# Research Plan

Given the University of Tampere’s multidisciplinary approach to games studies, its focus on games design as a pedagogical utility and social-scientific line on research, I believe I am the right candidate for the available lecturer position. My own interdisciplinary, posthuman, research into videogames and digital society lies at the intersection of culture and technology. Through the lens of contemporary critical theory and philosophy, I explore games design as praxis (thinking through practice) through a method I have dubbed ‘exploratory coding’, which I will discuss in detail below. In my published research, forthcoming monograph and doctoral thesis I suggest that close reading game design practices (distinct from examining source code in isolation) generate fresh new perspectives on well-researched topics such as ecology and materiality. Looking to the future, my current research projects explore the usefulness of games design as a method in providing insights into ethical issues such as the representation of vulnerable cultures and scientific innovations like quantum computing. At present, I am working on three distinct projects, combined by the unifying theme of driving innovation in game studies and design through praxis. I believe these forward-thinking projects would be a good fit for the centre of excellence in game culture studies, and could generate both teaching materials and collaborative projects attractive to future students and funding bodies alike. In this research plan I will provide an overview of my current research projects, outlining their current states, detailing my aspirations for their future and suggesting how they might be integrated into the research community at Tampere University.

## Innovation through Publications and Teaching

Through my core research I aim to probe foundational ontological and ethical concepts from the perspective of videogame play/design. I have published four articles so far on this work, in internationally published journals and am currently in the process of developing another article which I would hope to get published or have a guarantee of publication by the end of 2018. Beyond journal articles, I am in the final stages of completing a monograph for the Open Humanities Press expanding the concept of ecology through an exploration of independent videogames at the level of source code. The monograph is a progression on from my doctoral research. In the book-length study, centred around ten independent games from around the world, I argue that videogames highlight fundamental properties of ecologies that are otherwise difficult to represent in any other medium. Rather than serving as representations of these issues, however, I understand games as enactments or performances that allow a user to be a part of a specific phenomenon. For example, in the second chapter, I draw on the game *Shelter* (2013) prodcued by Swedish developers Might and Delight, as a case study. In it, I note that users are tasked with controlling a small family of badgers. I highlight the thoughtful design that, in practice, generates a game world and characters that seem capable of sustaining connections commonly observed between non-human animals. The game digitally enacts the kind of instinctive, primordial activities reminiscent of the behaviour of ants and other invertebrates that seem capable of complex action without thought. The digital-badgers are hard-coded to move towards one another and sense each other’s presence without line of sight or sound.

This observation is then strengthened through an experimental praxis that merges techniques more commonly associated with ‘serious games’ design with social theory and philosophy. Derived from code studies methodologies such as the close reading of code, I designed self-contained computer programs that mimicked specific observable in-game actions. These could be a specific physics event, such as a bullet’s path, or an animation like a walk cycle. In the case of my study of *Shelter*, I designed a program that imitates the personalities of that game’s characters. Using simple cubes instead of the lush, detailed world, I wrote a basic artificial intelligence program that emulates the primordial connectivity between the simulated-animals. In recognition of that game’s production, I chose to develop this program in C# and utilise some of the functionality of the Unity development engine. In this context, it becomes possible to see videogames as digital performances rather than static media ‘texts’. They can aid or deepen our understanding of ecological elements in complex systems. When programming interacting digital objects, for instance, we see that they do not ‘exist’ prior to their actions; rather, the specifics of their existence – how they appear on screen, how much memory they occupy on a hard drive – is shaped by underlying computation. When we apply this back to biological systems, it is possible to extrapolate how underlying activity – such as cellular or even quantum interactions – impact upon what humans experience as existence.

If successful in my application to the University of Tampere, I would hope to put my adventurous methods and knowledge of game design to good use in teaching the game studies and internet masters programme and other courses. My approach to code-studies has two great benefits over the study of source code alone. In part, by creating a smaller program closely aligned with what is observable on screen it allows in-depth observations to be made more easily; it becomes possible to isolate an element of a game from an enormous and inter-dependent digital eco-system. Students can undertake this type of work more comfortably without an in-depth knowledge of computer science. Equally, this practice can be taught as a method within the remit of the digital humanities, not dissimilar from researching digital archives. Beyond this, it encourages a breakdown of boundaries between designers and theorists, as it asks for coding and game design skills to become an everyday practice. It fosters a greater awareness of the rigors of designing games and the multitude of functions required to create them (from simple tools like compilers to complex solutions like game engines). Utilising this methodology, it would not be required to dedicate a whole module (or course) to game design but instead the practices of games design would be called upon as a part of wider theoretical study.

I would first aim to develop an elective module in the Internet and Game Studies masters degree programme. Given the scientific nature of the degree program, I would expect students with some game design knowledge, but I would equally dedicate the first few weeks of lessons to approaching elements of game design, such as the creation of a rudimentary 3D world in Unity, or, if licensing proved to be an issue, within an open-source 3D platform such as 3.js to ensure a level of familiarity throughout the class. Students would familiarise themselves both with foundational game design texts but also texts on innovative game design. Through lectures and tutorials I would provide examples of praxis-led engagement with games, combining game design with theory in a range of themes. For instance, in an early week we could discuss the marginalisation of vulnerable groups in gaming through a discussion of Anna Anthrophy’s *Dys4ia* (2012). The simplicity of the game would work well as stimulus for the creation of a simple 1-screen javascript program with strict rules. The Boolean nature of simplistic programming wherein things are either true or false would serve as a stimulating backdrop for the discussion of issues concerning the representation of trans-gendered people.

Though assessments through the progression of the course would take the form of smaller critical and practical exercises, ultimately, students would be encouraged to work towards a final project, exploring a specific theory or social phenomenon through praxis. They would develop a self-contained mini-game of their own that serves to deepen the argument of an accompanying essay of publishable length (~5,000 words). This work, I believe, would make for an engaging showcase of the power for games to work as pedagogical tools.

## Exploring the future of game design

The second major strand of my research is driven by my understanding of media theory but also my practical knowledge of software engineering. I am researching the future of game design in the face of innovative technologies. While there is a wealth of information concerning machine learning and VR technology I am currently developing a unique body of work on quantum computing and videogames, asking how languages like Microsoft’s Q# can and will come to bear on game design and games’ cultural impact. I am currently exploring this project using the same methodology mentioned above, designing a small game and examining the lessons that can be learned from it. So far, the research has been incredibly rewarding as generating digital Bell-states, depending upon theories of superposition and quantum entanglement, is unprecedented and furthers one of the assertions of my core research that games do not represent but rather enact the theories we can learn about with them. This research is exciting as Q# is at such an early point in its development and there is still time to become a key figure within the future of technological development.

So far my research has lead me to creating a paper on the outcomes of programming a game of ‘rock paper scissors’ using the Q# language. The idea behind my mini-game is to utilise digitally entangled quantum-bits or ‘qubits’ that have an indeterminate state until measured. Along with some simple C# ‘if’ logic allows for a rudimentary game to be formed. Of course, the nature of entanglement determines that the outcome is always a draw. While trivial on the surface, programming of this manner is absolutely a necessity as quantum computing becomes more common place and a need develop for syllabi for children and young-people.

I intend to send first send the article to the software studies journal Computational Culture. My long-term goal, however, is to generate a collaborative project with the small Q# team at Microsoft working on games that harness the power of qubit programming. This, I believe, would make for an enticing grant proposal to support doctoral or postdoctoral research in this field. If successful in my application to Tampere, it would be a privilege to work towards becoming the world’s leading institution in the study of quantum-gaming.

## Sustaining a trans-disciplinary global network

The third project, I am engaged in is generating international links between artists, game designers and theorists under the banner of a University. The first steps towards this has been in extending connections to charitable institutions, offering my skills as a designer to help companies and artists alike realise their artistic endeavours. Working with the Glasgow publishing house, Vagabond Voices, I helped the Scottish Council funded organisation to develop a series of interactive maps that highlight the trans-European nature of the work they translate and distribute. This work is available at the company website, www.vagabondvoices.com under the heading ‘changelings’. Beyond this, I worked with The University of Glasgow’s creative writing department, assisting a masters student in a project based on folk-traditions and poetry. Using my knowledge of game and web design, I helped the student to create an interactive tarot reader that generated a pseudo-random poem from the user’s choices. This is available at www.poettraotreader.com. Given the internet element of the masters programme, my experience as a collaborative web designer would be of use to students and faculty alike when approaching theoretical and project based work.

Throughout my doctoral research and post-doctoral period, I have developed several relationships with game designers William Chyr (William Chyr Studios) and Ryan Green (Nouminous Games). At present, I am planning to apply for a research grant from the Europe Research Council to fund an international conference aimed at bridging the gap between innovative game designers and academics. Game design, as I see it, should be a tool, available to all, to be utilised when suitable, rather than an elite skill. As such, we should be working towards sharing these ideas. In this vein, I envisage a non-competitive game jam of sorts that aims at highlighting games as a means for expressing theory and navigating social concepts above playability and marketability. This sort of creative design could not take place without the support of an institution such as the University of Tampere. At the same time, however, games developed in such environments have an immediate hold on the imagination as they can so easily communicate ideas and initiatives.

If successful in my application, I would offer the University of Tampere a future of innovative teaching and research. The department could continue to expand its multidisciplinary approach to game studies and grow to be a world’s first, leading institution in quantum game design. I hope to grow this research alongside the long-established and continually burgeoning department at Tampere to drive innovation and social outreach through game studies. I hope you will consider my application in light of my current research.