Graham Wakefield | Candidate's Statement for consideration of Tenure & Promotion | May 2018

Professional Contribution and Standing

I am an artist-researcher whose contributions include the creation of works of art and scholarly research, as well as the development of creative software. This is founded upon a trans-disciplinary academic training in interactive art, music, philosophy, mathematics, virtual/augmented reality, and software engineering. I focus on computational media in order to intensify the immersive qualities and playfully dynamic open-endedness of human-machine interactions; engaging with art and code equally while resisting the tendencies of control-oriented/task-oriented linearity that symbolic thinking often induces. I believe the characteristic open-endedness of creativity may be illuminated through a biological metaphor of exploratory self-modification: going beyond what is immediately apparent toward the unfamiliar and remarkable. In practice this is expressed through the authoring of responsive software environments for creative activities, including live coding, and the authoring of worlds that are also as responsive as they are autonomous, with the goal to achieve abundances of moments of genuinely differentiated kinds.

Art and Artificial Natures

This drive is aesthetically expressed through "Artificial Nature": a series of immersive and mixed-reality art installations over the past decade that present experiences of "nature-as-it-could-be", through interactive worlds in which participants become just another component within a complex ecosystem. (The Artificial Nature project has been a collaboration with my partner Haru Ji, currently an Assistant Professor at OCADU, Toronto. In this collaboration our work is divided quite evenly, and with significant overlap in motivations, responsibilities, and expertise; however in general terms I have contributed more significantly to sound and software engineering aspects, whereas Haru contributes more significantly to visual aesthetic and 3D modeling/fabrication aspects.) These works have been exhibited in over thirty international exhibitions and festivals including invitations from major venues such as the ZKM Mediamuseum, Karlsruhe, Germany, and La Gaîté Lyrique Paris, and competitive juried events such as Currents Santa Fe, IEEE VIS Arts, and Seoul's Powerstation of Creativity (1st place). The research value of these works has also been recognized in leading peer-reviewed publications and events through organizations including SIGGRAPH (2009, 2013, 2018), and VIDA 16.0 (2015).

Software Development for Creative and Live Coding

My commitment to computation as a shared medium of creative experience also leads me to develop and share new software with digital art and creative coding communities. Some of these libraries and environments are in active use by large numbers of artists and engineers. For example, I extended the widely-used media art software Max/MSP/Jitter by co-authoring a new workspace called "gen~" that allows rapid development of audio synthesis routines without sacrificing either responsive workflow or code efficiency. Introduced in 2011, it now has tens of thousands of users, and is lauded by many renowned artists and musicians, incorporated into courses at several major universities, and utilized within commercial contexts from music technology to automotive industries. This urge to improve the responsiveness of computation is also represented through many academic contributions to the Live Coding research community, including a number of well-cited publications, and also drives my continued research at York.

The Alice Lab and the research community

As an awarded Tier II Canada Research Chair (CRC) my role has a marked emphasis on research, including directing and supporting a lab at York University. The Alice lab is dedicated to the development of transferable knowledge, creative coding technology, and computationally literate art practice through the construction of responsive artificial worlds experienced through rapidly emerging mixed/hybrid reality technologies (VR and AR), and a commitment to “deep simulation” in the creation of worlds. I have been successful in applications to several government grants to support the lab in infrastructure and student researcher salaries, including the CRC itself in 2015 ($500k), Canada Foundation for Innovation (CFI) JELF, CFI IOF, and ORF SIF grants (2016-2018, total $167k), an Early Researcher Award (ERA, 2017, $150k). The ERA in particular secured five years of graduate funding to pursue a research program of authoring VR experiences without leaving the immserve context, including augmenting gesture with simulated dynamics, exploring live visual programming in 3D, and blending these with collaborative multi-author networks. This builds upon an efficient live coding software platform currently in development in the lab, with the goal of open source release before 2020.

Through the lab I am also part of two larger collaborative grants, both awarded in 2016. The first is York’s representation in a large ($2.5m) SSHRC Partnership Grant led by Philip Beesley (Living Architecture Systems Group, which has close affinity with the Artificial Nature project), with support for four York graduate student researchers over six years. I was granted membership to York’s renowned Centre for Vision Research in 2015, as the first artist to join this large pan-faculty (though primarily science-based) organized research unit. The CVR’s long-standing record largely grounded the successful award of a $33m Canada First Research Excellence Fund grant for VISTA (Vision Science to Applications), York’s largest ever grant. I have been the only arts-based core member of VISTA since its first submission preparation in 2015 to the present date. I have also played organizational roles in international research communities beyond York: co-chairing the International Conference on Live Coding (and assisting the $25k SSHRC Connections grant that supported it); serving in the lead jury of a section of the SIGGRAPH computer graphics conference 2018; and participating on review committees for seven international conferences spanning computer music to virtual reality.

Teaching

Although my CRC appointment comes with a reduced teaching load, teaching and student supervision are very important to me. I have been happy to continue a highly interdisciplinary teaching spectrum at York, from art theory to computer science in games, data visualization, artificial life and virtual reality at undergraduate and graduate levels. In nearly all my teaching experiences students have come from an even broader range of academic and sociocultural backgrounds. My approach to teaching has adapted to the challenge of meeting and integrating both creative and technical demands in which no shared corpus of prior knowledge or capability can be assumed, and is deeply informed by my own interdisciplinary experiences between arts, humanities, science, and technology.

Two entangled themes are the urge to unravel received conceptions and theories of a subject, and to explore non-conventional approaches to practice, hand-in-hand. The goal is technical articulation of creative problems paired with conceptual fluency that can be translated beyond immediate examples. I believe it is vital to balance skills with critical thinking, knowing not just how to solve

problems but also to create them, and transcending conventions by imagining possible futures. Moreover I believe that pushing ourselves out of comfort zones is essential to developing critical thinking, just as requiring a constant churn of out-of-the-norm making is necessary to make discoveries. To encourage students to challenge their received notions about media, technology, and its perception, application and dissemination in culture, I have found it highly productive to refer back to historical exemplar in unrelated fields. By stepping into the "other" in these ways, I believe students find it easier to see what was unseen in the here & now.

For example, I was grateful to be able to reshape FILM 6246 (Future Cinema: Applied Theory) toward the emerging wave of virtual reality. This course ran three consecutive years, requiring significant changes as the landscape of VR technology and theory rapidly developed from 2015 to 2017. It also challenged in asking film students with no prior experience in 3D graphics or computing to develop immersive worlds with unfamiliar software engines such as Max/MSP, Unity, and Unreal. Despite this challenge, each year individual or team projects were successful in creating rich and aesthetically compelling works. It is significant to me that despite a problematically male-dominated industry, all but one of these students were female.

I encourage students to work in collaboration, learning as much from their peers as from teachers. I believe practical competency and community interaction are equally essential to developing an expressive voice and the seeds of novel research. I also try to lead practical sessions in a collaborative manner: building a new prototype system or artwork in a conversational dialogue of suggestions and corrections by the students. I have found it especially useful to use web technologies such as Codepen.io for such sessions, by which all students have instant local access to the work at each step. I also use web-based delivery of other course materials, for the flexibility it offers, the ease of availability to students outside of class times, and the ability to support bidirectional interaction. I believe these factors contribute to a student's sense of investment in the course as a shared venture.

It has also led students from classes to continue working with me in the Alice lab. I was happy to launch a new course with the Digital Media program (DATT 4950 Artificial Life, Generative Art, Creative Code) which proved successful with students, with several continuing work and ideas developed in this class in their capstone projects. A graduate student (Alison Humphrey) attending a course I launched in the Digital Media program (DATT 4950 Artificial Life, Generative Art, Creative Code) continued to work in the Alice lab to develop her project "Shadowpox", blending interactive AR projection and immune system theory, leading to workshops at the Royal Academy of Dramatic Arts in London and an exhibition in Geneva for a United Nations event in 2017. Three doctoral students from FILM 6246 have chosen to continue developing their projects with me through directed reading courses, leading to their own presentations and publications. In particular, Slavica Ceperkovic's project was accepted and presented at the *Moving Images – Static Spaces: Architectures, Art, Media, Film, Digital Art and Design* conference in Istanbul, April 2018. At the time of writing there are two other graduate students and four undergraduate students also working intensively in the Alice lab, with more to join in Fall.

Service

At York I have contributed service within several pan-faculty and inter-faculty committees, as well as committees within the departments of Computational Arts and Visual Art & Art History.

At the University-wide level, I have served on the committee to write a new 5-year Strategic Research Plan for York, including soliciting feedback for AMPD, and representation for interdisciplinary/inter-faculty projects. Within the CVR and VISTA I have served on the membership and research grant adjudication committees. I have also worked to co-organize events, such as serving on the organizational committee of the Canadian Visual Analytics School and leading a workshop on VR and Unity for psychology researchers.

I have performed service committee roles in the development of three new academic programs at York. The first is the Digital Media Graduate program, uniquely co-run between the Department of Computational Arts in AMPD and the department of Electrical Engineering and Computer Science in the Lassonde School of Engineering, from planning in 2014 through to its provincial approval in December 2017, with students entering Fall 2018. I played significant roles in the design of this program and its curriculum as well as avocation and effort toward ensuring its progress through to approval. The second is the Intermedia undergraduate program co-hosted by the Department of Visual Art & Art History and the Department of Computational Arts in AMPD, developed from 2016 and commencing Fall 2018. The third is the AMPD-led VERGE program, focusing on Visualization, Games & New Entertainment Media, for a new York campus in the Markham city centre to begin construction in 2018. As a member of the Markham Centre and VERGE program development committee, I participated in everything from environmental scans, program, learning-objective and curriculum design, to facility and studio/lab design.

At the level of AMPD I have served on the Research@AMPD committee since 2014, primarily reviewing internal research awards and procedures. Within AMPD's CineSpace committee, which oversees facilities donated by one of the largest film studios in Canada, I have supervised a motion-capture studio including planning, assisting integration with with teaching and research, offering training and demonstrations to visitors, as well as interfacing students with wider opportunities of real film production sets. Additionally within AMPD I have provided non-committee service as a member of the Sensorium organized research unit, including events within the Alice lab.

Sincerely

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