

# CREATEWORLD 2018

## CREATIVITY IN PROGRESS

Conference Guide





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# Welcome

Welcome to CreateWorld 2018 - our 12th year year for this event, and the product of a successful and much valued partnership between the AUC and the Queensland College of Art at Griffith University.

This year, our theme is “Creativity in Progress”. Creativity is recognised as an important defining trait of humans. But what is creativity like across disciplines and fields of research - is it the same, is it different, is it contextual or universal. The topic this conference explores is, what does creativity look and feel like in progress? What do projects, ideas and work in progress have to show us about creativity. Is Creativity evidenced more in process than outcome? Can the realms of computing offer insights into creative emergence?

The major conference tracks include peer-reviewed papers, posters and abstracts, presentations, workshops, an exhibition, and performances. There’s something for everyone and I hope you’re challenged and engaged throughout the event.

No AUC conference would be a success without the hard work put in by the paper authors, session and workshop presenters, exhibition contributors, and partners, and we thank them all for the many hours they’ve spent preparing, as well as the time they’ve given up to be part of the conference.

I’d particularly like to thank my co-chairs, Daniel Della-Bosca, Seth Ellis, Dale Patterson and Rae Cooper for the substantial work that they’ve done to bring everything together. Dale coordinated the peer review process, Seth coordinated the exhibition and performances, Rae ran our social media promotions and executed some incredible artwork as part of that promotion, and Danny did almost anything and everything else required to ensure this year’s event is a success.

I hope that you find that the next 3 days inspire you, and encourage you explore new aspects of your own creativity in whatever field you’re able to apply it.

I wish you a great conference!

Tony Gray,  
Chair, AUC

# Our Code of Conduct

We aim to provide welcoming and professional environments so that people regardless of age, race, gender identity or expression, background, disability, appearance, sexuality, walk of life, or religion can work together to share experience in the use of Apple technology.

Please be respectful of others and be courteous to those around you. We do not tolerate harassment or offensive behaviour.

Complaints about harassment or offensive behaviour may be made to the conference organisers. All complaints will remain confidential and be taken seriously.

Any person asked by an organiser, convenor or moderator to cease harassing or offensive behaviour must comply immediately.

At the discretion of the organisers, a person violating our code of conduct may be excluded from the conference without refund.

Unacceptable behaviour includes, but is not limited to:

- offensive verbal or written remarks related to gender, sexual orientation, disability, physical appearance, body size, race or religion
- sexual or violent images in public spaces (including presentation slides)
- deliberate intimidation
- stalking or following
- unwanted photography or recording
- sustained disruption of talks or other events
- disruptive intoxicated behaviour
- inappropriate physical contact
- unwelcome sexual attention
- sexist, racist, or other exclusionary jokes

Our full code of conduct can be found at:

<http://auc.edu.au/policies/code-of-conduct/>

# Program

## WED 28 NOVEMBER

10:00	
11:00	<b>11:00 Registration, Tea &amp; Coffee Available</b>
12:00	
	<b>12:45 Welcome and Conference Opening - S05 QCA Lecture Theatre, Room 2.04</b>
1:00	<b>1:00 Keynote - Massimo Banzai</b> S05 QCA Lecture Theatre, Room 2.04
2:00	
	<b>2:15 Algorithmically Generating Musical Complexity Based on Textual Complexity; A Case Study</b> Daniel Field
3:00	<b>3:00 Afternoon Tea, S02 Webb Centre Room 4.05B</b>
4:00	<b>3:30 Papers Track</b> <b>Creativity, People and Ideas</b> S02 Webb Centre, Room 4.02E
	<b>3:30 Community Principles Powering the...</b> Mars Geldard <b>4:15 Mobile Technologies Supporting Creativity:</b> Brett Voss S02 Webb Centre, 4.02F
5:00	<b>5:00 Exhibition Performances and Opening</b> S02 Webb Centre, Room 4.02A
6:00	

# THU 29 NOVEMBER

9:00			
10:00	<b>10:00 Papers Track</b> People, Creation & Play S02 Webb Centre, Room 4.02E	<b>10:00 Adobe Workshop</b> S02 Webb Centre, Room 3.07 Mac Lab	<b>10:00 How Do I Game Design? Workshop</b> S02 Webb Centre, 4.02C
11:00			
12:00	<b>12:00 Lunch</b> S02 Webb Centre, Room 4.05B		
1:00	<b>1:00 Papers Track</b> Building Games S02 Webb Centre, 4.02E	<b>1:00 Adobe Workshop</b> S02 Webb Centre, Room 3.07 Mac Lab	
2:00			
3:00	<b>3:00 Afternoon Tea - S02 Webb Centre, Room 4.05B</b>		
4:00	<b>3:30 Abstract/Poster Track</b> Creative Sound S02 Webb Centre, Room 4.02E	<b>3:30 Digital Art Out West</b> Iain Anderson <b>4:15 Game Engines and Machine Learning</b> Paris Buttfield-Addison S02 Webb Centre, 4.02F	
5:00			
6:00	<b>6:00 Conference Dinner</b> Ship Inn		
7:00			
8:00			
9:00			

# FRI 30 NOVEMBER

9:00			
10:00	<b>10:00 Abstract/Poster Track</b> S02 Webb Centre, Room 4.02E	<b>10:00 DIY PCB – Designing &amp; Manufacturing Your Own Printed Circuit Boards</b> S02 Webb Centre, 4.02C	<b>10:00 Game Development on macOS with Godot</b> S02 Webb Centre, Room 3.07 Mac Lab
11:00			
12:00	<b>12:00 Lunch</b> S02 Webb Centre, Room 4.05B		
1:00	<b>3:30 Abstract/Poster Track</b> S02 Webb Centre, Room 4.02E	<b>1:00 RoboCoder: Robotics and Visual Programming Workshop</b> S02 Webb Centre, Room 3.07 Mac Lab	
2:00			
3:00	<b>3:00 Conference Close - S02 Webb Centre, Room 4.02F</b>		
4:00			



# Keynote Speaker

1:00 Wednesday - S05 QCA Lecture Theatre, Room 2.04

## Massimo Banzi

Massimo Banzi is the co-founder of the Arduino project. He is an Interaction Designer, Educator and Open Source Hardware advocate. He has worked as a consultant for clients such as: Prada, Artemide, Persol, Whirlpool, V&A Museum and Adidas.

Massimo started the first FabLab in Italy which led to the creation of Officine Arduino, a FabLab/Makerspace based in Torino.

He spent 4 years at the Interaction Design Institute Ivrea as Associate Professor. Massimo has taught workshops and has been a guest speaker at institutions all over the world.

Before joining IDII he was CTO for the Seat Ventures incubator. He spent many years working as a software architect, both in Milan and London, on projects for clients like Italia Online, Sapient, Labour Party, BT, MCI WorldCom, SmithKlineBeecham, Storagetek, BSKyB and boo.com.

Massimo is also the author of "Getting Started with Arduino" published by O'Reilly. He is a regular contributor to the Italian edition of Wired Magazine and Che Futuro, an online magazine about innovation.

He currently teaches Interaction Design at SUPSI Lugano in the south of Switzerland and is a visiting professor at CIID in Copenhagen.



*photo by David Cuartielles*

# Community Presentation Track

**2:15 Wednesday - S05 QCA Lecture Theatre, Room 2.04**

## **Algorithmically Generating Musical Complexity Based on Textual Complexity; A Case Study**

Daniel Field, Griffith University

This presentation gives the audience a quick tour through the development process for the 'Word Score Sonifier', a Python script that takes English text as input and provides a four-part vocal score (soprano, alto, tenor, bass) as output in MusicXML. The Word Score Sonifier was rapidly developed for the 2018 National Science Week 'Textual Data Sonification and Algorithmic Composition Competition', where it won the open category.

The focus of the presentation will be on the musical and creative choices embedded in the algorithm, both express and implied. The presenter will trace the intent to create a flexible composition algorithm capable of producing outputs spanning a stylistic range; how that intent was incorporated into the algorithm by means of flexible procedures, and how the notion of textual complexity was used as a control parameter and mapped to musical complexity using common-practice tonality and major modal theory as a reference. The audience will hear examples of compositions and will be able to judge for themselves the extent to which the intent may or may not have been fully realised.

**3:30 Wednesday - S02 Webb Centre, Room 4.02F**

## **Community Principles Powering the Largest Ever Hand-crafted Virtual World\***

Mars Geldard, University of Tasmania

\*...we think.

Westeroscraft is a project based on the block-based building game Minecraft, in which a few hundred unpaid strangers have spent the last 8+ years tirelessly recreating the world of George R. R. Martin's A Song of Ice and Fire series block-by-block. Given that every piece of the world, even the terrain itself, was custom-made from scratch, several sources have suggested it to be the largest hand-crafted or contiguous virtual landmass ever made. It exists at the intersection of art and technology, and has been the topic of countless podcasts, articles, and Let's Plays, was featured in TIME magazine in 2013 and is currently showing in the Victoria & Albert Museum's Videogames: Design, Play, Disrupt exhibition in London.

Creating and promoting an expansive virtual world with a cohesive brand and vision, especially on free labour and across global timezones, is no mean feat. Westeroscraft is an open project like any other: people who don't know each other each want to see the realisation of an idea, so they come together and combine their segments of work to make a whole. This produces the same benefits we see in comparable software or collaborative projects, but suffers from the same issues: agreeing on the end goal or big picture doesn't mean there aren't disagreements on the best path to take or the implementation of specifics. It has many of the same needs as other projects: comprehensive documentation, conflict resolution, and finding the right balance of quality control versus creative freedom, in a structure with ambiguous or nonexistent hierarchy. Common issues are also exacerbated by our being entirely donation-funded, meaning poor community culture could make the difference between being able to keep the lights (or in this case, servers) on.

In this talk, a contributor from the project will reveal the administrative and community management practices employed by Westeroscraft to address issues including:

- planning and organisation strategies,
- decision-making and conflict resolution examples and techniques,
- review/quality control, and
- community engagement and non-contributor inclusion;

and discuss their applicability to other community or open source creative projects. Also, pretty medieval castle pics.

**4:15 Wednesday - S02 Webb Centre, Room 4.02F**

## **Mobile Technologies Supporting Creativity: Design Principles for On-Demand Technology Education**

Brett Voss, Griffith University

Creativity in a modern sense requires engagement with the use of technologies. Often using these technologies requires learning techniques throughout the creative process. This is particularly the case in the area of music production, where learning and creating are intertwined. Mobile technologies that support the creative process have a part to play through providing on-demand learning opportunities. Designing learning environments to facilitate this process effectively, requires thoughtful consideration. This presentation will offer an insight into the design principles relevant to on-demand mobile learning in the creative arts. It will present a case study of how mobile technologies were used to support students learning skills in popular music production.

**3:30 Thursday - S02 Webb Centre, Room 4.02F**

## **Digital Art Out West**

Iain Anderson, Training Brisbane

Earlier this year, I had the opportunity to travel to Blackall, to help the community with some digital art projects. I created a 360° photo trail that runs through the main street, and an iPad app as part of an exhibition in a local gallery.

This practical talk will show you how you it was all created:

- handling the 360° camera
- processing 360° HDR photos
- collecting and processing video interviews
- creating a user interface to link a real-world photo wall to the videos
- implementing the app in Tumult Hype
- packaging the HTML output in Xcode as an app

With the techniques discussed here, you could create similar projects to help preserve and showcase your own community's work.

**4:15 Thursday - S02 Webb Centre, Room 4.02F**

## **Game Engines and Machine Learning**

Paris Buttfield-Addison, Secret Lab Pty. Ltd.

Learn how to use Unity to train, explore, and manipulate intelligent agents that learn. Train a quadruped to walk. Then train it to explore, fetch, and manipulate the world. Games are great places to explore AI. They're wonderful contained problem spaces. Learn how to use them, even though you're not a game developer.

This session explores using popular game engines, such as Unity, for machine learning exploration, training, and education.

Learn:

- how video game engines are a perfect environment to constrain a problem and train an agent
- how easy it is to get started, using Unity
- how to build up a model, and use it in the engine, to explore a particular idea or problem

This session is for non-game developers to learn how they can use game technologies to further their understanding of machine learning fundamentals, and solve problems. It's a little bit technical, a little bit creative.

# Exhibition & Performances

## Process Is Progress

CreateWorld has always been devoted to the real uses of emerging technology in education, art, and the crossover of the two. This year, the conference exhibition is a larger collection showcasing process-based work from local and national artists.

These are works that require participation to be activated—VR environments, wearable objects, interactive devices. They are also artworks devoted to exploration, and discovery through making. Like CreateWorld, the exhibition celebrates the idea that art, like technology, exists in motion, always in process, always going forward.

The CreateWorld exhibition features the work of Paul Bardini, Sebastian Beswick, Andrew Brown, Daniel Della-Bosca, Mark du Poitiers, Mars Geldard, John Ferguson, Nina Grima, Leah Gustafson, David Harris, Grace Herrmann, Nina Mizraei, Kierra-Jay Power, Gerard Rutten, Jessica Salmon, Pamela See, and Ning Yi Yeoh.

Webb Gallery, opening event 28 November 6-8pm

## Associated Exhibitions

### Shifting the Posts

***Shifting the Posts*** is an exhibition that brings together a selection of visual artists whose emergence coincided with the advent of post-digitalism and Griffith University researchers who are engaged with expanding this germane field of practice.

The contributing artists include: Anastasia Tyurina, Blair Coffey, Luis Cantillo, Raymond Ghirardo, Megan Roberts, Lily & Honglei, Li Gang and Pamela See.

Webb Gallery, opening event 28 November 6-8pm

### The Art of Science Communication

CreateWorld will also host the re-mounting of the exhibition ***The Art of Science Communication***, curated by David Harris at the Sydney Powerhouse for the Australian Science Communicators 2018 conference. This work will be on display with the CreateWorld exhibition in the Webb Centre, level 4.

## No Bodies Perfekt

***No Bodies Perfekt*** features selected outcomes of David Sargent's Doctor of Visual Arts research project. Exhibited work explores the use of hand-lettering and augmented reality to communicate body shape diversity and disrupt physical advertising spaces.

Grey Street Gallery, opening event 30 November 6-8pm

# Paper, Poster & Abstract Track

Each session runs for 20 minutes, with 5 minutes breaks between sessions.

## Creativity, People and Ideas 3:30 Wednesday - S02 Webb Centre, Room 4.02E

### **3:30 The Divinity of the Machine**

Phil Aitken

This article is an extract from my PhD. In my research I considered the primacy of meaning, consumption and the divinity of the machine. The era of interest was the machine age. This was an era of rapid scientific and technological development, declining religiosity, and the acknowledgement of the individual in western culture. Considering the enormity of this paradigmatic change, I consider the notion that the machine has paramount importance, not only in preserving, sustaining, and advancing humanity but also in the deepening process of how we construct meaning and spirituality in a mass-production and mass-consumption society. I suggest that perhaps the machines producing our items of consumption have taken on a divine importance within adapting cultural systems and continued technological advancement. In this extract, I considered how some 20th century artists have utilised and considered the machine in their work and how a sense of the divine can be applied to the machine.

### **3:55 Design is Like... Making Sense of Things Through the Creative Use of Analogy**

Mike McAuley

This study discusses analogical reasoning and its role in creative problem solving. Specifically it looks at how novice first year university design students responded to the task of communicating a complex topic through the generation of a visual analogy; in this instance the task of explaining some aspect of what design is. Students were introduced to various theories about design and design process. They were also introduced to theories around analogical reasoning, particularly those around mapping. The students were then asked to demonstrate their understanding, not through critical discourse, but through applied creative practice. To provide a context, students had to create an illustration with the title 'Design is Like...'. The findings suggest that the praxis based approach acted as an empirical bridge between theory and practice, providing students with an identifiable creative strategy and meta-cognitive awareness of their own design process.

### **4:20 The Journal of Brief Ideas: An Intervention into the Academic Publishing Ecosystem**

David Harris and Arfon Smith

In this paper, we describe a contribution to the scholarly publishing sphere in the spirit of artist intervention. The Journal of Brief Ideas (JOB I) is based on the idea of papers as microcontributions having a maximum of 200 words and one figure. JOB I is wrapped in the academic norms required for broader recognition as an incentive for authors to participate in this experiment. It has published 239 papers since launch in February 2015 and been cited in top tier journals and covered in news reports in leading journalistic publications. We present a descriptive content, citation, and commentary analysis of the journal with discussion its existing and potential influence and roles. We conclude with a brief discussion of the connection between the journal's structure and ideas in creative ideation.

**People, Creation and Play**  
**10:00 Thursday - S02 Webb Centre, Room 4.02E**

**10:00 “You’ve Got A Friend in Me!”: The Fellowship of the ‘Others’**

Charulatha Mani and Taana Rose

This paper describes a creative work in progress. Two women vocal performers from diverse traditions come together with technology to create a textured soundscape. Using artistic practice as process, the methodological framework adopts artistic experimentation as the key method. Adopting the overarching philosophy that Otherness comprises of the marginalised, the vulnerable and the machine, we draw on Donna Haraway’s notion of ‘becoming-with’ technology. We draw on lullaby from the South Indian tradition of music as the primary content. Drawing on key syllabic elements from the lullaby tradition, we compose and improvise using technology as the facilitator and partner, on a technologically created textured substrate. The outcomes showcased here include sound files of failed and successful attempts, as well as spectrograms depicting the key moments in the composed-improvisations.

**10:25 Realistic vs Stylistic: An Exploration of the Expressive Abilities of Stylisation in 3D Art**

Angus McMeekin and Reza Ryan

Video game art styles have a great impact not only on how a game is initially perceived by an audience but also on how it is experienced. Through an understanding of the capabilities of each art style, developers can better design experiences that utilise their chosen art style to enhance gameplay, themes and emotions. However, these capabilities have not been fully explored, particularly within video games. For example, a small amount research in visual media outside video games suggests that non-photorealistic art styles typically contain more expressive qualities. This study aims to further explore this art trend through an expressive analysis of the stylised art style compared to the realistic art style, fill the gap in knowledge and as a result, provide a better understanding of the expressive qualities of the stylised video game art style. This research first explores what expressive qualities stylised art contains and collaborates them into a framework that can be used for the development of expressive stylised art. This framework is then applied to a stylised recreation of a AAA quality realistic environment. Both environments are then comparatively evaluated using participant testing consisting of playtesting followed by questionnaires. These questionnaires survey the participants on whether they felt either environment effectively expressed a mood, which moods they were able to identify and whether either environment displayed ‘artistic qualities’. The data gathered from these questionnaires will then be analysed to provide a conclusion on which art style displayed more expressive qualities. It is expected from this data that the stylised art style will be received more favourably for its expressive abilities while the realistic will be perceived as more artistic. The conclusion drawn from this study can then be utilised by developers and artists to better guide the design process, providing a deeper insight into the abilities of each art style and how they may impact their games.

**10:50 Digital Play – Making New Links in the Brain**

Dale Patterson

This paper explores the way the human brain functions and how digital play causes differing elements of the the brain to interact with each other in ways that they normally would not. The potential for this play driven cross brain activity is aimed to inspire new creative thoughts and outcomes for the player. The paper explores the use of game-play based systems in a number of applications and demonstrates the capacity for such digital play systems to enhance our personal capabilities in education and creative practice.

**11:15 Re-directing the Lens**

Sonia York-Pryce

This paper seeks to examine the role of the older, experienced dancer through digital documentation. This is followed by a discussion regarding the project and its aims to make visible the older dancing body on screen, a rare occurrence within Western society. It questions why in the Western dance world, the sentiment is no different, ageing remains a taboo issue, holding prejudice towards the corporeal difference of the older, experienced dancer.

## Building Games

### 1:00 Thursday - S02 Webb Centre, Room 4.02E

#### **1:00 Search-Based Procedural Generation for First-Person Shooter Maps**

Dylan Ward and Reza Ryan

Over the past three decades, video games have become one of the most popular forms of entertainment in the world. This increase in popularity comes with a demand for frequent and quality content from consumers, however, delivering on this demand costs companies time and money.

The aim of this research is to identify, develop and evaluate a method of procedurally generating maps for multiplayer first-person shooters using a genetic algorithm (GA). Past research in the field of search-based procedural generation in first-person shooters (FPS) has allowed for little customization, not used evaluation techniques based on proven level design techniques and has not been verified via user testing.

The objective of this research is to design an algorithm to generate maps automatically in a way that requires little manipulation from designers and test the generated maps on participants. The quality of generated maps is evaluated based on measuring the tension levels of an AI agent in a simulated match. Previous research in this field has allowed for little customization, this algorithm will be easily customizable, allowing designers to create levels of various shapes and sizes and allowing designers to use 3D asset packs for level construction. The algorithm has also been designed in such a way that it can be integrated into any real-time game engine with ease.

#### **1:25 Creating a Virtual Reality Horror Experience**

Travis Jeffery and Reza Ryan

This research considers the numerous studies into the genre of horror in the entertainment industry with the growing commercial success of virtual reality (VR). While there is an increasing number of studies conducted into these VR systems, there is limited research on developing a framework to create horror games using VR. This practice-led study aims to design a framework which utilizes the VR systems with the techniques of horror design: visual components of light and color; audio localization and hallucinations; obscurity. A prototype game is developed alongside the framework and then tested to see the effectiveness of the design on the experience of fear. The findings of this research aim to establish a framework suitable for horror game development.

#### **1:50 A Framework for Player Traits and Behaviours**

Jackson Fuller

Since Bartle's taxonomy of player types, various researchers have attempted to identify and categorise player behaviours. However, player types have proven to be inefficient which has paved the way for trait models instead. Research into player traits is fairly recent and so far, has only been used in subjective questionnaires. This can lead to a lack of understanding of how players make certain decisions in game scenarios.

This project attempts to address this problem by creating a framework that defines various behaviours that players exhibit in relation to their player traits. An artificial agent will be created to display these behaviours in a video game setting to provide an understanding of how a player's trait orientation can inform their actions in each scenario. The scenarios created for the agent to interact in will be informed by the subjective survey questions designed to identify player traits.

It is expected that the knowledge from this project can be used to predict player behaviours based on the scenarios that developers have created. This leaves the potential to personalise a game for multiple player traits or cater towards a specific one.



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## **2:15 Creating Digitally-Enhanced Acoustic Performance Spaces for Pipe Organ and Choir**

Philip Matthias, David Cornforth and Nathan Scott

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This research is a preliminary examination of how real-time digital processing can enhance the performance of pipe organ and choral music in acoustic performance spaces. It considers the issue of matching repertoire to appropriate acoustic environments in addition to creating new spaces through digital processing. It investigates two techniques to digitally enhance acoustic spaces and discuss the tools, aesthetics and issues faced when using these two instruments. These issues are explored in two live music performance events where the aims of this study are realized, providing performers with a variable acoustic space and the audience with an enhanced listening experience. The innovation of this work lies in the treatment of the particular instruments and the control of their blend to create a new, definable acoustic space.

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## **2:40 Stochastic Weather Modelling to Generate Rain, Snowfall and Wind**

Ceegan Kohere and Reza Ryan

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Within the past decade development and quality of weather phenomena in virtual environments has rapidly increased. However, there is a lack of documented framework to create a dynamic and optimized weather system suitable for real-time environment.

This research is a critical inquiry of current research and the implementation required to create such a weather system in real-time. In this research a dynamic weather model was created using different weather component generation techniques such as Particle emission, Markov chains, Cellular Automata, Tri-Planar projection and Depth mapping. The weather model was designed and tested through the design science research methodology to ensure functionality. This framework can be easily integrated into existing real-time engines.

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### **Creative Sound**

**3:30 Thursday - S02 Webb Centre, Room 4.02E**

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## **3:30 Inside the Spark: Pondering the Creative Process of Fast Songwriting**

Ross McLennan and Ross McLennan

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Songwriting is typically an art form which results in three or four minutes of sonic, structured, poetic time. However, songs typically take hours, days or even years to compose. But some of the greatest songs have been written fast. They seem to have spontaneously appeared from the ether in a state of relative completeness. This self-study explores the creation of such a song – composed in just five minutes – evaluating fast, compared to slow-form creations: the nature of the modern muse; the use of everyday technology to capture the spark of creativity; and the perceived benefit of a long-form honing process thereafter.

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## **3:55 Visually Exploring the Acoustic World**

Leah Gustafson, Chris Carter, Susan Fuller, Leah Barclay and Charles Dacosta

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The complexity of soundscapes is difficult to express to general audiences, and the most common ways of visualising the audio generated from the acoustic data of a soundscape recording are difficult for the lay audience to interpret. The creative work “Wild Soundscapes” experiments with the use of 360° video in a mixed reality (MR) environment as a backdrop for visualising soundscapes.

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**4:20 New World Immersion: A Creative Inquiry into Enhanced Dynamic Music in the Open Worlds of Medieval-based Roleplaying Games**

Melissa Nichols

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A study by Gasselseder (Gasselseder, 2014) explored the immersive presence, emotional behaviour and arousal in players through the use of dynamic and non-dynamic music in an action-adventure video game. The study concluded that subjects experienced “enhanced [immersion] when being presented with dynamic music” (Gasselseder, 2014). Open-world games, particularly medieval-based role playing games (RPG), have been criticised for their overly-cluttered content and information resulting in reduced immersion. Their “design has reduced what should be immersive worlds into expensive yet meaningless filler between objective icons.” (Parish 2015). Consequently, this study will explore how dynamic music can be used to enhance immersion in such open-world games. Based on a pragmatic action research methodology the study will focus on the development and refinement of a musical prototype. Brainwave measurements, questionnaires and semi-structured interviews will be used to inform the refinement phases. It is envisaged that results from this study will be valuable to game developers who plan to create huge open-worlds with improved immersion levels.

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**Paper, Poster and Abstract Presentations**  
**10:00 Friday - S02 Webb Centre, Room 4.02E**

**10:00 Refining the Zone: Enriched Video Game Immersion in Hub Zones through Phases of Musical Re-Composition**

Benjamin Lang and Ross McLennan

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Immersion is a vital aspect of the video game experience (Brown, E. Cairns, P. 2004), and game audio plays a significant role in its design and consumption. Favourable audio has been shown to have a marked effect on the experience of immersion in video games (Gasselseder, H. 2014), while undesirable audio can negatively affect sensory and imaginative immersion (Brown, E. Cairns, P. 2004). As video game hubs in hub-based game designs are such an integral part of the overall experience, audio elements within hub zones must be as immersive as possible. This study will attempt to improve levels of game immersion in hub zones by improving one aspect of audio design – the music. The research will require ten participants to interact with a re-composed hub environment for a duration of ten minutes. During this interaction, visual observations of the participants will measure any visual indicators of enjoyment and immersion. After the interaction period is complete, participants will be interviewed: how did they feel; how much time had they felt had passed and how much of an influence did the music have on their levels of enjoyment and immersion. The research will be conducted using the methodological framework of action research, a cycling system of research where a product is created, tested, results reflected upon, then refined and created again using the information gathered. In order to gather enough data to create an effective immersive hub composition, three cycles of action research will be conducted. If successful, this iterative re-composition process could help improve immersion in hub environments – and video games in general.

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**10:25 Painting’s Facture and its Digital Translation**

Chris Worfold

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Analogue painting is a form of chirographic picture making which is indexical to the artist’s gesture. Photo imaging technologies are commonly used to reproduce paintings, representing them as digital images. However, this reproduction process results in the loss of painting’s material facture. In this sense digital images are not reproductions of analogue paintings rather they are tokens for them. Increasingly audiences are experiencing paintings indirectly via token digital images, where the uniqueness of the sensory encounter with a painting’s facture; its mark making, materials and scale, is removed. This paper investigates the discourse surrounding the digitisation of analogue painting and identifies attempts to digitally translate painting’s material facture.

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## **10:50 Responsive Animation – An Examination of Character Animation for Responsive Game Feel**

Justin T Carter

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The animation of player controlled characters in real-time video games plays a key role in shaping player perception. The game system's ability to offer an instantaneous response by reacting quickly and positively to input from the player can influence how a game feels to play. Animation techniques adopted in traditional high fidelity forms such as film possess the potential to introduce effects such as system latency or lag which can create a form of dissonance between the player input and the sensation of control in the game. The challenge for animators is that they must use animation techniques specific to real-time control in order to create realistic high fidelity illusions of motion and physical actions while maintaining system responsiveness. This paper investigates the contemporary animation techniques applied in order to maintain and enhance sensations of control in real-time games.

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## **11:15 Musical Manipulation 1 – Qualitative Correlations Between Harmonic Dissonance and the Emotions**

Ross McLennan and Ross McLennan

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Music's emotional impact is ubiquitous. It is used to scare us on our screens, to soothe us into a state of consumer comfort in shopping centres and excite us into a frenzy of excitement at sports events. Yet this mainstream emotional manipulation, which seems so obvious, is in many ways still shrouded in mystery. This qualitative study analyses the manipulative power of one musical dimension – harmony – by comparing emotional reactions to a number of common and less well-known chords of varying levels of dissonance on music and non-music student participants. The results will be used to create a rudimentary harmonic/emotional framework to aid media composition students to manipulate their intended audiences. It is envisaged this framework will also act as a foundation for future research into musical/emotional manipulation.

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## **11:40 Speculating the Void**

Grace Herrmann and Ross McLennan

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The void is a multifarious subject with roots in ancient philosophy, spirituality, science and art. It is both multifarious and profound, suggesting a space of nothingness, silence and darkness, yet also the infinite and the sublime. In the visual arts, it has inspired prolific exploration from the works of Yves Klein to well-known, contemporary exponents like Anish Kapur.

This project will explore the void by integrating augmented reality (AR) into creative practice and employ the three defining characteristics of AR: combining the real and the virtual; interacting in real time; and registering in 3D (Avram, 2016, p.12). The resulting artwork will utilise virtual imagery projected onto sculptures, and motion sensors to allow audience interactivity in a physical space.

The project approaches AR as a concept rather than a technology, to focus on the creation of a meaningful experience of the void, without the barriers to immersion inherent using screen-based devices such as tablets and smartphones. The resulting artwork aims to create a new way of depicting and exploring the void using contemporary methods that build on the history of art.

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## Paper, Poster and Abstract Presentations

### 1:00 Friday - S02 Webb Centre, Room 4.02E

#### **1:00 Photogrammetry: Techniques for Independent Game Developers**

Sean Backhouse, Justin Carter and Ross McLennan

Photogrammetry involves the process of accurately measuring photographic image properties in order to acquire information relating to surface detail. Information collected during this photogrammetric analysis is then applied to computational models that attempt to accurately recreate three dimensional representations from the image data. The use of photogrammetry by the video game industry is on the rise as developers attempt to use these techniques to create more realistic three dimensional assets in shorter time frames. This shift in production methodology has implications for independent developers of games that typically work in smaller teams with less funding. This paper provides an overview of an investigation into what implications exist for independent developers by first investigating current applications of photogrammetry adopted by the games industry. These techniques are then explored through a practice-led research approach that aims to investigate solutions for independent developers. Finally the paper presents a cost effective strategy for independent developers to effectively create real-time game assets.

#### **1:25 Mapping Input: Balancing Virtual Simulation and Responsiveness**

Arden Sedmak and Justin Carter

Fundamental to the creation of real-time games is establishing how parameters within the game will behave in response to player input. The challenge for designers is that they must bridge the gap between the physical nature of the input device and the procedurally generated virtual simulation. Complexities arise in the modulation of position and rotation parameters when attempting to provide appealing physical simulations while maintaining instantaneous response. The challenge for the designer is to match the player's preconception of how an object should behave within the physical simulation while maintaining the systems ability to respond in a timely manner. This paper provides the results of a practice-led study that investigates how parameters of movement can be measured and modulated over time while maintaining system responsiveness. This is achieved by examining how signals from the input device can be mapped to changes in position and rotation within a selection of case studies. Findings from these case studies are then applied in the development of third person character action game. The paper concludes by presenting an approach for measuring and analysing position and rotation parameters in relation to responsiveness during production phases of development.

#### **1:50 Integrating Consumer Friendly Microtransactions Encouraged Through Gameplay that Promotes Product Advocacy**

Travis New, Justin Carter and Ross McLennan

The Implementation of microtransactions within console game products has become increasingly more prevalent. The development of new strategies for increasing game revenue whilst maintaining positive gaming experiences has become increasingly important to developers and publishers of games. To date, the implementation of microtransactions in game development has predominately been applied within the mobile gaming market. In recent years an increasing number of console game developers with significantly higher development budgets have attempted to implement these existing strategies with varying levels of success. An important consideration in the application of microtransaction strategies is consumer advocacy. Through reviews, forums and online gaming communities, there is a rise in levels of consumer advocacy in the games industry. This notion of advocacy can have a significant effect on the acceptance of microtransaction strategies within game development and therefore becomes a key consideration for developers and publishers. This paper presents the findings of an investigation into contemporary micro transaction strategies within the console game industry. Beginning with an exploration of existing micro transaction strategies the study illuminates the transaction experience through the lens of the consumer specifically focusing on the effects these strategies have on advocacy. Finally, the study provides key insights into the implementation of microtransactions for developers and publishers of video games.

# Workshops

10:00 Thursday - S02 Webb Centre, Room 3.07 Mac Lab

## Adobe Tools Workshop

Adobe Staff

Adobe will offer a video focused workshop that will firstly introduce you to Premiere Rush, a brand-new app that makes shooting, editing and sharing online videos fast and easy and across all your devices from mobile to desktop.

Following that, we will give you an introduction to Motion Graphics in After Effects. Simply drag and drop spreadsheets into new data-driven Motion Graphics templates to quickly generate data visualisations.

Lastly explore Adobe's VR tools with 180 and 360 VR effects and transitions – see how to easily create amazing content fast with tools for 180 and 360/VR effects and transitions in After Effects CC and auto-aware VR detection in Premiere Pro CC.

10:00 Thursday - S02 Webb Centre, Room 4.02C

## How Do I Game Design?

Paris Buttfield-Addison, Jon Manning, Tim Nugent

While video games are the most glamorous of the electronic arts, splashy graphics and amazing sound isn't the defining feature of games. Rather, games are games because they are the world's only interactive medium. Good interaction needs to be designed, and the master creatives of engaging interaction design are game designers.

In this session, you'll learn about game design: the art, science, and creativity of designing enjoyable, engaging games. This is entirely non-electronic; we're not talking about programming, game engine development, or how to approach a publisher with your totally rad idea about how you can have, like Mario only there's explosions.

Instead, we'll be taking a deep dive into game design theory.

Understanding games means understanding user engagement and interaction. In this session, you'll learn a fresh perspective on user experience design by understanding how users engage with the fastest-growing form of entertainment in the world.

Topics covered in this session include:

- Why games work, and how to analyse and build engaging experiences
- The Mechanics-Dynamics-Aesthetics framework: what it's good for, and how to use it
- How to understand what a game's doing, and how to build for fun

This session will be a paper-and-pens (and other bits and pieces) hands-on exercise in learning what makes a game a game. It's not about video games. It's not about board games. It's about the creative processes involved in making something 'fun', and exploring exactly what 'fun' means. This session will be useful to anyone and everyone!

1:00 Thursday - S02 Webb Centre, Room 3.07 Mac Lab

## Adobe Tools Workshop

Adobe Staff

*A repeat of the 10:00 workshop.*

**10:00 Friday - S02 Webb Centre, Room 4.02C**

## **DIY PCB – Designing & Manufacturing Your Own Printed Circuit Boards**

Matt Gray, VixVerify

This workshop is an introduction to designing your own printed circuit boards (PCBs), and getting them manufactured. If you are using Arduino, Raspberry Pi or other electronics in your creative or educational projects, this workshop will give you a basic understanding of what is involved in producing customised, high quality circuit boards.

We will spend time comparing some PCB design software, learn some basics using AutoDesk Eagle, and look at manufacturing options – which are probably much cheaper than you would think. (Download the free version of this software at <https://www.autodesk.com/products/eagle/free-download>.) Attendees can bring their own laptop to work on, or use the machines in the lab. Some basic electronics knowledge would be an advantage.

**10:00 Friday - S02 Webb Centre, Room 3.07 Mac Lab**

## **Game Development on macOS with Godot**

Paris Buttfield-Addison, Jon Manning, Tim Nugent

The wait for a high-quality, free, open-source game engine that can build games for iOS, macOS, and beyond, is over! Godot is here.

This workshop will walk you through building 2D games using the open source game engine Godot.

You'll get a hands-on, rapid-fire introduction to using Godot's IDE and its programming language, GodotScript, as well as VisualScript—a visual block-based environment—as you learn how to build games that run on almost any platform in a powerful, entirely open source environment.

By the time you're through, you'll have no excuse but to go forth and build games using Godot!

Topics include:

- How to install and set up Godot
- How to import assets, like sound and art, into Godot
- How to set up your scene in the Godot editor and create nodes and scene objects
- How to create input actions to receive input from keyboard, mouse, touchscreen, and the like
- How to add scripts to objects
- How to export and build your game

This is a relatively technical session, and attendees should be comfortable with code (or at the very least copy-pasting code, or following along with code). We won't dive into the technical specifics too much, so if you're comfortable with an advanced Adobe product, or something like Unity you'll be fine here!

**1:00 Friday - S02 Webb Centre, Room 3.07 Mac Lab**

## **RoboCoder: Robotics and Visual Programming Workshop**

Alex Jacobs, Coder Kidz

Workshop participants will program an entry level 3D printed drawing robot "Axel" whilst learning essential programming concepts. Using custom drag and drop software, and a simple open source robot chassis, this workshop developed by the Coder Kidz team is designed to set a foundation for computational thinking. Skills and technique gained in this workshop are designed to be taken back to the classroom and expanded upon as these fundamental skills in visual programming are the perfect stepping stone for any programming language.

Attendees are encouraged to bring their own laptop to work on, or can use the computers provided in QCA labs. The only software requirement to attend this workshop is Google chrome web browser.

# General Information

## Registration Desk

The registration desk will be based at S02 Webb Centre, Room 4.05A.

## Meals & Refreshments

**Start-of-day refreshments, lunch and afternoon tea each day** will be served in S03 (Webb Centre) on level 4, in room 4.05B.

The **conference dinner** will be held on Thursday night at the Ship Inn, a short walk from the Webb Centre. Spaces are limited to people who indicated they would be attending at the time of registration.

Caterers have been provided with special dietary requirements as specified by delegates at registration time. Please understand that it may be impossible for caterers to address any special requirements not notified at least 7 days in advance of the event.

Please note that QCafé in the Grey St. Studios building is privately owned and operated, and not part of the catering for CreateWorld. You are welcome to purchase food and beverages at your own cost.

## Internet Access

Wireless internet access is available and access details will be provided at registration time. If you are from an institution that supports **Eduroam**, you can use your originating institution credentials to connect.

## Emergency Contacts

**QCA Campus Security** - dial 7777 (from internal telephones) or call 3735 6226.

For all emergencies, call triple zero, 000 or 112. Most mobile phones will call 000 (for Emergency Services) even when no credit is on the SIM card.

## Conference Contacts

Daniel Della-Bosca - 0419 735 095

Seth Ellis - 0490 220 740

# Partners

We couldn't host CreateWorld without the generous support of a number of people and businesses.

We extend our thanks to Dr. Tim Kitchen and the team from Adobe for their support and for running workshops on Adobe's latest Creative Cloud products.



Thanks to the extraordinary team from The Queensland College of Art (QCA), a specialist arts and design college founded in 1881, and the oldest arts institution in Australia. The South Bank facility comprises public exhibition spaces, a cinema, conference rooms, a multimedia art gallery and the most modern and versatile studio facilities in Australia.



And thanks to Griffith University, our long term event partner. Griffith University was created to be a different kind of university—challenging conventions, responding to trends and pioneering solutions. Ranking in the top three per cent of universities worldwide, its future-focused degrees are developed in consultation with industry, based on cutting-edge research, and taught by Australia's most awarded teachers.





# Conference Chairs

**Daniel Della-Bosca** is a lecturer in fine art, design and interactive media at the Queensland College of Art, Griffith University. He has worked and exhibited nationally and internationally as a designer and artist and is committed to the advancement of art and design education. Daniel's primary research focus is the application of fractal mathematics to the field of aesthetics, and his specific skillsets are the interdisciplinary bridges between art, design, CAD software and algorithmic generation of image and form. Daniel has a portfolio that spans public sculpture, exhibit design, jewellery and animation, all for the purpose of engaging in visual and haptic discourse.

**Seth Ellis** is senior lecturer in interactive media program at the Queensland College of Art, Griffith University, where he is program director of the Bachelor in Creative and Interactive Media. He is a narrative artist and interface designer; his work draws upon local history, allegorical narrative, and experience design to create stories both historical and fictional in new, experiential forms. Seth has worked with local museums and galleries on their collections and exhibitions; his own projects have shown in galleries, streets, symposia and festivals throughout the U.S. and Europe, and at a few places in the Atlantic Ocean.

**Dr. Dale Patterson** is a computer scientist and lecturer in Digital Design, Visualization and Interaction. Dale has worked in the field of computer science both commercially, in education and research for more than 20 years (focusing on 3D computer graphics and its applications). Dale's primary areas of interest include human computer interface design, VR & AR, 3D computer animation, visual effects and games. Dale also has strong research interests in computing as applied in bio-medical applications (e.g., scientific visualization, applied games & learning, artificial intelligence).

**Rae Cooper** is a lecturer and researcher at Griffith University, Queensland College of Art and a descendent of the Worimi people of coastal New South Wales. She combines her academic focus on design politics with over ten years' experience as a commercial visual communication designer across private and government sectors. Creating connections between people, design theory, technology, contemporary professional practice in an increasingly unpredictable society is central to her work.

**Tony Gray** has been Chair of the AUC since late 2010. He is a software developer and educator with over 25 years of experience providing IT support in the University sector, and is co-chair of the AUC's other two conferences—**/dev/world** for software developers and **X World** for system administrators. Tony also writes for O'Reilly Media on the Swift programming language.

# About the AUC

The AUC was established towards the end of 1984 as a partnership between Apple Computer and nine Australian universities.

At the heart of the relationship was the ability for departments, staff and students to obtain Apple technology at reduced prices and to enable the development of innovative solutions using the Macintosh. The AUC grew to form a network of educational technologists across the universities of Australia and New Zealand, growing to 37 member universities by 2012.

The history of the AUC is one of adapting to change, and in 2013 we reinvented ourselves as a not-for-profit association with no formal relationship with Apple. Our mission is to support and build communities around the use of Apple technologies by sharing experience, insights and know-how amongst members, developing people as leaders, and inspiring and fostering innovative use of technology.

Each year, we hold three conference events for specific subsets of our community. **X World** is for system administrators and support staff, **CreateWorld** is for performance artists, teachers, and those working in the creative spaces, and **/dev/world** is for software developers. Our conferences are open to all.

Learn more, including how to become a member, at [www.auc.edu.au](http://www.auc.edu.au).





