Ludo2017



#ludo2017

Sixth Annual Conference on Video Game Music and Sound April 20th–22nd, Bath Spa University

Hosted by Professor James Newman

Concert curated by Professor James Saunders and Alex Glyde-Bates
Organized by Melanie Fritsch, Michiel Kamp, Tim Summers and Mark Sweeney
Sponsored by Bath Spa University, Society for Music Analysis, Intellect Publishing
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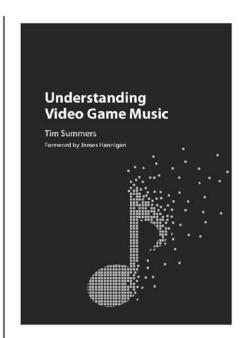
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Understanding Video Game Music

Tim Summers, Royal Holloway, University of London

Hardback ISBN: 9781107116870 Published: September 2016 Original Price: £64.99/\$99.99 Discounted Price: £51.99/\$79.99 Offer Expires: 31 August 2017

Understanding Video Game Music develops a musicology of video game music by providing methods and concepts for understanding music in this medium. From the practicalities of investigating the video game as a musical source to the critical perspectives on game music - using examples including Final Fantasy VII, Monkey Island 2, SSX Tricky and Silent Hill - these explorations not only illuminate aspects of game music, but also provide conceptual ideas valuable for future analysis. Music is not a redundant echo of other textual levels of the game, but central to the experience of interacting with video games. As the author likes to describe it, this book is about music for racing a rally car, music for evading zombies, music for dancing, music for solving puzzles, music for saving the Earth from aliens, music for managing a city, music for being a hero; in short, it is about music for playing.



- Develops musicological understanding of game music, explaining concepts step by step without requiring extensive previous knowledge of musicology
- Offers a wide range of examples ranging from the 1970s to 2010s, from puzzle games to role-playing games, and from well-known games like Final Fantasy VII to lesser-known games
- Provides a useful appendix as a systematic guide to investigating game music

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Conference Schedule

Day 1: 20th April 2017

9:00 – 9:30	Registration, Coffee & Welcome
	Session 1 – Algorithms and Voices 1. Blake Troise: 'Beeper Music: The Compositional Idiolect of 1-Bit Music'
9:30 – 11:35	2. Donal Fullam: 'Songs of the Algorithmic Society: Game Music as Cultural Expression'
	3. Stephen Tatlow: 'Diegesis and the Player Voice: Communication in Fantasy Reality'
	4. Kevin Burke: 'Terpsichorean Vox: Hitoshi Sakimoto's Choral Synthesis in the 16-bit Era'
11:35 – 12:00	Coffee Break
12:00 – 13:00	Keynote 1 (Kenneth McAlpine)
13:00 – 14:00	Lunch
	Session 2 – Compositions with Game Technology 5. James Saunders: 'Rules and Goals in Game Compositions'
14:00 – 15:50	6. Ben Jameson: 'Construction in Metal: Investigating Authenticity in Musical Performance Using Video Game Peripherals'
	7. Ricardo Climent: 'Composing Interactive Music with Physics, Graphics and Gameaudio Engines'
15:50 – 16:20	Tea & Coffee Break
	Session 3 – Realities and Spaces 8. Ciarán Jai Cosway: 'The Aesthetics of Music in a Performed Narrative'
16:20 – 17:50	9. Beth Carroll: 'Raw Data: Interactive Musical Interplay and Sound Space'
	10. Elizabeth Hambleton: 'Levels of Reality and Artifice in <i>The Talos Principle</i> '
18:00 – 18:30	Drinks Reception, Sponsored by Intellect Publishing

Day 2, 21st April 2017

Day 2, 21 Apr	
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11:35 – 12:00	Tea & Coffee Break
12:00 – 13:00	Keynote 2 (Rob Hubbard)
13:00 – 14:00	Lunch
14:00 – 15:50	Session 5 – Play Beyond the Game 15. Benjamin Oliver, Blake Troise and Yshani Perinpanayagam: 'Roundtable/Performance: Piano Play: Power Up' 16. Michael Austin: 'The History (and Future) of Automatic Mario Music Videos' 17. Edward Spencer: 'When Play Becomes Political: An Acoustemology of Major League Gaming Montage Parodies (MLGMPs)'
15:50 – 16:20	Tea & Coffee Break
16:20 – 17:50	Session 6 – Performance 18. Melanie Fritsch: 'Game-Music-Performance: Ludomusicology Meets Performance Studies' 19. Ivan Mouraviev: 'Textual Play: Music as Performance in the Ludomusicological Discourse' 20. Michiel Kamp: 'Ludo-Musical Kuleshov? Experimenting with Rhythm Game Mechanics in <i>Asteroids</i> '
18:30	Evening Celebration – Concert at Michael Tippett Centre

Day 3, 22nd April 2017

Day 3, 22 nd Ap	FII 2017
9:30 – 11:35	Session 7 – <i>In Concert</i> 21. Joana Freitas: "It's Storytelling Through Music": On Video Game Concerts and the Promise of an "Immersive" and Collaborative Experience' 22. Elizabeth Hunt: 'Video Games Live and the Gamification of the Symphony Orchestra' 23. James S. Tate: 'The Allure of the 'JRPG Sound' Within Video Game Concerts' 24. Ben Hopgood: 'Evaluating Video Game Music in the Concert Hall: A Study of the Music from <i>Final Fantasy VII</i> '
11:35 – 12:00	Tea & Coffee Break
12:00 – 13:00	Keynote 3 (Roger Moseley)
13:00 – 14:00	Lunch
14:00 – 15:30	Session 8 – Sonic Worlds 25. Richard Stevens, Dave Raybould & Nikos Stavropoulos: 'It's in the Game: The Affordances of Video Game Technologies for Spatial Music' 26. K. J. Donnelly: 'Walking and Listening: Psychogeography and Environmental Music in <i>The Old City: Leviathan</i> (2015)' 27. George Marshall: 'Audio Fidelity and Diegesis in the Music of <i>Forza Horizon 3</i> '
15:30 – 16:00	Tea & Coffee Break
16:00 – 17:30	Session 9 – Teaching and Learning 28. Richard Evans: 'Flow Chart Analysis of the Dynamic Music System used in <i>Tomb Raider</i> ' 29. Meghan Naxer: 'Video Game Pedagogy: Addressing Motivation in Undergraduate Music Courses' 30. Jan Torge Claussen: 'Playing Guitar while Playing Video Games: An Experiment with Students Learning to Play the Guitar by Playing <i>Rocksmith</i> '

Day 1, 20th April 2017

Session 1 – *Algorithms and Voices*

1. Blake Troise: 'Beeper Music: The Compositional Idiolect of 1-Bit Music'

1-bit music, generally considered a sub-division of chiptune, is the music of a single square wave. The only sonic operations possible in a 1-bit environment are amplitude and time, where amplitude is quantised to two binary states: high or low, on or off. As such it is impossible to achieve traditionally simple musical operations such as polyphony and dynamic control. Despite the restrictions, the unique techniques and auditory tricks of contemporary 1-bit practice exploit the limits of human perception. Through layers of modulation, abstraction and clever writing, these compositional methods generate music far more complex than the medium would, at first impressions, indicate.

Whilst not originally conceived through ludic platforms (one can hear simple examples of 1-bit sonics in microwave interfaces and smoke alarms!) 1-bit music, as it is understood today, has been almost exclusively developed and propagated through video games. Where systems such as the ZX Spectrum and early desktop computers (using the internal piezoelectric 'speakers') had severely limited audio capabilities, video game developers and composers found creative solutions to do the seemingly impossible; polyphony, timbral variation and alterable volume all using a single, monophonic square wave. Although 1-bit sound routines are impractical, consuming a large portion of CPU operations, by necessity video games and cheap computational platforms facilitated the development of a peculiar and distinctive musical tradition that may otherwise have been entirely overlooked.

This paper aims to explore the numerous quirks of 1-bit music, identifying the composers

and hardware that shaped the genre, demonstrating techniques with code and electronics, and tying this together with my own research; deciphering how the medium may develop in the future.

2. Donal Fullam: 'Songs of the Algorithmic Society: Game Music as Cultural Expression'

Game music is the audible product of complex algorithmic processes that determine when
and where music is played, how parts are combined through horizontal resequencing and
vertical re-orchestration, and how parameters of volume and timbre are applied. This kind of
composition is not new - the impulse to treat music as an algorithmically determined system
can be traced back through the 20th century avant garde and further, to the foundations of
functional harmony. Western perceptions of musical tonality itself can be described as a type
of algorithmic schema and an expression of a broader impulse to systematise aspects of
cultural articulation. This paper explores these compositional approaches as the expression of
an algorithmic aesthetic and focuses on its appearance in game music. Computer games in
general and game music in particular are expressions of a broader context that Alexander
Galloway and Ted Striphas term 'algorithmic culture'; a societal movement towards the use
of complex automated systems to create and mediate cultural products. Game music in
particular provides a unique opportunity to analyse this tendency, as it was an early
expression of a contemporary cultural tangent that now encompasses huge swathes of human
activity. This paper is an analysis of dynamic and adaptive game music in general with
specific examples from different games, which also proposes a connection between
contemporary modes of expression and historical precedents.

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3. Stephen Tatlow: 'Diegesis and the Player Voice: Communication in Fantasy Reality'

Player voices pose issues when considered as part of video game sound. Voice forms an essential part of play within band simulators such as *Guitar Hero*. Games have used voice as a controller (*There Came an Echo*). Multiplayer games have also benefited from widespread use of headsets amongst both console and PC players, who adopt voice communication to assist in team-based coordination. However, voice remains often represented as extradiegetic, principally for collaborative play, external to the games' fantasy reality.

In *Sound Play* (2014), William Cheng agrees that vocal communications assists collaborative and competitive gaming. However, Cheng also seems to share Richard Bartle's view expressed in *Designing Virtual Worlds* (2003) that player communications disrupt 'fantasy' by introducing the 'real' human voice. Both writers draw upon examples from gaming worlds that suggest a disjunct between virtual visual representations and actual physical manifestations of voice. Cheng suggests in particular that player voice can - and often does - subvert the diegesis through disjunct of digital voice and physical reality, such as through the potential for use of voice changers, or through differences between character and player identities.

However, this may miss potential for the duality of players as both audience and author to create a diegesis within player voice irrespective of disjunct. A view of player identity as static and continuous, such as player identities within roleplaying multiplayer games, could reveal a potential for diegetic player voice. Video game experiences are created through a symbiotic/antagonistic relationship between developers and players. Multiplayer games necessarily include an additional element of symbiotic/antagonistic relationships between players which can form diegetic player communication. This paper uses *EVE Online* to demonstrate the ability of player voices to form part of a diegetic soundscape within multiplayer video games, and discusses potential vectors for this transformation from extradiegetic.

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4. Kevin Burke: 'Terpsichorean Vox: Hitoshi Sakimoto's Choral Synthesis in the 16-bit Era'

Veteran video game composer Hitoshi Sakimoto (*Final Fantasy Tactics*, *Valkyria Chronicles*) is widely regarded for cinematic soundtracks, replete with lush strings, brilliant brass, and a diverse palette of global percussion. Indeed the sonic grandeur of Sakimoto's signature style attained critical acclaim in the 2006 blockbuster *Final Fantasy XII*, which featured a live studio recording of a symphony orchestra for the game's opening and finale. As audio technology and sound design continue to mature and diversify, natural and sampled instruments have achieved almost indistinguishable character.

It is no surprise then, that Sakimoto's entry to the video game industry in the late 1980s and early 1990s is marked by timbral exceptionalism. Before achieving notoriety as a composer, Sakimoto helped game developers transition into the 16-bit era as a freelance sound programmer. His custom Terpsichorean sound driver, named for the Ancient Greek muse of dance, offered an alternative approach to advancing sound chip technology, one that leveraged additional audio channels for timbral, rather than textural, expansion. This presentation explores two examples of choral sound synthesis in Sakimoto's soundtrack from *Devilish* (1991) for Sega's Mega Drive, utilising Frequency Modulation (FM) synthesis, and from *The Magical Chase* (1993) for NEC/Hudson Soft's TurboGrafx, utilising Wavetable Synthesis. Convincing representations of vocal timbres without the use of Pulse-Code Modulation (PCM) samples are rare to games developed for the two consoles. As video game music tilted increasingly toward sampling and Red Book audio, the Terpsichorean sound driver's custom design surpasses expectations for 16bit sound synthesis.

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Keynote 1 (Kenneth McAlpine)

Abertay University in technologies for cultu	n Dundee. His research i	School of Arts, Media & Computer is focused on the application of must ration. He is the author of <i>Bits and</i> ord University Press.	sic and audio

Session 2 – Compositions with Game Technology

5. James Saunders: 'Rules and Goals in Game Compositions'

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6. Ben Jameson: 'Construction in Metal:

Investigating Authenticity in Musical Performance Using Video Game Peripherals'

The recent (albeit relatively short lived) popularity of the *Guitar Hero* and *Rock Band* series has provoked considerable controversy and discussion, both in the media and amongst scholars of video game music. Although the games highlight the continuing prominence of the electric guitar in popular culture, they have also been perceived to present a challenge to its 'authentic' status in popular music. Much criticism in the press has focused on the 'fakeness' of the games' plastic imitation guitar controllers. Academic discourses also often focus on the issue of authenticity in performance, ranging from practical consideration of the fidelity of the games' simulation of playing real' instruments to more abstract consideration of the ontology of performance.

In this paper, I will present my piece *Construction in Metal* (2015), for electric guitar and *Guitar Hero* controller, a work in which the same issues of authenticity are investigated practically through composition and performance. Using sampling, imitation and choreography, the piece explores relationships between the 'real' and the 'virtual', between 'authentic' and 'inauthentic' performance, and the musical and choreographic associations of the electric guitar's history. I will outline how the composition of this work was informed by discourses in ludomusicology and popular music studies surrounding the electric guitar and the *Guitar Hero* games, as well as establishing how it fits into current trends towards integrating physical and visual aspects of performance into contemporary composition.

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7. Ricardo Climent: 'Composing Interactive Music with Physics, Graphics and Gameaudio Engines'

This paper examines how and why game-engines have stimulated creative thinking in the construction of sonic-centric immersive environments by this author. More specifically, it investigates the way a number of recent compositions unfold musical narratives using gameaudio technology at the core of their thinking, while revealing the crossover between compositional methods and game-studio practices.

Although it has a major focus on the work *s.laag* (ICMA European Region Award 2016) for scanned performer, composer and bass clarinet (commission by Marij von Gorkom), the paper unfolds thinking across previous game-audio works composed by this author such as; Role-Playing Music Instruments (a 1969 VCS3 synth from EMS and a Timbila from Mozambique), sonically-driven expedition (*Ho*, a sonic expedition to Vietnam, *Aural Scramble* for immersive-cryptography, [5] for immersive geolocative media) and two biosimulators (*B is for Bird* and *The Microbial Ensemble*). It finally reflects on what new forms of spectatorship this compositional approach can emerge.

s.laag is an interactive musical work composed by the author for Dutch Bass Clarinettist Marij Van Gorkom, as part of the dutch-uk.network project. It includes 3D models by both Climent and Manusamo & Bzika based on 3D Body scanners provided by Simeon Gill at the University of Manchester. The piece employs sonic path-finding techniques using gameengine tools to explore the concept of "modular metaphor". It navigates across the intersections between the Real, the Virtual and the modular augmentation of a musical instrument. The Dutch word 'laag' means low but also layer, stratum and thickness, which resonate more with the compositional thinking behind this piece. Slaag (pass in Dutch language) evokes the sonic fluxus between the acoustic instrument and the electronic medium.

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Session 3 – *Realities and Spaces*

8. Ciarán Jai Cosway: 'The Aesthetics of Music in a Performed Narrative'

In 1990, Chatman posited two concepts regarding film narratives. The first being the 'implied film-maker', which contains the intentions of the author, and how they attempt to make the audience infer personal qualities to the fictional universe. The second is the 'cinematic narrator', which isn't a physical narrator, but a term for each aspect which conveys a coherent narrative, for example, dialogue, continuity between images and character portrayals, and the expression of perspectives from characters in the fictional world (Levinson, 2006; Burgoyne, 1990).

Films and video games have an inherent commonality, however, the most distinguishable difference is interactivity, to which a consumer '*performs*' the narrative of a game rather than passively observing the narrative of a film. This means that the stated concepts can be adapted to game narratives to take into account the players 'narrativic performance'.

Film and game music both perform the same function on the surface, however, the issue of interactivity and longevity (as games tend to be longer experiences) raises further distinguishable factors of musical function. One example be the unification of character appearances (such as that of the Lutece twins in BioShock Infinite), which develops in parallel to certain characters' narrative (e.g., getting progressively darker) allowing for the clarification of many interweaving stories often found in a game. Thinking about music in terms of a tool for the proposed concepts can allow for new aesthetic propositions when thinking about the enhancement of an interactive narrative.

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9. Beth Carroll: 'Raw Data: Interactive Musical Interplay and Sound Space'

Recent discourses in gaming seem to construct a narrative in which the continued advancements of gaming technology make the dominance of virtual reality inevitable. While there is a growing appreciation for ludic soundscapes and game soundtracks, the turn towards VR has, perhaps inevitably, seen a return to ocularcentrism among developers. This paper argues that the move towards VR technology presents a potential danger to games' soundtracks; 'immersion' leads to a restriction on the type of soundscape and soundtracks that games develop. Using Raw Data (Survios, 2016) as a case study this paper will explore how VR's 'interactive' environment renders mute certain aspects of game soundtracks. When there appears to be no spatial differentiation between the game world and the gamer, what becomes of off-screen sound and music? How can developers make more of the musical soundscape? The creation of a space in Raw Data is imperative, but sonic and musical accompaniment proves problematic. The space created is visual, with considerations of sound and music sadly falling a distant second. The gamer can move around in the space and make visual changes to it, but the correlative relationship with sound is currently limited. Elizabeth Medina-Gray has discussed how emergent effects can add much to multi-layered game soundtracks, particularly in terms of creating a virtual environment. This paper takes this further and asks if there is still a space for 'conventional' non-diegetic video game soundtracks in virtual reality game environments and how sound space can be manipulated by the gamer.

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10. Elizabeth Hambleton: 'Levels of Reality and Artifice in *The Talos Principle*'

The Talos Principle is a 3D puzzle-solving game built on philosophical and religious tones in which the character Elohim has created a number of subworlds and levels like the Garden of Eden. As the player – an android, presumably alone after an apocalypse – explores these environments, the musical design of the game enriches the player's experience, and also provides clues and questions to what is real and what is not. The music is just as key to gameplay as the visuals in unfolding the story. While the desolate, snowy overworld is convincingly real in its sonic and graphic depiction, the subworlds are somewhat more digital and glitchy. There is an intentional exoticism to the music of these subworlds, which uses an unorthodox blend of non-Western instruments to suggest a fantastical environment rather than one based on reality. Other clues subtly suggest that the world's existence is unstable, furthering the artificiality. Voice is a factor in shifting the player's frame of relative reality based on which characters they may trust. The player uncovers evidence in gameplay that the overworld is just another layer of artificiality, most effectively found in the sound design. I analyze and compare instrumentation and sound cues, voice as it applies in theory and in practice, and the sound designer's use of sonic glitches to reveal how attention to the sonic environment reveals crucial aspects of the game and reflects the information revealed in plot development.

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Day 2, 21st April 2017

Session 4 – *Histories*

11. James Tate: 'High Scores: Canonisation within Ludomusicology'

Despite its comparatively recent emergence, a number of ludomusicological writings have explored key issues in a range of prominent works, particularly from the late-1980s to the late-1990s. Yet, the emphasis this places on the 'great' composers of the field, such as Nobuo Uematsu, Koji Kondo, or David Wise, risks the canonisation of video game music in a manner which disenfranchises lesser-established composers.

In this paper, I reflect on the current zeitgeist within ludomusicological literature and video game commentary, and present a reading to illustrate the degree of canonisation which takes place in the field, drawing comparisons to the development of the canon that now exists within popular music. Thereafter, I discuss the stylistic influences of Hollywood film scoring (particularly after the work of Tim Summers) and contemporary recorded popular music upon video game music. With this intertextual basis in mind, I argue that the emerging canon of respected video game music presents an unhelpful and, at times, misleading representation of the state of the art. In my closing remarks, I discuss possible future approaches to mitigating the effect of canonisation on lesser discussed composers with a view towards a more egalitarian representation of video game music through the years.

12. Barnabas Smith: 'Bringing London Murders to the Australian Stage: An Evolution of Game Music Collaboration and Performance'

To delineate the Victorian London-era setting of Ubisoft's 2015 game *Assassin's Creed Syndicate*, composer Austin Wintory employed a unique chamber ensemble aesthetic inspired by Mendelssohn's chamber writing and Purcell's Dido and Aeneas opera.

Complimentary in-game source music taking the form of period hymn and folk songs performed by non-player characters musically brings to life the virtual environment. Sharing a common aesthetic is a series of 'murder ballads', also performed by NPCs, and with lyrical content providing commentary on the player's actions during newly completed campaign missions.

To create these Brothers Grimm-style folks songs Wintory renewed his relationship with Australian musical comedy outfit Tripod, having previously collaborated to create *This Gaming Life*, a live theatre show performed with the Melbourne Symphony Orchestra. Diverging from contemporary orchestral performance of video game scores, this work comprised original songs wryly illustrating the 'gamer culture' long espoused by the three Tripod members, and orchestrated by Wintory.

Wintory and Tripod again reunited to perform *This Gaming Life* in 2016 with the Adelaide Symphony Orchestra. This iteration saw the afore-mentioned murder ballads performed in addition to the original show repertoire. Thus, the original and established live performance was reimagined through the incorporation of music created for in-game experiences.

This paper seeks, through the nexus of ludic interpretation and performance analysis, to

elucidate this performance	•	volution of gam	e-centered music	composition, collaboration, a	nd
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13. James Cook: 'Sonic Medievalism and Cultural Identity in Fantasy Videogame'

For all its vast attraction as a genre—its seamless blend of timeliness and timelessness; its
ability to engage with and challenge entirely modern problems in a safe and fictionalised
environment—fantasy (especially high fantasy) has at its heart a great problem. Convincing
fiction requires tension or drama. For this to be affected, we need rules: a sense of known
consequences to actions. In essence, we must be able to suspend our disbelief and willingly
surrender ourselves to the imaginary world's internal logics. In a world that operates outside
of known conventions, be they societal or physical, such logics can be hard to provide.
Lengthy exposition is seldom to be desired and so other means must be sought to fill in the
details of the world being sketched on screen. The central thesis of this paper is that
medievalism, and especially sonic medievalism, is at the heart of many videogames'
strategies for providing meaningful worlds within which narratives develop. Some of these
strategies have already been demonstrated for <i>The Witcher III</i> . This paper will enlarge upon
these points by stretching the frame of reference to encompass other videogames from the
high fantasy genre in an effort to begin outlining a basic typology of fantasy medievalism. In
doing so, I will demonstrate not only how notions of the medieval may be used to imply
certain social structures in fantasy settings, but how such medievalisms selectively
appropriate ideas from the 'real' past, from orientalist concepts, from folk, and from rock
music.

14. Helen Diggle: "Some Guy from Back in the Day": Reimagining Elvis Presley in *Fallout: New Vegas*'

This paper explores the representation and idolisation of Elvis Presley by a faction in Bethesda's *Fallout: New Vegas*. It will consider the *Fallout* universe as a simulated microcosm of the possibilities of reconstruction, as well as an application of the "reimagining spectrum" to the chosen musical aesthetics of the game. This will be followed by an examination of Presley's reinvented image as a godlike figure, and the behaviour and outlook of the in-game faction regarding religious imagery. Finally, some examination of the newly reinforced media manipulation within the in-game universe will be compared to the governed realities of urban communities today.

I will examine the lack of actual Presley recordings present in the game due to the expense of licensing rights, and the alternative methods used to conjure the desired aspects of this particular 20th century subculture. This will include some commentary on the radio "Pip Boy" mechanic in the game, and its selection of "pre-war" music intended to conjure nostalgic soundworlds. The in-game dialogue will also be examined, with particular reference to the continued usage of famous Presley song titles, intended for recognition.

Examining the deliberately selective use of Presley's image, mannerisms and philosophies will illustrate a newly formed culture and identity within the in-game universe, and I will be

making direct comparisons with contemporary research into the culture of "Elvis Impersonators". I will conclude with commentary on the reverential treatment of Presley by the "Kings" faction in the game, despite the characters being utterly unaware of his identity.

Keynote 2 (Rob Hubbard)
Dr Hubbard is one of Britain's most famous and skilled video game music composers. He is especially known for his innovative and experimental music for the Commodore 64, which redefined the sonic expectations of the technology. Rob has received a lifetime achievement award from the Game Audio Network Guild and, in recognition of his innovation, he received an honorary doctorate from Abertay University in 2016.

Session 5 – *Play Beyond the Game*

15. Benjamin Oliver, Blake Troise and Yshani Perinpanayagam: 'Roundtable/Performance: Piano Play: Power Up'

Yshani Perinpanayagam (piano) will perform two new compositions by Oliver and Troise for solo piano and bespoke 1-bit pulse 2-channel synthesisers as part of her 'Piano Play: Power Up' project. These works, *Mr. Turquoise Synth* (Oliver) and *Roses are #FF0000* (Troise), explore how the contrasting sonorities of the piano (acoustic) and synth (low memory electronics) and modes of production (human/computer agency) can be combined and juxtaposed. In Oliver's work the duet partners are initially isolated but gradually become entwined in a playful and dynamic relationship. Troise's piece explores the unique technical, instrumental and structural techniques used in Sinclair ZX Spectrum games in a performance environment.

This roundtable session will provide a platform for the 'Piano Play' team to discuss a variety of themes relevant and of potential interest to the Ludo research community including:

Issues involved in designing and working with bespoke 1-bit synthesisers/microcontrollers

- The collaborative process between the composers, technologist and pianist.
- Challenges faced in creating and performing the works.
- Aesthetic and practical issues involved in working with chip-tune sonorities within contemporary music composition.

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16. Michael Austin: 'The History (and Future) of Automatic Mario Music Videos'

Video games often have musical lives beyond their own scores thanks, in part, to participatory culture and videos on YouTube and other video-sharing websites created through fan labor. Automatic Mario is one such genre of video, wherein practitioners create customized level stages in Super Mario World (Nintendo 1990) using ROM editors. Because of the meticulous design of each level, they are complete-able with little to no input from the player, and Mario is automatically carried from the level's starting position to the finish line by conveyor belts, lifts, Yoshis, and note blocks. Seeing the musical potential of this creative practice, Automatic Mario video makers began to design levels with strategically placed elements whose corresponding sound effects are heard in sync with an external musical track when Mario triggers them as he passes by.

when warlo diggers them as he passes by.
In this paper, I will discuss the early history of Automatic Mario videos (before they became musical), Nico Nico Douga's X-Day (May 13, 2008, on which all posted Automatic Mario videos were deleted for copyright infringement), the continued proliferation of Automatic Mario videos, and emerging possibilities for music-making with these videos with the relatively recent release of Super Mario Maker (Nintendo 2015).

17. Edward Spencer: 'When Play Becomes Political: An Acoustemology of Major League Gaming Montage Parodies (MLGMPs)'

The e-sports company Major League Gaming (MLG) is known for hosting high-profile first-person shooter tournaments featuring teams of professional gamers. In 2010, a newly formed team called FaZe Clan began to upload edited montages of gameplay to YouTube in order to showcase their skills to MLG. The profusion of copycat uploads which followed gave rise to a genre of YouTube video which parodied first-person shooter montages through mash-ups featuring other media. These 'MLG montage parodies' have gained view counts in the millions, with titles including *MLG Spelling* and *MLG Stranger Danger*.

MLGMPs are characterised by audiovisual memes and draw upon a distinctive canon of recent bass music (dubstep and trap). Since they combine film clips, game audio, GIFs, image macros and music, it may seem that MLGMPs are the ultimate example of media convergence and ludic semiotic excess. However, the paper will critique postmodern notions of homogenization and meaninglessness as well as more recent work which claims that music's power is eroded by mash-up practices. I will focus on the affordances of bass music and argue that it performs important aesthetic and sociocultural functions in MLGMPs.

The second half of the paper will present data from qualitative and quantitative analysis of MLGMP content and discourse. Triangulating these findings, I will focus on how MLGMP music became part of 'The Great Meme War' during the US presidential race. By way of conclusion, I will consider the wider implications of this involvement and whether it signalled game over for leading MLGMP creators.

Session 6 – *Performance*

18. Melanie Fritsch: 'Game-Music-Performance: Ludomusicology Meets Performance Studies'

In recent years game music researchers such as Kiri Miller (2012), Karen Collins (2013) or Timothy Summers (2016) have started to investigate the usefulness of concepts from fields of study other than Musicology. In order to broaden the focus of Ludomusicology, approaches building on notions like performativity and performance were tested. Nevertheless, one perspective is missing: Except a handful of publications a thorough engagement from the field of Performance Studies itself is still to happen.

In this talk a subject-specific concept of performance that is developed on the basis of interrogating various research traditions, will be outlined as a basic tool for analysis. In this context, the theorization about "Music as Performance" plays a central role here, as conducted by researchers such as Nicholas Cook and others. This tradition extends the reasoning about music and musical meaning beyond the primacy of textual works, and the notion that musical meaning is encoded in the written text. Instead, the idea of music being a social practice, a performative art form, is favoured.

In a last step, this subject-specific concept is applied within the frame of a brief case study order to demonstrate how game and music in computer game culture can be fruitfully analyzed as performative practices.	in

19. Ivan Mouraviev: 'Textual Play: Music as Performance in the Ludomusicological Discourse'

From its nineteenth-century inception musicology was marked by an orientation towards music as writing, treating meaning as notationally embedded, decodable through formal parameters like structure and harmony. Performance was therefore typically understood by musicologists as more a way to transmit music faithful to compositional intentions than a social opportunity for negotiating meaning. However, in rejecting modernist ideas (such as aesthetic autonomy) and aligning with the performative turn of the wider arts and humanities, since the 1980s, musicology's textual orientation has shifted to instead understand music as performance. Musicologists now favour production over authorship, drawing on tools from ethnomusicology, psychology, and sociology in seeking to understand performances and the texts that enable them. On the other hand, that the relationship between musicology and performance remains discursively negotiated today reflects how musicologists' new consciousness about performance has not totally displaced textual ways of thinking about music.

In light of this shifting musicological landscape, my presentation briefly reviews the last four decades of literature on music as performance. I then address the question: how have scholars in the emerging sub-field of ludomusicology (broadly encompassing the study of music and play but typically involving music in video games) treated or employed the paradigm of music as performance? I discuss the primacy of abstract "readings" of music and game texts, noting how, in studying popular entertainment, ludomusicologists to some extent inherently resist the textualism of twentieth-century musicology — not least because video game soundtracks are typically unavailable as scores, and must be experienced through play. I conclude that ludomusicologists are keenly aware of music as a performative, sociocultural practice, and suggest that a music-as-performance approach has yet to be widely adopted owing to the computer-programmed dimension of video games and the field's emerging status.

20. Michiel Kamp: 'Ludo-Musical Kuleshov? Experimenting with Rhythm Game Mechanics in *Asteroids*'

Lev Kuleshov's experiments with film editing in the early twentieth century have become
canonical works in the history of film studies. While their scientific rigor is debatable,
Kuleshov's insights into the relationships between shots edited in sequence have proven
inspirational for generations of filmmakers, including, notably, Alfred Hitchcock (Prince &
Hensley, 1992). Michel Chion (1994) has argued for similar experimental approaches to the
study of sound and music in film, particularly the idea of 'forced marriage,' or replacing a
film's (musical) soundtrack in order to better understand audio-visual relations such as
congruence and synchresis. Video games lend themselves particularly well to these kinds of
studies, many of them having the option to turn off the music separately from the rest of the
soundtrack. Moreover, games like Audiosurf (2008) and Beat Hazard (2009) introduced
musical gameplay mechanics specifically built around this idea of 'forced marriage.'

In this paper, I would like to investigate the possibility of experimenting with gameplay mechanics themselves, instead of experimenting with different soundtracks. Modern game development tools such as Unity and GameMaker Studio provide the opportunity to create small game vignettes in which the player is invited to interact with the same musical soundtrack in different ways. As a case study, I will present a number of 'musical' variations on the classic game *Asteroids*. By experimenting with a variety of rhythm game mechanics, it might be possible to come to a better understanding of concepts such as kinesonic congruence (Collins, 2013) and ludic music (van Elferen, 2011).

Day 3, 22nd April 2017

Session 7 – *In Concert*

21. Joana Freitas: "It's Storytelling Through Music": On Video Game Concerts and the Promise of an "Immersive" and Collaborative Experience'

Video game music concerts are a growing phenomenon since the 90s, expanding its global radius of performances, resources, fans and popularity. From the *Distant Worlds* concerts tour of Final Fantasy to Video Games Live, more orchestras, venues and productions are betting and specializing in video game music. Using large screens with gameplay excerpts of the video games which soundtrack is being performed, a carefully designed lighting accompaniment and the participation of known figures in this industry – from composers to producers and youtubers – many of these concerts are characterized as an "immersive experience", promoting "interactive segments" and appealing to all fans of video games but also including non-gamers. Besides the performances of previously composed orchestral soundtracks, this model of concerts is also based on the symphonic transformation of video game soundtracks that weren't written with orchestral resources, being associated with the idea of "nostalgia" and promoting an "arcade" segment of the event. This paper examines specific cases of video game music concerts and how its models of construction and presentation shapes its performances according to the idea of collaborative immersion and experience, moving the musical component to another degree of meaning due to its presence in another environment – removed from the video game and its narrative –, being a vehicle of a live and interactive storytelling experience.

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22. Elizabeth Hunt: 'Video Games Live and the Gamification of the Symphony Orchestra'

The live performance of video game music tends to be under-represented in the study of ludomusicology, particularly considering how many video game concert series are currently touring the globe and how popular these are. My research aims to bring video game concerts into academic discussion and ask how concerts attempt to stay true to the medium.

My research spans a number of musical styles and video game genres while focussing on a small selection of concerts. The concert series *Video Games Live* will be used to demonstrate varying ways that video game concerts retain video game traits that could be lost by placing players in concert hall seats. In particular, I will discuss performances of music from *Frogger* (Konami, 1981), *Space Invaders* (Taito, 1978) and *Guitar Hero* (Harmonix, 2005). For these pieces, *Video Games Live* turns the concert into an interactive experience and even, at times, a game. This will be highlighted by examining contrasting ideals of classical concert etiquette.

Other gaming concerts, such as <i>Pokémon: Symphonic Evolutions</i> and <i>rePLAY: Symphony of Heroes</i> , will be analysed to further demonstrate encouraged interactivity and highlight that this trend is not solely found in <i>Video Games Live</i> . They will also demonstrate other concepts traditionally found in video games – for example narrative and story – which have been translated to the concert hall to link the two art forms.

23. James S. Tate: 'The Allure of the 'JRPG Sound' Within Video Game Concerts'

The notion of a completely passive event, where audience members sit and often rely on mainly one sensory input seems to go completely against the interactive nature of video games. Yet, this is precisely what happens when video game music is performed at concerts. Since the debut of Koichi Sugiyama's 'Family Classic Concert' in 1987 in Tokyo (Kohler, 2016), video game music has been performed by professional orchestras and live musicians around the world for audiences to enjoy, often featuring unpublished arrangements and unique medleys.

Within these performances, statistical evidence is provided to show that one genre of game in particular dominates the concert programme – that of the Japanese Role Playing Game (JRPG) by composers such as Nobuo Uematsu, Yoko Shimomura and Motoi Sakuraba. This is especially interesting considering that of the fifteen best-selling video games of all time, not one of them is a JRPG (Dizon, 2015).

Therefore, to provide an explanation as to why the music of JRPGs is so popular amongst audiences, this paper looks at a number of factors including:

- Melodic material, focusing in particular on the use of leitmotifs that re-occur throughout the duration of the game,
- Average game length and its effect on the repetition of such music,
- Cultural significance and the arguments that are made with regards to JRPGs vs WRPGs,
- Diversity of sound through the wide array of areas and scenery the player will visit in the game, and finally;

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24. Ben Hopgood: 'Evaluating Video Game Music in the Concert Hall: A Study of the Music from *Final Fantasy VII*'

My subject is to look at what it means to evaluate video game music (VGM), namely *Final Fantasy VII* by Nobuo Uematsu, in the context of a performance in the concert hall. Under formal analysis typically used with art music, I attempt to place the music under a similar set of evaluative scrutiny. In assessing musical value through a hermeneutical system often reserved for the concert hall, this will help build a justified argument for the appropriate methodological approaches in assessing the music of *Final Fantasy VII* in the concert hall performance space.

Final Fantasy VII inherits the baggage from using 'classical music identifiers' but leaves them with new meaning. In this case, though Uematsu's music can inherit new meaning by being placed within the concert hall, it cannot disavow the old meaning it had. Its ontological meaning is that it is video game music – in that IT is intertextual, interactive and has controlled feedback with the listener. Arguably, Uematsu's hybrid music uses many classical and popular stylistic tropes to illicit the intentioned hermeneutical response from the listener. As the music is placed within a new performance space, such as the concert hall, new associations are created as it is continually re-contextualised. A provisional conclusion is that it is important that VGM is evaluated as VGM. By inheriting an art music prescriptive code, as it has done by being performed in concert halls, this allows its musical value to increase and thus inform new audiences of its potential value.

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Keynote 3 (Roger Moseley)

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Session 8 – Sonic Worlds

25. Richard Stevens, Dave Raybould & Nikos Stavropoulos: 'It's in the Game: The Affordances of Video Game Technologies for Spatial Music'

The articulation of acoustic space as another expressive compositional parameter has been inherent to electroacoustic music since its inception, and over the last few years has risen to the forefront of theoretical and technical discussions in the field. The affordances of the technologies available to composers have played a significant role in the development of the compositional techniques of "spatial music". DAWs and spatial audio formats, which have not been developed with the electroacoustic composer in mind, can present significant challenges to workflow, and whilst bespoke software solutions using tools like Max MSP or Supercollider are available these often present a steep learning curve for the non–programmer.

This paper explores how video game technologies may provide new affordances for the electroacoustic composer. The authors will discuss their recent research using the Unreal Game Engine as a vehicle for the visualization of acoustic space, control of discrete coherent sound fields, and the use of stochastic processes for electroacoustic composition. Through the presentation of multi-channel audio examples of work in progress the authors will discuss how the use of gaming technology might serve either as a complete compositional device, as a tool to generate compositional ideas, or as a vehicle for new interactive and performative approaches. Finally, the paper will outline future research that to explores the potential of presenting electroacoustic music in VR environments in an effort to enhance the tangibility of spatio-musical images.

26. K. J. Donnelly: 'Walking and Listening: Psychogeography and Environmental Music in *The Old City: Leviathan* (2015)'

Indie game The Old City: Leviathan (2015, Postmod) is not based on skilful action fighting or thoughtful puzzling. It is a first-person 'walking game' where a detailed visual environment is open to the player's exploration. As a counterpart to the mobile visuals, the extensive and atmospheric music soundtrack is by Swedish dark ambient industrial musician Atrium Carceri.

Rather than music derived from an interactive video game tradition (as noted by Collins in Game Sound, 2008), the music firmly retains a distinctive aesthetic from ambient music. Less concerned with gameplay and more directly concerned with embodying environment, it lacks notable dynamic shifts and development. This de-centres the player and makes them a visitor in a large dominant and independent sound and image-scape.

This paper will consider how far *The Old City: Leviathan*'s music adopts a different function, potentially bringing with it aspects of electro-acoustic environmental music for a game that espouses the tenets of psychogeography, through imbuing a landscape with emotional characteristics and mysterious implications. The Postmod website states: "Players have the option to simply walk from start to finish, but the real meat of the game lies in the hidden nooks and crannies of the world; in secret areas, behind closed doors ..." The music is not only an integrated part of the experience, but also follows a similar process of being open to exploration and contemplation.

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27. George Marshall: 'Audio Fidelity and Diegesis in the Music of *Forza Horizon 3*'

Film musicology has provided us with many questions regarding audio fidelity and diegesis.
The arguments are typically centered on music or audio that crosses from a diegetic to non-
/intra-diegetic source or vice-versa. These examples tend to be obvious and used in a manner
that underscores the film in a way the director sees effective. Perhaps a raise in gain and/or
change in EQ leading to greater clarity as the music fades from the jukebox in the corner of a
room to a high-quality studio recording that now posits itself as underscore as the scene
changes along with the relative sound ambience, from local bar, to subway, to the
protagonist's apartment. In Forza Horizon 3, questions of audio fidelity and diegesis are
taken a step further. Rather than the issues being simply one of source and proximity to
player/avatar (whatever that is, in this instance) it is instead an issue of source and musical
temporality, which is brought about by the game's dynamic and largely diegetic soundtrack.
For example, the completion of a timed objective while listening to Future Classic Radio,
will lead to a jump of several bars or even sections in the music, to a cadential/"finale" figure
to acknowledge completion of the objective. Through analysis, informed by the strategies
outlined by Summers (2016), this paper raises not only pertinent questions on audio-fidelity
within Forza Horizon 3 but also more general philosophical questions regarding video game
and diegesis.

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Session 9 – *Teaching and Learning*

28. Richard Evans: 'Flow Chart Analysis of the Dynamic Music System used in *Tomb Raider*'

This paper that breaks down and analyzes the dynamic music system used in the first scene of *Tomb Raider: The Definitive Edition*. I will show how the music system can be dissected through observational gameplay and go through my methodology for converting those observations into data. The culmination of this process is a modular flow chart that shows the causation between player actions and musical events. Each module that is illustrated in the flow-chart references "standardized" VGM techniques within the industry (Thomas 2016, Sweet 2014).

The presentation is concluded by critically assessing the overall effectiveness of how the music develops linearly – suggesting that despite the time-indeterminate/multi-directional nature of video games, the ultimate experience is a linear narrative dictated by the player's own pace. This critical analysis is not only useful as a new way for musicologists and theorists to illustrate the potential functions of dynamic music systems, but by reverse engineering this methodology it can also provide an effective conceptual approach for composers and game developers looking to improve the potential of dynamic music.

My approach is from a composer's point of view and I am mostly concerned with developing

new ways of approaching dynamic music systems by using pre-sequenced and pre-recorded audio files, as is the industry norm.

29. Meghan Naxer: 'Video Game Pedagogy: Addressing Motivation in Undergraduate Music Courses'

Recent years have seen an increased interest in new approaches to music pedagogy in undergraduate academic coursework, with a particular focus on student-centered approaches. Students in courses like music history and music theory are often observed to be unengaged and unmotivated in these classes and student-centered classroom approaches are one way to offer more meaningful and engaging classroom environments. However, current music pedagogy research does not directly address the underlying problem of low student engagement and motivation. In contrast, video game design and video game research offers a wealth of potential pedagogical applications in music classrooms. This presentation will focus on what we can learn from video game design to create more motivating and engaging music courses for our students.

Scott Rigby and Richard Ryan explored how the Self-Determination Theory (SDT) of Motivation directly applied to video games. Their Player Experience of Need Satisfaction (PENS), a reimagining of SDT, shows "that video games are most successful, engaging, and fun when they are satisfying specific intrinsic needs: those of competence, autonomy, and relatedness." Ways to incorporate fulfilling these needs in a course's design vary and carry implications for teaching philosophies, syllabus policies, assessment practices, and course material considerations. While these applications only address a small subset of theories in the large and varied fields of psychology, education, and video game design, understanding SDT and PENS will play a significant role in improving student motivation in their music core curricula.

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30. Jan Torge Claussen: 'Playing Guitar while Playing Video Games: An Experiment with Students Learning to Play the Guitar by Playing *Rocksmith*'

In the academic year 2016/17 18 students of Cultural Studies (pathway Media Studies) at the University of Hildesheim, Germany, participated in an experiment on learning to play the electric guitar by playing the video game *Rocksmith*. According to an advertisement on the website of the developing company Ubisoft anyone could learn to play the guitar in 60 days using the software one hour per day. These conditions served as basic framework for the experiment. Besides playing the game students discussed experiences and progress on a weekly basis. They also did several recordings (sound and audiovisual) and presented the achieved skills at the end of the semester in a concert-like situation.

For my ongoing research regarding the perspective on music as game and the possibilities to achieve musical skills in videogames I took the opportunity to collect a large amount of empirical data during that experiment. Thus students had to take part in an online survey at the beginning and at the end of the experiment and had to write a weekly diary to reflect on their usage of the video game and their progress in guitar playing. Besides this, the students have been recorded three times during the experiment in a way that their performances could be analysed and evaluated by different guitar teachers. Despite this being a project whose evaluation is not finished yet, I would like to show first results and provide for deeper insights.

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Ludo2017 Concert 21** April 2017

Michael Tippett Centre, 18:30

OUT-TAKE Ensemble (University of Southampton): Ben Jameson, Joe Manghan, Harry Matthews, Máté Szigeti

Material (Bath Spa University):

Louis d'Heudieres, Cam Johnson, Oogoo Maia, James Saunders

Blake 'PROTODOME' Troise (University of Southampton)

Ben Jameson - Construction in Metal (2015)

Construction in Metal explores relationships between the 'real' and the 'virtual', between 'authentic' and 'inauthentic' performance, and the musical and choreographic associations of the electric guitar's history.

Oogoo Maia - Synchrony (2016)

You stand before me. I want to know who you are: your body, your face, your thoughts. I want to tell you that getting to know you is like getting to know myself. You are like me: my body, my face, my thoughts. I want you to know who I am. Let me tell you.

Blake 'PROTODOME' Troise – FAMIFOOD (2014)

FAMIFOOD is a short compilation of original chiptunes for the Nintendo Entertainment System. Audio and visuals are synthesised in real-time and written natively for the actual hardware. The suite is an exercise in classic NES composition, exploiting channel limitations and exploring the idiosyncratic compositional voice of late 80s video game music.

Louis d'Heudieres – Vox Pop (2016)

In Vox Pop, a series of sound files and verbal instructions are transmitted to four performers via headphones. Through personal reactions to these disconnected fragments (namely verbal descriptions, vocal imitations, and physical gestures), the performers try to reconstruct what may or may not be an underlying musical object. In so doing, their minds and bodies become filters which colour their reconstructions of the aural stimuli.

Harry Matthews – please find a partner (2017)

'please find a partner' is one of two pieces I have written over the past few months that explore listening to coincidental occurrences. This work explores coincidences in musical material with a competitive element. Three melodica players are asked to compete to play the final part of the piece. For the most part (and this could be translated further than just music, at school or work...), the partnership is not explicitly chosen. However, after practice, there can be opportunities for players to predict certain outcomes. This to a certain extent, if done well, can improve a player's odds of winning. My goal for these pieces is to ask musicians to listen to each other, and engage with decision making. My hope for the audience is that are able to join in with the same listening processes as the musicians.

James Saunders – all voices are heard (2015)

'all voices are heard' models consensus decision-making, best known as the means through which Quaker meetings are conducted. The piece asks players to compare performed sounds and make alterations until all players are playing the same material, and consensus is reached. This facilitates strategies such as consenting, standing aside, or blocking. The piece draws on social science research into the similarity heuristic and consensus decision-making, continuing my interest in group behaviours that are made evident through performance.

Curated by Professor James Saunders (Bath Spa University), with thanks to Alex Glyde-Bates (University of Southampton)





