausea from cybersickness, continue to impact on the general use of devices such as head mounted displays. This in turn has slowed the uptake of more immersive interfaces for computer gaming and indeed more serious applications in training and health. In this paper we report a systematic review in the area of cybersickness with a focus on measuring the diverse symptoms experienced. Indeed the related conditions of simulator sickness and motion sickness have previously been well studied and yet many of the issues are unresolved. Here we report on these issues along with a number of measures, both subjective and objective in nature, using either questionnaires or psychophysiological measures that have been used to study cybersickness. We also report on the factors, individual, device related and task dependent that impact on the condition. We conclude that

there remains a need to develop more cost-effective and objective physiological measures of both the impact of cybersickness and a person's susceptibility to the condition.

The Mystery of Elin

Maria Guadalupe Alvarez Diaz, Marcus Toftedahl and Torbjörn Svensson

This paper reports on the use of mobile terminals in historical spaces to play an adventure game, using a location-based platform to awaken the fantasy and curiosity of children about cultural heritage; the design of a mystery game as the medium to convey content along with features shared by pervasive games, such as mobile exploration, team work, and the combination of virtual and real worlds. It includes the process of adapting history to storytelling and the results of using a method to evaluate the experience.

Generating Funny Dialogue between Robots based on Japanese Traditional Comedy Entertainment

Ryo Mashimo, Tomohiro Umetani, Tatsuya Kitamura and Akiyo Nadamoto

Numerous studies have examined entertainments robots that communicate with people, but it is difficult for robots to communicate smoothly with people. We specifically examine communication with robots based on a humorous dialogue between entertainment robots. At this time, scenarios consisting of humorous dialogue must be produced for robots to use. In this paper, we propose a system that generates humorous dialogue scenarios automatically from web news articles in real time. Japan has a traditional humorous comedy called ``Manzai'', a kind of standup comedy. Manzai typically consists of two comedians performing humorous dialogue. We use the Manzai metaphor in our system. Our generated Manzai scenario consists of fluffy patter and dialogue filled with misunderstanding in three parts: Introduction, Body, and Conclusion. The Introduction includes a greeting and presentation of the theme of the original web content. The Body includes component of four types used to generate funny dialogue. The Conclusion includes automatically generated riddles related to words in news from the internet. We create entertainment robots to amuse people with our generated humorous robot dialogue scenario.

DAY 1 - SESSION 3 – TUESDAY – 2nd DECEMBER, 2014

SESSION 3	16:00-16:15	Intelligent and Empathic Agents to Support Student Learning in Virtual Worlds	Ryan Villarica and Deborah Richards
	16:15-16:30	The Publishing Game: An Analysis of 'Game' Related Academic Publishing Patterns	Xin Gu and Karen Blackmore
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Intelligent and Empathic Agents to Support Student Learning in Virtual Worlds

Ryan Villarica and Deborah Richards

Virtual worlds potentially provide students with a simulated environment that can provide exposure to situations and contexts not possible in reality and allow exploration of concepts, objects and phenomena that is safe both in terms of removing any physical danger or risk of failure if poor choices are made. This is certainly true in science education. However, the exploratory nature of virtual worlds can result in a lack of focus or direction in the learning. Observation of trials with the science-based Omosa Virtual 3D world has revealed that some students lose motivation. This project aims to personalise the learning experience of science-related skills through the incorporation of intelligent agents and asks "How can intelligent agents apply educational scaffolding to the demotivated student to maximise their time and enhance their 3D virtual learning experiences?" Building on the findings of previous studies involving agent-based virtual worlds, adaptive collaborative learning and intelligent agents, an intelligent virtual agent has been designed and partially prototyped so that it provides educational scaffolding to the student learning.

The Publishing Game: An Analysis of 'Game' Related Academic Publishing Patterns

Xin Gu and Karen Blackmore

Growth in the electronic games industry is evidenced by numerous reports citing an increasing proportion of "gamers" in the general population. Of particular interest is the shift in the conceptualization of the "typical gamer" from a very narrow stereotypical player to those meeting a much broader set of demographic characteristics. This has perhaps occurred in synergy with expansion in the types of games available. Similarly, we hypothesize that diversification has also occurred in academic research on games, primarily as a result of a simultaneous increase in interest in the use of electronic games for purposes beyond entertainment. In this research we extract 7842 distinct academic publications from major publishing databases to explore temporal patterns in the number of publications in the area of computer games. We also consider changes in disciplinary diversity over time. Our results show that computer game related research has undergone three development periods: the hibernation period from 1957 to 1980, the emergence period from 1981 to 2003, and the active period from 2004 to 2013. The broad domain of 'science technology' received the highest level of research interest among the three research domains: 'science technology,' 'social sciences', and 'arts humanities'. Interestingly, 'learning', in the context of computer games, has become a popular research topic from 2004. We also propose future work to extend our analysis to author collaboration and country of origin to inform understanding of the spatial-temporal patterns in game related research.

The Dawn of the Dark Ride at the Amusement Park

Joel Zika

Plotting the evolution of the dark amusement park ride is important in understanding the hybrid nature of the entertainment industry we see today. This paper looks specifically at two amusement park rides and shows how they form an important landmark in the evolution of immersive technology. The investigation focuses on Pittsburgh's Old Mill Ride (1905) in the USA and Blackpool's River Caves (1907) in the UK. Two rides which were the first of their kind and represent the solidification of technical and conceptual approaches being developed on both sides of the pacific. Whilst these rides are mentioned in isolation in a small number of academic texts, their connection and importance in the timeline of popular media has been overlooked. A combination of field and historical research examines how these rides were unique and influenced other media that preceded them.

Reusing Simulated Evacuation Behaviour in a Game Engine

Mingze Xi and Shamus P. Smith

Virtual environments have been used to develop fire evacuation training systems which benefit from high levels of graphical realism and various interaction methods. However, virtual environment-based fire evacuation training systems often have limited non player character (NPC) behaviours as realistic fire evacuation models are difficult to build as they require accurate fire science, for example the impact of poisonous gases, smoke, and heat on human behaviour. One solution is the reuse of fire evacuation modelling tools to drive NPC behaviours in virtual environments built with gaming technology. In this paper, a pipeline is proposed to embed human behaviour, based on realistic fire science knowledge, into virtual evacuation training systems. The pipeline starts with 3D building models and extracts simulated human behaviour from fire evacuation simulator tools and then integrates these behaviours into NPC movement scripts for use in a game engine. A case study is presented with 3D modelling in SketchUp, simulated behaviour in FDS + Evac and NPC scripts in Unity3D. Consistent evacuation time was found on overall egress time in both FDS+Evac and Unity3D. A scalability analysis of environment complexity showed a linear increase in evacuation time by scenario scale in Unity3D and FDS+Evac.

DAY 2 - SESSION 4 – WEDNESDAY – 3rd DECEMBER, 2014

SESSION 4	9:00-9:15	One person's culture is another one's entertainment	Cat Kutay
	9:15-9:30	Video Game Control Dimensionality Analysis	Moyen Mohammad Mustaquim and Tobias Nyström
	9:30-9:45	Putting a New Intelligent Virtual Face on a Medical Treatment Advice System to Improve Adherence	Deborah Richards, Scott Baker and Patrina Caldwell
	9:45-10:00	Software Development in the City Evolutions Project	Lei Tan, Ross Bille, Yuqing Lin, Stephan Chalup and Chris Tucker
	10:00-10:30	Urban Codes // Parallel Worlds	Troy Innocent and Indae Hwang

One person's culture is another one's entertainment

Cat Kutay

The work presents a web-based learning system that allows many courses to access and share communities stories, and allows teachers to alter existing scenarios to suit the special focus of their course. The learning domain is indigenous Graduate Attributes in university curriculum. This knowledge sharing system takes a holistic approach to learning through storytelling and acknowledges that resources collected for one course are often very useful in many other university courses. The combination of stories and the cultural themes that are enacted either as scenarios or agent rules, provide an immersive experience of this culture. This forms both an information sharing medium for Aboriginal communities and a game for non-Aboriginal people. The gaming genre is that or narrative building from community stories, historical scenarios and cultural protocols. At present the features are limited to community authored videos with questions, simple interactions around social protocols and scripted scenarios. This paper looks at how these components can be used for reflective learning through narratives and the need for improved feedback from community, prior to release to students.

Video Game Control Dimensionality Analysis

Moyen Mohammad Mustaquim and Tobias Nyström

In this paper we have studied the video games control dimensionality and its effects on the traditional way of interpreting difficulty and familiarity in games. This paper presents the findings in which we have studied the Xbox 360 console's games control dimensionality. Multivariate statistical operations were performed on the collected data from 83 different games of Xbox 360. It was found that the player's perceived level of familiarity and difficulty can be influenced by the game control dimensionality. We also found that the perceived difficulty varies with control dimensionality and that the familiarity tends to show no relation to the user's perceived difficulty. A way to measure and better understand familiarity and difficulty for games using the control dimensionality can thus give a better interpretation of different genres of games to its players and also to the game designers for further improvements in games' design. Positive transfer of this could bring forward new knowledge for game designers to augment learning of different genres of games.

Putting a New Intelligent Virtual Face on a Medical Treatment Advice System to Improve Adherence

Deborah Richards, Scott Baker and Patrina Caldwell

The eHealth website, eADVICE (electronic Advice and Diagnosis Via the Internet following Computerised Evaluation), is part of a research project that provides treatment advice to sufferers of paediatric incontinence problems who are on a medical specialist's waiting list. eHealth systems including eADVICE have problems getting patients to adhere to their advice, particularly over long treatment periods. This costs the health system and is detrimental to their health. This paper reports a project to design an agent-based (virtual character) prototype alternative of the existing test website that seeks to generate a stronger bond with the patient, similar to the relationship that exists between doctors and patients. It is hoped that this can improve and sustain the patient's motivation

Software Development in the City Evolutions Project

Lei Tan, Ross Bille, Yuqing Lin, Stephan Chalup and Chris Tucker

The goal of the City Evolutions Project is to establish interactive systems and games to entertain users. Because of the existing variabilities in the system and potential reuse for similar systems in this domain, the software system is designed and developed in a reuse-based way, i.e. Software Product Line Engineering (SPLE). SPLE is a reuse-based software approach with reusable software assets in order to maximise software reuse. In SPLE, it is very important to maintain the requirement traceability from software family establishment to individual product derivation. In this paper, we describe our experience of applying SPLE approach in the City Evolutions project and propose an approach to enhance the requirements traceability in SPLE.

Urban Codes // Parallel Worlds

Troy Innocent and Indae Hwang

noemaflux creates a network of relations between four players, an urban landscape, an invented language and an artificial world. Players experience the work in streets and laneways in which symbols from an invented language are integrated into the streetscape. These symbols, or symbol-codes, are also machine readable codes. They are portals into an artificial world–viewed on a mobile device via augmented reality (AR)–that is interconnected with the city. By interacting with the work, players enter into a symbiotic relationship with this world and bring to life 'media creatures'–a poetic term to describe digital entities that visualise urban codes in AR. This paper will reflect on this experience in two ways: firstly, by defining further the dual nature of symbol-codes; and, secondly, by articulating new experiences of urban space and different ways of seeing the city enabled by staging encounters with urban codes.

DAY 2 - SESSION 5 – WEDNESDAY – 3rd DECEMBER, 2014

SESSION 5	11:00-11:15	Game Asset Repetition	Stefan Greuter and Adam Nash
	11:15-11:30	Perspective Shifting: Humour and Comedy in Games	Geoffrey Hookham and Michael Meany
	11:30-11:45	Extending Building Information Models into Game Engines	Ross Bille, Shamus Smith, Kim Maund and Graham Brewer
	11:45-12:00	Flow Theory, Evolution & Creativity: or, 'Fun & Games'	Jt Velikovsky
	12:00-12:15	A Scouting Strategy for Real-Time Strategy Games	Chen Si, Yusuf Pisan and Chek Tien Tan

Game Asset Repetition

Stefan Greuter and Adam Nash

The frequent repetition of visual assets, such as the frequent appearance of a particular game object in a game world or the repetition of a character's animation cycle, often becomes apparent to players when they encounter such repetition within a short period of time. A certain amount of visual repetition has always been accepted by players, however as technology improves and game worlds tend towards more detail, the repetition of assets in games becomes more obvious. Particularly graphically advanced games require an increasing number of assets to hide the repetition and to create believable game worlds. This paper examines various levels of asset repetition in electronic games and addresses problems that can arise. The paper describes some contemporary approaches used by artists in the industry to hide repetition, and touches on current technologies that might be applied in game development to address this problem.

Perspective Shifting: Humour and Comedy in Games

Geoffrey Hookham and Michael Meany

In this paper, we offer a distinction between comedy and humour. This distinction is employed to examine the intentional, scripted comedy and the context-driven, ludic emergence of humour in the game Portal. The game is examined, through content analysis of the game's transcript, using Berger's categories and techniques of comedy and Apter and Martin's Reversal Theory of Humour. The results of this pairing of theoretical approaches suggest there is an oscillation in the affective state of the player between the telic and paratelic states defined in Reversal Theory, and provide at least another lens through which researchers can analyse and map affective states and their shifts.

Extending Building Information Models into Game Engines

Ross Bille, Shamus Smith, Kim Maund and Graham Brewer

The use of detailed building plans and models is common in the construction management domain. Also there is increasing interest in the reuse of such models to realize 3D interactive virtual environments to aid model refinement and for use as training environments, for example virtual site visits. Unfortunately, the development of interactive virtual environments is both time consuming and technically difficult. One successful approach is the reuse of gaming technology to provide the underlying virtual environment and to allow developers to focus on importing appropriate content, e.g. building geometry and textures. Building Information Modelling (BIM) provides a rich source of building data and is an ideal basis for constructing realistic virtual environments. This paper overviews the conversion from BIM to game engines and specifically from the BIM tool Revit to the Unity3D game engine in a case study.

Flow Theory, Evolution & Creativity: or, 'Fun & Games'

Jt Velikovsky

In this paper videogames and transmedia are examined from the perspectives of both creation (game design) and audience reception (gameplay experience), in light of the theories of the DPFi (Domain, Person Field interaction) systems model of creativity (Csikszentmihalyi 1988, 1996, 2006, 2014); its herein contended theoretical equivalent, evolutionary epistemology (Popper 1963, DT Campbell 1974, Simonton 2010) and the inherent biocultural evolutionary creative algorithm of selection, variation and transmission-with-heredity; `flow' theory in creativity (Csikszentmihalyi 1975, 1990, 1996) as a determinant of `fun factor' in games; `narrative transportation' theory in fiction (Gerrig 1993, Green & Brock 2000, Van Laer et al 2014) as an additional (necessary but not sufficient) determinant of `funfactor' in `story' videogames; and Boyd's (2009) general theory of creativity in the arts as `cognitive play with pattern' - ultimately arguing that game play of any kind may potentially enhance animal intelligence, and therefore that videogames as an art form may potentially enhance human intelligence.

A Scouting Strategy for Real-Time Strategy Games

Chen Si, Yusuf Pisan and Chek Tien Tan

Real-time strategy (RTS) is a sub-genre of strategy video games. RTS games are more realistic with dynamic and time-constraint game playing, by abandoning the turn-based rule of its ancestors. Playing with and against computer-controlled players is a pervasive phenomenon in RTS games, due to the convenience and the preference of groups of players. Hence, better game-playing agents are able to enhance game-playing experience by acting as smart opponents or collaborators. One-way of improving game-playing agents' performance, in terms of their economic-expansion and tactical battlefield-arrangement aspects, is to understand the game environment. Traditional commercial RTS game-playing agents address this issue by directly accessing game maps and extracting strategic features. Since human players are unable to access the same information, this is a form of "cheating AI", which has been known to negatively affect player experiences. Thus, we develop a scouting mechanism for RTS game-playing agents, in order to enable game units to explore game environments automatically in a realistic fashion. Our research is grounded in prior robotic exploration work by which we present a hierarchical multi-criterion decision-making (MCDM) strategy to address the incomplete information problem in RTS settings.

DAY 2 - SESSION 6 – WEDNESDAY – 3rd DECEMBER, 2014

SESSION 6	13:30-13:45	E is for Everyone? Best Practices for the Socially Inclusive Design of Avatar Creation Interfaces	Victoria McArthur and Jennifer Jenson
	13:45-14:00	Inferring Player Experiences Using Facial Expressions Analysis	Chek Tien Tan, Sander Bakkes and Yusuf Pisan
	14:00-14:15	Introducing a Revised Lexical Approach to Study User Experience in Game Play by Analyzing Online Reviews	Miaoqi Zhu and Xiaowen Fang

E is for Everyone? Best Practices for the Socially Inclusive Design of Avatar Creation Interfaces

Victoria McArthur and Jennifer Jenson.

Avatar customization is a feature common to many games, yet a number of character creation interfaces are highly problematic in how they mediate and constrain self-representation. In order to investigate this issue, we present a new analytic framework for the systematic analysis of character creation interfaces in games. To model this framework, we present an analysis of the character creation interfaces of four games in order to illustrate the different, and often problematic ways gender and ethnicity are presented to players. From this analysis, we present a list of best practices to help game designers create socially inclusive games.

Inferring Player Experiences Using Facial Expressions Analysis

Chek Tien Tan, Sander Bakkes and Yusuf Pisan

Understanding player experiences is central to game design. Video captures of players is a common practice for obtaining rich reviewable data for analysing these experiences. However, not enough has been done in investigating ways of preprocessing the video for a more efficient analysis process. This paper consolidates and extends prior work on validating the feasibility of using automated facial expressions analysis as a natural quantitative method for evaluating player experiences. A study was performed on participants playing a first--person puzzle shooter game (Portal 2) and a social drawing trivia game (Draw My Thing), and results were shown to exhibit rich details for inferring player experiences from facial expressions. Significant correlations were also observed between facial expression intensities and self reports from the Game Experience Questionnaire. In particular, the challenge dimension consistently showed positive correlations with anger and joy. This paper eventually presents a case for increasing the application of computer vision in video analyses of gameplay.

Introducing a Revised Lexical Approach to Study User Experience in Game Play by Analyzing Online Reviews

Miaoqi Zhu and Xiaowen Fang

This paper proposes a revised lexical approach to understand user experience in game play by analyzing online game reviews. The lexical approach is originally used by psychologists to study personality traits [1]. We argue that game players have used natural languages to describe computer games and their experiences over time, and that the most important characteristics of game play experience would be reflected in player language. Therefore, user experience during game play can be studied by examining the vocabularies used by players in online reviews. Based on 696,801 reviews downloaded from three major game websites, the lexical approach was adapted to analyze textual content pertaining to computer games. Six major factors (playability, creativity, usability, competition, sensation, and strategy) were identified and ranked. While playability, creativity, and usability suggest how to measure success of a game, competition, sensation, and strategy provide three effective stimuli to game enjoyment. The implications of the revised lexical approach and findings from this study were discussed.

SHORT PAPERS – POSTERS

Posters will be on display from lunchtime on Day 1 to lunchtime on Day 2

Overview of the MySteps ICT Framework

Reem Altimimi, Geoff Skinner and Keith Nesbitt

MySteps is an inspiring acronym for a novel active living framework detailed in this paper. Managing Youth Screen Time and Exercise Performance Statistics (MySteps) is a cohesive collection of Information and Communication Technologies (ICT) integrated in a unique way for specific application in the adolescent demographic health domain. Specifically, it is used to promote awareness and real time feedback of the need for balance between screen time and exercise performance. This is essentially achieved through the visual representation of those daily statistical elements using contemporary readily available mobile and health technologies.

Multimodality or Ludo-narrative Dissonance: Duality of Presentation in Fringe Media

Daniel Dunne

Multimodality has been lauded as an important teaching method for the presentation of new media texts in the 20th and 21st century, especially in relation to graphic novels. Multimodality is the incorporation of different modes (or mediums) that work together to create a singular message. However this idea of multimodality hasn't been brought into video game studies. Instead video games have focused upon ergodic literature, at first, and then ludo-narrative dissonance as an explanation for different media types within videogames. However while multimodality has become prevalent within the study of graphic novels, the same can't be said for game studies. This paper explores the relationship between the positive notion of multimodality in graphic novel studies and the negative connotations of ludonarrative discussion, and ergodic literature within game studies.

Multimodality and the Competitive Metagame: Exploring Issues of Balance in Multimodal Game Environments

Ben Egliston

The ecology of gaming is vast and diverse, comprised of individuals who engage with the medium through markedly different modes. The aim of this paper is to explore the interface between the multimodal play afforded by games (specifically, multiplayer games) and the balance of gameplay in the competitive arena (or metagame). Framed through competition, play and digital games theory, and driven by a case study analysis of gameplay (and ancillary media surrounding gameplay), this paper offers preliminary findings indicating that multimodality has the potential to palpably influence the production and consumption of games. Based on this outcome, this paper makes both conceptual and practical suggestions on which future research and design can elaborate.

Social Play Spaces for Active Community Engagement

Jenna Gavin, Ben Kenobi and Andy Connor

This paper puts forward the perspective that social play spaces are opportunities to utilise both technology and body for the benefit of community culture and engagement. Co-located social gaming coupled with tangible interfaces offer active participant engagement and the development of the local video game scene. This paper includes a descriptive account of Rabble Room Arcade, an experimental social event combining custom-built physical interface devices and multiplayer video games.

DIGICON – It's not Digital but it is Confronting

Elyssebeth Leigh and Deanna Hutchinson

Designing games for learning is a complex process requiring deep understanding of socio-cultural elements to be represented in the activity, as well as knowledge of technologies with which to bring the action to life. Digicon is a leadership training simulation game. It uses no digital technology, yet generates intense discussion about topics as diverse as linguistic competence, learned helplessness and behavioural inhibitions. In the context of a conference on digital games and interactive entertainment, Digicon is link between a pre-digital age when designers of games for learning relied solely on analysis and imagination to create synthetic environments such as those now available via large-scale technology-supported learning activities. Games and simulations have long provided learning opportunities. In the 21st Century play and fun are more widely accepted as valid learning strategies than in the 19th and 20th centuries. However, while there is much design-oriented knowledge available to educators and game designers, there are big gaps in awareness of relationships among various forms of play for learning. Digicon dates from a pre-digital games era, yet models the continuity of design and application principles in using games for learning.

Augmented Body: Changing Interactive Body Play

Matthew Martin, James Charlton and Andy Connor

This paper investigates the player's body as a system capable of unfamiliar interactive movement achieved through digital mediation in a playful environment. Body interactions in both digital and non-digital environments can be considered as a perceptually manipulative exploration of self. This implies a player may alter how they perceive their body and its operations in order to create a new playful and original experience. This paper therefore questions how player interaction can change as their perception of their body changes using augmentative technology.

Music to Middleware: The Growing Challenges of the Game Music Composer

Nathan Scott

This paper briefly examines a number of the demands placed on composers working in the genre of game music. Continual improvements to music software enable composers to have more control of their music but this requires a greater knowledge of software environments and a different compositional skill set.

Exergaming in the Car: Preliminary Results of an Experimental Setup

Sven Krome, Steffen P. Walz, Stefan Greute, Ansgar Gerlicher and Markus Schleehauf.

This paper presents a pilot study that explores an experimental setup for measuring stress reduction through an exergaming approach within the spatial limitations of a car. Besides our focus on the exploration of the experiment's setup, we present preliminary results that are crucial for the design of gameful stress reduction in the car context. We conclude that winning or losing an exergame does not have a significant effect on the player's distress level. However, the exergame itself, if designed properly for the spatial limitation of the car, does have a significant influence on the player's level of distress, worry and engagement.

Exploring Game Ideas for Stresslessness in the Automotive Domain

Sven Krome, Steffen P. Walz, Stefan Greute, Ansgar Gerlicher and Markus Schleehauf

In this paper we report on the results of a series of ideation workshops with the goal to explore game designs that promote stresslessness and wellbeing in the automotive context. We present two parts that are particular interesting for further research. First, we provide an overview of our preliminary work on a catalog of design items for gameful stresslessness in the car. Second, we report on a selection of the game ideas created during the ideation workshops and discuss the findings regarding directions for further research.

DEMONSTRATION

DEMO	13:20-14:00	Protocol E: An Implementation of a Novel, Agent Based, Control Scheme for Real Time Strategy Games	Matt Cabanag

Protocol E: An Implementation of a Novel, Agent Based, Control Scheme for Real Time Strategy Games

Matt Cabanag

Contemporary real time strategy games (RTS) have given particular emphasis on micromanagement. Protocol E takes a different direction by adopting a novel agent based control scheme proposed in 2012. Protocol E is intended as a demonstration of the viability and versatility of this kind of control scheme in RTS games. The game can run on control pads as well as keyboards and mice or touchpads.