

Graham Wakefield

Canada Research Chair (Tier II) in Interactive Visualization
Assistant Professor, Department of Computational Arts
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Education

Ph.D. Media Arts & Technology (September 2006 - September 2012)

Media Arts & Technology graduate program, University of California Santa Barbara, CA, USA.
Dissertation: Real-Time Meta-Programming for Interactive Computational Arts.
Advisors: Curtis Roads, Marcos Novak, JoAnn Kuchera-Morin, Matthew Wright.

M.S. Media Arts & Technology (September 2004 - June 2007)

Media Arts & Technology graduate program, University of California Santa Barbara, CA, USA.
Thesis/project: A Platform for Computer Music Composition Interleaving Sample-Accurate Synthesis and Control.
Advisors: Curtis Roads, Marcos Novak, JoAnn Kuchera-Morin.

M.Mus. Music Composition, with Distinction (September 2002 - September 2004)

Department of Music, Goldsmiths College, University of London, London, UK.
Advisors: Katharine Norman, Nye Parry, Michael Young, John Drever.

B.A. (Hons) Philosophy (September 1994 - June 1997)

Department of Philosophy, University of Warwick, Coventry, UK.

Academic Positions

Canada Research Chair (Tier 2) in Interactive Visualization.

Assistant Professor (tenure-track), Department of Computational Arts.

Graduate programs of: Digital Media; Electrical Engineering & Computer Science; Cinema & Media Arts; Interdisciplinary Studies; Visual Art & Art History.
York University, Toronto, Canada.
2014-07-01 – present

Visiting Professor, Korea Advanced Institute of Science and Technology (KAIST).

Graduate School of Culture Technology. Daejeon, Republic of Korea.
2013-02-01 - 2014-06-30

Lecturer, Sogang University.
Art and Technology. Seoul, Republic of Korea.
2013-03-01 - 2013-05-30

Post-Doctoral Researcher, University of California, Santa Barbara.
AlloSphere Research Group, California Nanosystems Institute. USA.
2012-09-01 - 2012-12-30

Graduate Researcher, University of California, Santa Barbara.
AlloSphere Research Group, California Nanosystems Institute. USA.
2008-09-01 - 2012-08-30

Lecturer, Southern California Institute for Architecture (SCI-Arc).
Mediascapes Graduate Program. Los Angeles, USA.
2009-09-01 - 2011-04-30

Teaching Associate, University of California, Santa Barbara.
College of Creative Studies. USA.
2006-09-01 - 2008-04-30

Non-academic Employment

Software Developer/Consultant, Cycling 74, San Francisco, USA.
Software engineering for the Gen run-time code generation and VR components of Max/MSP/Jitter.
2008-08-01 - present

Contract Software Consultant, WorldViz LLC.
Development of software/hardware auralizer for Vizard. Santa Barbara, USA.
2007-07 - 2012-12

Developer & Department Manager, Stafford Long & Partners advertising agency.
Interactive media design and development (online client & server side, CD-ROM, etc.). London, UK.
1999-07-01 - 2004-07-30

Honours & Awards

- VIDA 16.0 competition, the foremost artificial life art award worldwide (2015).
- 1st prize: National annual competition Sangsanglyok Baljeonso (Power Station of Creativity), Republic of Korea. (2014)
- Keynote speaker: International Symposium on Ubiquitous Virtual Reality, IEEE Computer Society, Korea. July, 2013.
- Best paper: International Conference on New Interfaces for Musical Expression (NIME) 2013.

Research Funding

Since joining York I have secured over \$1m in external funding (adjusted for co-applications).

External funding (Canada)

Canada Foundation for Innovation (CFI): Infrastructure Operating Fund (Canada). "Computational Worldmaking Laboratory." Sole applicant. \$19,250. 2018.

Ontario Government (Canada): **Early Researcher Award**. "Collaboratively Creating Virtual Reality From Within Virtual Reality". Sole applicant. \$150,000. 2017.

Social Sciences and Humanities Research Council (Canada): Connections Grant. "Live Coding: Networks, Interpretation and Applications". Co-applicant (of 4), led by David Ogborn. \$25,000. 2016.

Social Sciences and Humanities Research Council (Canada): Partnership Grant. "Living Architecture Systems". Co-applicant (7%), led by Philip Beesley. \$2,447,000. 2016.

During 2015-2016 I was also among thirty-five core faculty (spread across health science, computer science, arts and humanities) preparing a Canada First Research Excellence Fund application "VISTA: Vision Science to Applications", which was awarded \$33million in late 2016, the largest grant in York University history.

Canada Foundation for Innovation (CFI): John Evans Leaders' Fund + Ontario Research Fund: Small Infrastructure Fund (Canada). "Computational Worldmaking Laboratory." Sole applicant. \$73,978 + \$73,978 (\$147,956). 2015.

Social Sciences and Humanities Research Council: Canada Research Chairs program, Canada. □ "Canada Research Chair (Tier II) in Interactive Information Visualization". Sole applicant. □ \$500,000. 2015.

Seoul Foundation for Arts and Culture: Sangsanglyok Baljeonso (Powerstation of Creativity) Project, Republic of Korea. "Archipelago at Seoul City Hall". Co-applicant (of 2), led by Haru Ji. \$32,000. 2014.

Daejeon Culture and Arts Foundation: Artience Program, Republic of Korea. □ "Endless Current at Artience Art/Science Openlabs". Principal investigator, co-applicant (of 2). \$8,500. 2014.

Edith Kinney Gaylord Cornerstone Arts Center, Colorado Springs, USA. □ "Archipelago at Inter Disciplinary Experimental Arts". Principal investigator, co-applicant (of 2). \$9,800. 2013.

Arts Council Korea: International Exchange of Arts and Culture Grant, Republic of Korea. "Time of Doubles at SIGGRAPH". Co-applicant (of 2), led by Haru Ji. \$5,300. 2011.

Seoul Foundation of Arts and Culture: Arts and Culture Support Award, Republic of Korea. "City Life

Media Façade". Co-applicant (of 2), led by Haru Ji. \$11,000. 2010.

Internal funding

Vision: Science to Applications, Research Grant. "Validation of novel neurofeedback training engine for improving brain health in aging and neurodevelopmental disorders". Co-applicant (of 4). \$50,000. 2017.

York University Faculty Association: Travel Grant, Canada. Sole applicant. \$1,000. 2017.

York University AMPD Minor Research Grant, Canada. Sole applicant. \$2,500. 2017.

York University Faculty Association: Travel Grant, Canada. Sole applicant. \$1,000. 2016.

York University AMPD Minor Research Grant, Canada. Sole applicant. \$1,500. 2016.

York University AMPD Minor Research Grant, Canada. Sole applicant. \$1,500. 2015.

York University Faculty Association: Travel Grant, Canada. Sole applicant. \$1,000. 2014.

UCSB Media Arts & Technology Program Travel Grant, USA. "Time of Doubles at Seoul Olympic Museum of Art". Sole applicant. \$1,000. 2011. Travel & accommodation.

Fellowships

Robert W. Deutsch Foundation: Postdoctoral Research Fellowship, USA. 2012 (140 hours per month).

Robert W. Deutsch Foundation: Graduate Research Fellowship, USA. \$40,000. 2011 - 2012 (50 hours per month).

Center for Nanomedicine Research, Sanford Burnham Medicine Research Institute: Graduate Research Fellowship, USA. \$40,000. 2010 - 2011 (50 hours per month).

National Science Foundation: Integrative Graduate Education and Research Traineeship (IGERT) Fellowship, USA. "Graduate Research Assistance in the AlloSphere Research Group". \$24,000. 2007 - 2009 (50 hours per month).

Publications

I have over 50 publications, 350 citations, and an h-index of 11.

Google Scholar profile: <https://scholar.google.ca/citations?user=UKXrFCIAAAAJ>

ResearchGate profile: https://www.researchgate.net/profile/Graham_Wakefield

Chapters in books

1. Graham Wakefield. "*Open Worlds: Bergson And Computational Ontology*." In *Worldmaking as Techné: Exploring Worlds of Participatory Art, Architecture, and Music*, edited by Alberto de Campo, Mark-David Hosale, Sana Murrani. Riverside Architectural Press, 2018.
2. Charles Roberts, Graham Wakefield. "*Tensions & Techniques in Live Coding Performance*." In *The Oxford Handbook of Algorithmic Music*, edited by Roger Dean, Alex McLean. Oxford University Press, February 2018.
3. Charles Roberts, Graham Wakefield, Matthew Wright. "*Reflections on Synthesis and Instrument Design for the Browser*" and "*The Web Browser As Synthesizer And Interface*." In

The NIME Reader. Springer Verlag, Jan 2018.

4. Haru (Hyunkyung) Ji, Graham Wakefield. "*Biotopes Computationnels (Computational Biotopes)*" In Stream 04: Les Paradoxes du vivant (The Paradoxes of the Living), pp. 304-316 Philippe Chiambaretta Architecte, Paris, November 2017.
5. Haru (Hyunkyung) Ji, Graham Wakefield. "*Recent Realizations of Artificial Nature.*" In Living Architecture Systems Group White Papers. Riverside Architectural Press, 2016.
6. Graham Wakefield, Haru (Hyunkyung) Ji. "*Virtual World-Making in an Interactive Art Installation: Time of Doubles.*" In Virtual Worlds, edited by Stephan Bornhofen, Jean-Claude Heudin, Alain Lioret, Jean-Claude Torrel. Science eBook, Paris, November, 2012. Representative chapter.
7. Lance Putnam, Graham Wakefield, Haru (Hyunkyung) Ji, Basak Alper, Dennis Adderton, JoAnn Kuchera-Morin. "*Immersed in Unfolding Complex Systems.*" In Beautiful Visualization: Looking at Data through the Eyes of Experts, edited by Julie Steele, Noah Iliinsky, 291-310. O'Reilly Media, Inc., 2010.
8. Graham Wakefield. "*Makeshift, Machinic / Open.*" In Machine Dreams (Seoul, Republic of Korea), edited by Byeong Sam Jeon, Haru (Hyunkyung) Ji, 120-123. KoIAN, 2009.

Articles in refereed journals

1. Haru (Hyunkyung) Ji, Graham Wakefield. "Inhabitat: an Imaginary Ecosystem in a Children's Science Museum." Leonardo Vol. 51, No. 4, pp. 343–348, 2018.
2. Seunghun Kim, Graham Wakefield, Juhan Nam. "Augmenting Environmental Interaction in Audio Feedback Systems." Applied Sciences 6, no. 5 (May, 2016): 125.
3. Haru (Hyunkyung) Ji, Graham Wakefield. "Endogenous Biologically Inspired Art of Complex Systems." Computer Graphics and Applications 36, no. 1 (January, 2016): 16-21. IEEE Computer Society.
4. Charles Roberts, Graham Wakefield, Matthew Wright, JoAnn Kuchera-Morin. "Designing Musical Instruments for the Browser." Computer Music Journal, no. 1 (March, 2015): 27-40. MIT Press.
5. JoAnn Kuchera-Morin, Matthew Wright, Graham Wakefield, Charles Roberts, Dennis Adderton, Behzad Sajadi, Tobias Höllerer, Aditi Majumder. "Immersive full-surround multi-user system design." Computers & Graphics 40 (May, 2014): 10-21. Elsevier.
6. Graham Wakefield, Tobias Höllerer, JoAnn Kuchera-Morin, Charles Roberts, Matthew Wright. "Spatial Interaction in a Multiuser Immersive Instrument." Computer Graphics and Applications 33, no. 6 (November, 2013): 14-20. IEEE Computer Society.
7. John Thompson, JoAnn Kuchera-Morin, Marcos Novak, Dan Overholt, Lance Putnam, Graham Wakefield, Wesley Smith. "The AlloBrain: An Interactive, Stereoscopic, 3D Audio, Immersive Virtual World." International Journal of Human-Computer Studies 67, no. 11 (2009): 934-946. Elsevier.
8. Rebecca Zwick, Jeffrey C Sklar, Graham Wakefield, Cris Hamilton, Alex Norman, Douglas Folsom. "Instructional Tools in Educational Measurement and Statistics (ITEMS) for School Personnel: Evaluation of Three Web-Based Training Modules." Educational Measurement: Issues and Practice 27, no. 2 (2008): 14-27. Wiley Online Library.

Papers in refereed conference proceedings

1. Haru (Hyunkyung) Ji, Graham Wakefield. "Inhabitat: an Imaginary Ecosystem in a Children's Science Museum." Proceedings of SIGGRAPH, Art Papers section, Vancouver, August 2018.
2. Sung-A Jang, Graham Wakefield, Sung-Hee Lee. "Incorporating Kinesthetic Creativity and Gestural Play into Immersive Modeling." In Proceedings of the 4th International Conference on Motion Computing (London, United Kingdom), 17-24. ACM, June, 2017.
3. Graham Wakefield, Charles Roberts. "A Virtual Machine for Live Coding Language Design." Proceedings of the International Conference on New Interfaces for Musical Expression (Copenhagen, Denmark). 2017.
4. Charles Roberts, Graham Wakefield. "Gibberwocky: New Live-Coding Instruments for Musical Performance." Proceedings of the International Conference on New Interfaces for Musical Expression (Copenhagen, Denmark). 2017.
5. Charles Roberts, Graham Wakefield. "Live Coding the Digital Audio Workstation." In Proceedings of the International Conference on Live Coding (Hamilton, Canada). October, 2016.
6. Seunghun Kim, Changheun Oh, Graham Wakefield, Juhan Nam. "Sonic Participation in the Evolving Audio Feedback System." In Proceedings of the International Symposium of Electronic Art (Hong Kong). 2016.
7. Haru (Hyunkyung) Ji, Graham Wakefield. "Endogenous Biologically-Inspired Visualization Immersed Within an Art of Complex Systems." In Proceedings of the IEEE VIS Arts Program (Chicago, USA), 30-37. University of Illinois at Chicago, October, 2015.
8. Seunghun Kim, Graham Wakefield, Juhan Nam. "Augmenting Room Acoustics and System Interaction for Intentional Control of Audio Feedback." In Proceedings of the International Computer Music Conference (Denton, USA). University of North Texas, September, 2015.
9. So Jung Bahng, Doo Won Yoo, Patrick Hutchings, Chung Kon Shi, Graham Wakefield. "Poetry of Separation: The Aesthetics of Spatial Montage and Generative Editing for Multi-layered Screens." In Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering 145 Arts and Technology (Fourth International Conference, ArtsIT, Istanbul, Turkey), 61-68. Springer International Publishing, May, 2015.
10. Seunghun Kim, Juhan Nam, Graham Wakefield. "Toward Certain Sonic Properties of an Audio Feedback System by Evolutionary Control of Second-Order Structures." In Lecture Notes in Computer Science 9027 Evolutionary and Biologically Inspired Music, Sound, Art and Design (The 4th International Conference EvoMUSART, Copenhagen), 113-124. Springer International Publishing, 2015.
11. So Jung Bahng, Patrick Hutchings, Yoo Doo Won, Graham Wakefield. "Generative Spatial Montage with Multi-Layered Screens in "Lost Fragments of Night"." In Proceedings of the International Symposium on Electronic Arts (Dubai). The Inter-Society for the Electronic Arts, October, 2014.
12. So Jung Bahng, Yoonji Song, Jae Dong Kim, Kiseul Suh, Chung-Kon Shi, Graham Wakefield, Sungju Woo. "Digital Love Letter: A Handwriting Based Interface for Non-instant Digital Messenger." In Lecture Notes in Computer Science 8512 Human-Computer Interaction. Applications and Services (HCI International, Heraklion, Crete, Greece), 103-113. Springer International Publishing, June, 2014.
13. Sung-A Jang, Hyung-il Kim, Woontack Woo, Graham Wakefield. "AiRSculpt: A Wearable Augmented Reality 3D Sculpting System." In Lecture Notes in Computer Science 8530 Distributed, Ambient, and Pervasive Interactions (HCI International, Heraklion, Crete, Greece), 130-141. Springer International Publishing, June, 2014.
14. Graham Wakefield, Charles Roberts, Matthew Wright, Timothy Wood, Karl Yerkes.

- "Collaborative Live-Coding with an Immersive Instrument." In Proceedings of the International Conference on New Interfaces for Musical Expression (London, United Kingdom), 505-508. Goldsmiths, University of London, June, 2014.
15. Graham Wakefield, Haru (Hyunkyung) Ji. "Becoming-There: Natural Presence in an Art of Artificial Ecologies." In International Symposium on Ubiquitous Virtual Reality (Daejeon, Republic of Korea), 11-14. IEEE Computer Society, July, 2013. Keynote paper.
 16. Charles Roberts, Graham Wakefield, Matthew Wright. "The web browser as synthesizer and interface." In Proceedings of the International Conference on New Interfaces for Musical Expression (Daejeon, Republic of Korea), 313-318. Graduate School of Culture Technology, KAIST, May, 2013.
 17. Haru (Hyunkyung) Ji, Graham Wakefield. "Virtual Reality Worldmaking through Interactive Installation Art." Proceedings of the Mediating New Media Conference, Hongik University, Seoul, Korea, Volume: 26, March 2013.
 18. Charles Roberts, Graham Wakefield, Matthew Wright. "Mobile Controls On-The-Fly: An Abstraction for Distributed NIMes." In Proceedings of the International Conference on New Interfaces for Musical Expression (Ann Arbor, Michigan). University of Michigan, 2012.
 19. Haru (Hyunkyung) Ji, Graham Wakefield. "Time of Doubles." In Proceedings of SIGGRAPH ASIA Art Gallery (Hong Kong), 26-26. ACM, December, 2011.
 20. Graham Wakefield, Wesley Smith. "Cosm: A toolkit for composing immersive audio-visual worlds of agency and autonomy." In Proceedings of the International Computer Music Conference (Huddersfield, UK), 13-20. ICMA, July, 2011.
 21. Charles Roberts, Matthew Wright, JoAnn Kuchera-Morin, Lance Putnam, Graham Wakefield. "Dynamic Interactivity inside the AlloSphere." In Proceedings of the International Conference on New Interfaces for Musical Expression (NIME) (Sydney, Australia), 57-62. June, 2010.
 22. Graham Wakefield, Wesley Smith, Charles Roberts. "LuaAV: Extensibility and heterogeneity for audiovisual computing." In Proceedings of the Linux Audio Conference (Utrecht, the Netherlands), 31-38. Hogeschool voor de Kunsten, May, 2010.
 23. Wesley Smith, Graham Wakefield. "Augmenting Computer Music with Just-In-Time Compilation." In Proceedings of the International Computer Music Conference (Montreal, Canada), 439-442. ICMA, August, 2009.
 24. Haru (Hyunkyung) Ji, Graham Wakefield. "Artificial Nature: Research and Development." In The 2nd International Conference on Media Art and Information Aesthetics (Beijing, China). CAFA Art Museum, July, 2009.
 25. Graham Wakefield, Haru (Hyunkyung) Ji. "Artificial nature: Immersive world making." In Theoretical Computer Science and General Issues 5484 Applications of Evolutionary Computing (The Evolutionary Music and Art Workshop, Tübingen), edited by Mario Giacobini et al., 597-602. Springer-Verlag Berlin Heidelberg, 2009.
 26. Haru (Hyunkyung) Ji, Graham Wakefield. "Artificial Nature." In Proceedings of the NSF Media Arts, Science and Technology Conference (Santa Barbara, USA). National Science Foundation, 2009.
 27. Wesley Smith, Graham Wakefield. "Computational Composition and Creativity." In Proceedings of the NSF Media Arts, Science and Technology Conference (Santa Barbara, USA). National Science Foundation, 2009.
 28. Haru (Hyunkyung) Ji, Graham Wakefield. "Artificial Nature: Fluid Space." In Proceedings of SIGGRAPH ASIA Art Gallery & Emerging Technologies: Adaptation (Yokohama, Japan), 26-26. ACM, December, 2009.
 29. Haru (Hyunkyung) Ji, Graham Wakefield. "Artificial Nature as an Infinite Game." In Proceedings of the International Symposium of Electronic Arts (Singapore), 256-258. The

- Inter-Society for the Electronic Arts, August, 2008.
30. Haru (Hyunkyung) Ji, Graham Wakefield. "Artificial Nature as an Infinite Game." In Proceedings of ASIAGRAPH (Shanghai, China). ASIAGRAPH, July, 2008.
 31. Graham Wakefield, JoAnn Kuchera-Morin, Marcos Novak, Dan Overholt, Lance Putnam, John Thompson, Wesley Smith. "The AlloBrain: an Interactive Stereoscopic, 3D Audio Immersive Environment." In Proceedings of the CHI Conference Workshop on Sonic Interaction Design (SID-CHI) (Florenz, Italy). ACM, April, 2008.
 32. Wesley Smith, Graham Wakefield. "Computational Audiovisual Composition using Lua." In Communications in Computer and Information Science 7 Transdisciplinary Digital Art. Sound, Vision and the New Screen, edited by Randy Adams, Steve Gibson, Stefan Müller Arisona, 213-228. Springer-Verlag Berlin Heidelberg, 2008.
 33. Xavier Amatriain, Jorge Castellanos, Tobias Höllerer, JoAnn Kuchera-Morin, Stephen T Pope, Graham Wakefield, Will Wolcott. "Experiencing Audio and Music in a Fully Immersive Environment." In Information Systems and Applications 4969 Computer Music Modeling and Retrieval. Sense of Sounds, edited by Richard Kronland-Martinet, Soslavlvi Ystad, Kristoffer Jensen, 380-400. Springer, 2008.
 34. Graham Wakefield, Wesley Smith. "Using Lua for Multimedia Composition." In Proceedings of the Digital Art Weeks (Zurich, Switzerland). Digital Art Weeks International, July, 2007.
 35. Wesley Smith, Graham Wakefield. "Real-time Multimedia Composition using Lua." In Proceedings of the International Computer Music Conference (Copenhagen, Denmark), 341-344. ICMA, August, 2007.
 36. Graham Wakefield. "Third-Order Ambisonic Extensions for Max/MSP with Musical Applications." In Proceedings of the International Computer Music Conference (New Orleans, USA), 123-126. ICMA, November, 2006.

Exhibitions & performances

Artificial Nature

A research-creation project and installation series in collaboration with Haru (Hyunkyung) Ji, since 2007.

Insuperposition.

Installation: Laser-cut sculpture with projection mapping, head-mounted virtual reality, large-scale projection.

Daejeon Biennale 2018. Daejeon, Republic of Korea, August 2018

Inhabitat.

Installation: Sand-sculpture augmented reality, head-mounted virtual reality, large-scale projection. Interactive Media Theater, MOXI: The Wolf Museum of Exploration + Innovation, Santa Barbara, USA. 2017-08-11 - 2018-01-08 (Commissioned).

Inhabitat (Two Perspectives). □ Digital Futures Open Show. Toronto, Canada. 2018-1-31 - 2018-2-3.

Conservation of Shadows.

Installation: 330kg salt, 12 nD::Node Arduino boards, 140 vibration motor-driven bells, 150m wire, Kinect sensors, projector, HTC Vive HMD.

Requiem for Hybrid Life, Seoul Museum of Art Chang-go, Seoul, Korea. 2017-10-17 - 2017-10-23.

Endless Current.

Interactive virtual reality ecosystem for HMD or CAVE.

- The AlloSphere, Santa Barbara, USA. 2017-08-24 - present.
- Different Games Exhibition & Conference Toronto, OCAD University, Toronto, 2017-05-31 - 2017-06-03.
- Kaledioscope Virtual Reality Showcase volume II -- selected among 21 projects for this international showcase exploring the art & science of virtual reality. □ London: 2017-03-29 / Seoul: 2017-03-30 / Leipzig: 2017-04-02 / Berlin: 2017-04-07 / Los Angeles: 2017-04-20 / Kyiv: 2017-04-22 / Sydney: 2017-04-27 / Paris: 2017-04-28, 2017-04-29
- HTC VivePort virtual reality content distribution network. 2017-01-30 - present. Top featured project March 4-6.
- SV+VS (Sonifying Visuals+Visualizing Sound). Gallery MUN, Dongdaemun Design Plaza, Seoul, Korea. 2016-08-20 - 2016-09-18 (Curated).
- Currents New Media Festival. El Museo Cultural, and also the Digital Dome at the Institute of American Indian Arts, Santa Fe, USA. 2016-06-10 - 2016-06-26 (Juried).
- IEEE VIS Arts Program. LeRoy Neiman Center, School of the Art Institute of Chicago, USA. 2015-10-16 - 2015-10-30 (Juried).
- Artience Project Daejeon. Korea Research Institute of Standards and Science, Daejeon, Korea. 2014-08-23 - 2014-09-02 (Curated).
- Life is very Beautiful. Yeulmaru Exhibition Hall, Yeosu, Korea. 2014-02-18 - 2014-04-06 (Curated).
- Life is very Beautiful. Space-K Gallery, KI Building, KAIST, Daejeon, Korea. 2013-10-10 - 2013-12-6 (Curated).

Artificial Nature: Portrait.

Pair of Raspberry Pi, 10" screen, Korean traditional paper, 4" speakers.

- Santa Barbara Center for Art, Science and Technology (SBCAST) El Museo Cultural, Santa Barbara, USA. 2017-07-03.
- Currents New Media Festival. El Museo Cultural, Santa Fe, USA. 2017-06-09 - 2017-06-25.

Archipelago.

Installation: Sand-sculpture augmented reality.

- Seoul Sangsangryok Baljeonso (Imagination Powerhouse). City Hall, Seoul, Korea. 2015-02-16 - 2015-02-27 (Invited re-exhibit).
- Capitaine Futur. La Gat Lyrique, Paris, France. 2014-10-08 - 2015-02-08 (Curated).
- Seoul Sangsangryok Baljeonso (Imagination Powerhouse). City Hall, Seoul, Korea. 2014-10-01 - 2014-10-21 (Juried competition).
- Systems and Subversions. IDEA Space, Edith Kinney Gaylord Cornerstone Arts Center, Colorado Springs, USA. 2013-10-28 - 2013-11-5 (Curated).

Time of Doubles.

Installation: large-scale projection, curved screens, depth cameras.

- Globale Renaissance 2.0 - Exo:Evolution. Center for Art and Media (ZKM) Mediamuseum, Karlsruhe, Germany. 2015-10-30 - 2016-02-28 (Curated).
- SIGGRAPH ASIA Art Gallery. Hong Kong Exhibition and Conference Centre, Hong Kong SAR. 2011-02-13 - 2011-02-15 (Juried).
- Type:wall. Seoul Olympic Museum of Art (SOMA), Korea. 2011-03-31 - 2011-05-29 (Curated).

- Flux.
- Microwave International New Media Festival. City Hall, Hong Kong. 2012-11-03 - 2012-11-25 (Curated).
- 7th Digital Art Festival Taipei: Artificial Nature. Songshan Cultural and Creative Park, Digital Art Center, Taipei, Taiwan. 2012-11-06 - 2012-11-25 (Curated).
- Collider 04: Spectacle. Emily Davis Art Gallery, Myers School of Art, The University of Akron. 2012-03-19 - 2012-04-13 (Curated).
- Project Daejeon Biennale 2012: Energy. Daejeon Museum of Art, Daejeon, Korea. 2012-09-19 - 2012-11-18 (Curated).

Fluid Space.

Interactive virtual reality ecosystem for HMD or CAVE.

- Collider 03: Transform. Emily Davis Gallery, Akron Ohio, USA. 2011-03-22 - 2011-04-16 (Curated).
- Hyperbody ProtoSpace. Technical University Delft, Holland. 2010-05-06 - 2010-05-07 (Invited).
- AlloSphere. California NanoSystems Institute, Santa Barbara, USA. 2009 - 2010 (Periodic local installation).
- SIGGRAPH ASIA Art Gallery. Yokohama Pacifico Convention Center, Yokohama, Japan. 2009-12-17 - 2009-12-19 (Juried).
- Space Exploration Exhibition. Chunjin Exhibition Center. Chunjin, China. 2009-07-25 - 2009-07-28 (Commissioned).
- ThisAbility. Central Academy of Fine Arts Art Museum (CAFA), Beijing, China. 2009-07 (Curated).
- A.L.I.C.E. MUSEUM. Seoul Olympic Museum of Art (SOMA), Korea. 2009-05-01 - 2009-06-21 (Juried).

Infinite Game.

Installation: large-scale projection, touch-screen, IR camera.

- ThisAbility vs. Disability. Total Museum of Contemporary Art, Seoul, Korea. 2008-07-22 - 2009-08-24 (Curated).
- MAST: The Future of Interactive Media. Corwin Pavillion/MAT AlloSphere, University of California Santa Barbara, USA. 2009-01-29 - 2009-01-30 (Juried).
- Universal Electronic Art. Seongnam Art Center, Seongnam, Korea. 2008-10 - 2008-11 (Curated).
- ASIAGRAPH. Digital Gallery, Shanghai, China. 2008-06-27 - 2008-07-01 (Invited).

Chronoform Studies of Artificial Life. □3D-prints, lenticular prints.

Media + Life: Sensorial Collaboration. College of Art, Tokyo Polytechnic University, Tokyo, Japan. 2013-02-04 - 2013-02-07 (Invited).

City Life (도시 생명).

Generative video for 99ft LED facade.

Urban Organism: Triangle Screenscape. Seoul Square media facade. Seoul, Korea. 2011-10-11 - 2011-10-30 (Awarded).

Alien-Field. □

Prologue/Prototype. Gallery Sobab, Gyeonggi-Do, Korea. 2011-04-29 - 2011-05-15 (Curated).

Eternal Return.

Space Exploration Exhibition. Chunjin Exhibition Center. Chunjin, China. 2009-07-25 - 2009-07-28 (Commissioned).

Other collective exhibitions & performances

- Live by the Code. (Live coding music performance). Graham Wakefield and Woon Seung Yeo. AAPPAC (Association of Asia Pacific Performing Arts Centres) Conference. Daejeon Culture & Arts Center, Daejeon, Korea. 2013-10-09 (Curated).
- Dupin's Spaceship. (Live coding audio-visual performance). Graham Wakefield and Wesley Smith. Recorded for DVD Content. Computer Music Journal 35:4, MIT Press. 2011 (Juried).
- Synecdoche. (Audio-visual performance.) Wesley Smith and Graham Wakefield.
 - UC Digital Art Network (UCDarNet) conference Epicenter. University of California Riverside, USA. 2007 (Juried).
 - Lotte Lehman Concert Hall, University of California Santa Barbara. 2006 (Juried).
- Asterisk. (Live coding music performance). Graham Wakefield and Aaron McLaren. Media Arts & Technology Concert. California Nanosystems Institute. 2009-06-08 (Juried).
- AlloBrain. (Immersive visualization/liquid architecture.) Marcos Novak, Graham Wakefield, Lance Putnam, John Thompson, Dan Overholt, and Wesley Smith.
 - AlloSphere. California Nano-Systems Institute, UCSB, USA. 2006 - present (Commissioned).
 - Hyperbody ProtoSpace. Technical University Delft, Holland. 2006 (Invited).
- Electro-Acoustic Improvisation Ensemble. (Live electronic music.) Florian Hollerweger, Dan Overholt, Lance Putnam, Graham Wakefield, Bo Bell. KCSB 91.9FM. 2006-08 (Invited). / Primavera Festival. College of Creative Studies Garden, University of California Santa Barbara. 2006-05 (Juried). / Primavera Festival. Music Atrium, University of California Santa Barbara. 2005-05 (Juried). / Radio Helsinki 88.6MHz. 2005-04 (Invited). / KCSB 91.9FM. 2005-04 (Invited).
- BitSignalFabric. (Virtual worlds) MarkDavid Hosale, Haru Ji, Eric Newman, Dan Overholt, Lance Putnam, Ben Ritter, Wesley Smith, John Thompson, Graham Wakefield.
 - UCIRA State of the Arts. University of California Santa Barbara. 2006-05 (Juried).
 - Music and the Moving Image. University of California Santa Barbara. 2006-01 (Curated).
- Suntinethai. (Virtual worlds) Haru Ji, Dan Overholt, Lance Putnam, and Graham Wakefield. Forum on Digital Transitions. Corwin Pavilion, University of California Santa Barbara. 2006-04 (Commissioned).
- SeoNang. (Telematic installation) Eunsu Kang, Wesley Smith, Rama Holtzein, Graham Wakefield. Telematic: ArtspaceHue, Seoul, Korea, and DXARTS Art Studio, University of Washington, Seattle, USA. 2005 (Commissioned).
- New Noise. (Electronic and acoustic composition) Graham Wakefield, Joby Burgess (vibraphone). Goldsmiths College University of London. 2003-03 (Invited).

Solo exhibitions & performances

- Live Electronic Music. Wordless Word. Array Space, Toronto, Canada. 2016-05-10 (Curated).

- Makeshift. (Generative screen-based work.)
 - Cross-Reality: Traversed & Encompassed Vision. Arts & Information Center, College of Art, Tokyo Polytechnic University, Japan. 2012-02-20 - 2012-02-22 (Curated).
 - Something You Don't Know. California NanoSystems Institute, University of California Santa Barbara, USA. 2010-05-24 - 2010-05-27 (Curated).
 - Machine Dreams. Soongsil University Information Technology Gallery, Seoul, Korea. 2009-06-16 - 2009-07-02 (Curated).
- t0 Coincident. (Generative audio-visual performance.)
 - SUBISCAPE. Gallery Loop, Seoul, Korea. 2009-06-19 (Curated).
 - Primavera Exhibition. College of Creative Studies Gallery, UCSB, USA. 2005-05 (Invited).
- Time-Variant Audio-Visual Canvasses. (Audio-visual interactive installation.)
 - Art Bash. Santa Barbara Museum of Art, Santa Barbara, USA. 2008-07 (Curated).
 - Sound Installations. Goldsmiths College University of London. 2004-07 (Group show).
- Something Somewhere. (net art.) <http://www.site-specific.net/somethingsomewhere>. 1999 - 2004 (Curated, Online).
- Squares for Round Holes. (Electroacoustic composition.) A without B. University of California Santa Barbara Music Bowl. 2008 (Juried).
- Green Tara. (Electroacoustic composition.) Geiringer Hall, University of California Santa Barbara. 2006 (Curated).
- Takeaway. (Electroacoustic composition with visualization.)
 - Cal Exchange Concert. Stanford University, USA. 2006 (Juried).
 - Cal Exchange Concert. UC San Diego, USA. 2006 (Juried).
 - WavePulse*. Lotte Lehman Concert Hall, University of California Santa Barbara. 2005 (Juried).
- Camino Outset. (Electroacoustic composition.)
 - CREATE. Lotte Lehman Concert Hall, University of California Santa Barbara. 2006 (Juried).
 - Goldsmiths College University of London. 2004 (Juried).
- Cafiaspirina. (Electroacoustic composition/performance.)
 - Newborn Creations. Lotte Lehman Concert Hall, University of California Santa Barbara. 2005 (Juried).
 - New Noise. Goldsmiths College University of London. 2003 (Juried).

Talks, panels, and guest lectures

(Excluding conference presentations with publications)

1. Eversive Ecologies of Artificial Nature (Artist/Panel Talk). Future Cinemas, York University, Toronto, 2018-1-18.
2. Artificial Natures (Artist talk). Weird Reality: Head-Mounted Art & Code, Carnegie Mellon University, Pittsburgh, USA, 2016-10-08
3. Interactive Art: Animating Public Space (Panel talk). Media Architecture Summit 2016, TIFF Bell Lightbox, Toronto, Canada, 2016-09-30
4. Computational Art in Mixed Realities (Research talk). Centre for Vision Research Retreat, York Glendon Hall, Toronto, Canada, 2016-09-16
5. Computational Worldmaking (Guest lecture). Graduate Seminar, School of Interactive Games

- & Media, Rochester Institute of Technology, USA, 2016-09-01
6. Virtual Reality Worldmaking (Lecture/workshop). Imagination Seminar, Art & Technology program, Sogang University, Korea, 2016-07-15
 7. Artificial Natures (Guest lecture). Future City Society, SCALe, Korea, 2016-07-13
 8. Artificial Natures (Guest lecture). Computational Aesthetics, School of Interactive Games & Media, Rochester Institute of Technology, USA, 2016-03-07
 9. Data Imaginaries (Artist talk). Leonardo Art Science Evening Rendezvous (LASER) / Art-Science Salon, Fields Institute, University of Toronto, Canada, 2015-11-19
 10. Computational Worldmaking (Artist talk). Centre for Vision Research seminar series, York University, Toronto, Canada, 2015-11-06
 11. Artificial Nature: Mixed-Reality Ecosystem (Construction of Aesthetic Experience) (Forum talk). Asia Pacific Center for Theoretical Physics (APCTP) Science Communication Forum, Korea Astronomy and Space Science Institute, Sobaek Optical Astronomy Observatory, Republic of Korea, 2015.07.08 - 2015.07.10
 12. Becoming There: Immersed in Computation (Artist talk). Sensorium Lecture Series, York University, Toronto, Canada, 2015-02-24
 13. Becoming There: Immersed in Computation (Panel). Exploring the Frontiers of Science & Technology, York University, Toronto, Canada, 2015-01-28
 14. Interaction with Sonic Environment Based on Audio Feedback (Symposium talk). The First Asian IRCAM Workshop, Hanyang University, Seoul, Korea, 2014-04-29 - 2014-05-01
 15. gen~ (Symposium talk). The First Asian IRCAM Workshop, Hanyang University, Seoul, Korea, 2014-04-29 - 2014-05-01
 16. Becoming There: Nature-Like Worldmaking (Lecture). Hongik University, Korea, 2013-11-20
 17. Becoming There: Nature-Like Worldmaking (Lecture). TAC, Seoul Art Institute, Korea, 2013-11-20
 18. Generative Art and Notgames (Symposium talk). AliceOn New Media Art Symposium: Next Level of Art Game, 더 미디어업, The Medium, Yonhee, Seodaemun-gu, Seoul, Korea, 2013-10-19
 19. Becoming There (Artist talk). Cornerstone Arts Center, Colorado Springs, USA, 2013-08-20
 20. Natural Presence in an Art of Artificial Ecologies (Artist talk). Korea Institute for Science and Technology (KIST), Seongbuk-gu, Seoul, Korea, 2013-07-09
 21. Open-Endedness and Code Generation in Creative Software (Lecture). Center for Computer Research in Music and Acoustics, Department of Music, Stanford University, USA, 2012-02
 22. Open-Endedness and Code Generation in Creative Software (Tech talk). SIGGRAPH Asia Tech Talks, Hong Kong Exhibition and Conference Center, Hong Kong, 2011-12
 23. Creating Artificial Natures (Forum talk). The 9th Techno-Aesthetic Forum: From Artificial Intelligence Art to Artificial Life Art, Humanist publishing, Seoul, Korea, 2011-06
 24. Creating an Artificial Nature as an Open World (Forum talk). The 5th Seoul DMC Media Forum, Media Arts and Technology Interdisciplinary Series, KGIT (Korean Graduate Institute of Technology), Seoul, Korea, 2011-05
 25. Creating an Artificial Nature as a Generative Art (Artist talk). School of Digital Media, Duksung Women's University, Seoul, Korea, 2011-05
 26. Creating an Open World as an Infinite Game (Artist talk). Computer Science Colloquium, University of Akron, USA, 2011-04
 27. Artificial Natures: Creating Nature-Like Aesthetic Experiences through Immersive Artificial Life Worlds (Guest lecture). Digital Art, University of Akron, USA, 2011-02
 28. Media Arts, Technology, and Artificial Nature (Artist Talk). Electronic Music Studios, Goldsmiths University of London, UK, 2009-08

29. Makeshift (Artist Talk). The Aesthetics of Code, Spring Art Symposium, University of California Santa Barbara, USA, 2009-06
30. Cosm (Tech talk). Max/MSP/Jitter Expo 74, Mission Bay Conference Center, San Francisco, USA, 2008-12
31. Artificial Nature & Evolutionary Art (Lecture). Laboratory of Future Media Art, ChungAng University, Seoul, Korea, 2008-07
32. Currents in Media Arts and Technology (Lecture). Department of Media Art Aesthetics and Technology, Soongsil University, Seoul, Korea, 2008-07
33. Toward the AlloSphere: Intensive Art, Immersive Worlds (Lecture). University of California Digital Arts Network (UCDArNet), University of California Los Angeles, USA, 2006-04

Media reviews, interviews, and other coverage

2018 The Artificial Nature project is used as the principal theme and inspiration of a week-long exhibition and workshop series SENSE VI "BIOTOPIA", in the city of Medellin, Columbia. Our work is featured in the primary national newspapers and magazines (Domingo, Semana).
<https://www.humanese.co/sensevi>

2018 'Conservation of Shadows' was featured in Brainstorm, York University magazine. Megan Mueller, manager, research communications, Office of the Vice-President Research & Innovation, York University, muellerm@yorku.ca
<http://yfile.news.yorku.ca/2018/02/01/canada-research-chair-creates-extraordinary-art-installation-in-korea>

2017 (Forthcoming) Media Art in Korea, BookKorea press
 I was chosen to be interviewed as one of 30 representative contemporary/media artists in Korea by recommendations by an expert panel in the Korean Media Art Database Project. The interview was carried out in Seoul, Jul 18th 2016.

Apr 2015 Space magazine, Korea
 Six-page full colour feature on Archipelago, and rear cover image, for this leading architecture journal.
http://www.vmspace.com/2008_re/kor/sub_emagazine_view.asp?category=artndesign&idx=11961

May 2014 Misul Seagae (Art World), Korea.
 Special Feature "Play & Art": introduced among two selected artists teams in the area of interactive art.

Feb 2014 Art in America magazine, Feb 2014 issue.
 Artificial Nature referred to in "Art for the Anthropocene Era", Eleanor Heartney

Oct 2013 The Science Times online, Korea
 Similarities and differences in art and game: Next Level of Art-Game, Yoenhee Kim.
<http://www.sciencetimes.co.kr/?s=%EC%A7%80%ED%95%98%EB%A3%A8>

Mar 2013 뉴미디어 아트와 게임 예술 (New Media Art & Game Art),
 Book by 유원준 (Wonjun Yu), ISBN 978-89-6680-153-4 93680: features Artificial Nature and Time of

Doubles as exemplary work crossing boundaries between new media art and video games. Time of Doubles was also chosen for the cover image.

Nov 2012 Time of Doubles: Interview with Graham Wakefield and Haru Ji, by Tenn Bun-ki Tenn
<http://www.heath.tw/nml-article/time-of-doubles-interview-with-graham-wakefield-and-haru-ji/>

Nov 2012 Tech Watch, Reuters News.

Time of Doubles in SIGGRAPH ASIA selected as “one of best recent pictures from the world of science and technology.”

<http://www.reuters.com/news/picture/tech-watch?articleId=USRTR2V72I>

Dec 2011 SIGGRAPH Asia 2011 website: <http://siggraph.org/asia2011>

Time of Doubles selected as the representative image of the Art Gallery.

Nov 2011 Aesthetics of Sustainable Architecture, 010 Publishers, Holland.

Book collection edited by Sang Lee. Cover art is imagery of Artificial Nature: Fluid Space.

Oct 2011 THE URBAN ORGANISM Exhibition Catalog, Korea

Article “The City and the Environment as Organisms, and the Media Façade Project” featuring City Life by Yeon-Shim Chung, Art Critic.

Sep 2011 NSF National Science Foundation online: Discoveries, USA

Article “The AlloSphere Offers an Interactive Experience of Nano-sized Worlds”: Introducing Artificial Nature: Fluid Space and the Center for Nanomedicine Project along with other AlloSphere projects.

Apr 2011 AliceOn Net, Seoul, Korea

Interview with AliceOn, <http://aliceon.tistory.com/1786>. AliceOn is Korea’s primary media art and art-science culture channel (website and publication house) since 2004.

Mar 2011 type:wall Exhibition Catalog

Article “From Wall to Membrane to Net” by Sun-Young Lee, Art Critic, featuring Time of Doubles.

Also Kim Dal Jin Art Research and Consulting, daljin.com

Curatorial statement “Art as Space” featuring Time of Doubles by Won-Seok Koh, Curator.

Mar 2011 Beacon Journal and Ohio.Com, USA

Review “Art, Technology Collide” of Collider 03 exhibition including Artificial Nature: Fluid Space 2.5 by Dorothy Shinn, Art and Architecture Critic.

2010 Secrets, Dreams, Faith & Wonder, DVD, HeavenEverywhere, Santa Barbara, USA.

Video animation for music by composer Stephen Travis Pope.

Dec 2009 SIGGRAPH Asia 2009 Art Gallery Catalog

Curatorial statement “Input Output: Digital Art in Transition” highlighting Artificial Nature: Fluid Space, by Matthew Garrison, SIGGRAPH Asia Jury member:

“The relational potential of digital art is exemplified in the collaborative environmental projections of Haru Ji and Graham Wakefield. Artificial Nature is not a recorded medium like video. Instead, it is a programmed, self-sustaining, digital ecosystem with organisms that consume, grow, metabolize, reproduce and respond to activities within a dark expansive environment. Nor is Artificial Nature

entirely self-contained; the organisms are also programmed to respond, as though caught in the currents of wind or water, to the movement of viewers. The reactions and sounds of the brightly colored organisms to these movements instill in the viewers a child-like curiosity, encouraging them to personally interact with the fluid environment.”

Sep 2009 Scientific American

Article "A 360-Degree Virtual Reality Chamber Brings Researchers Face to Face with Their Data" by Julian Smith features work in the three-story-high AlloSphere in which scientists can climb inside a life-size interaction with their research. Artificial Nature is featured.

Feb 2009 TED (Technology, Entertainment and Design), Los Angeles

JoAnn Kuchera-Morin presents “Stunning data visualization in the AlloSphere”, an entirely new way to see and interpret scientific data in surround sound inside a massive metal sphere, featuring Artificial Nature as one of five projects ongoing in the AlloSphere.

External Academic Service

SIGGRAPH Art Papers Lead jury and art/paper reviewer, 2018, reviewer 2017,
ICLC (International Conference on Live Coding) **Co-chair 2016**, Steering Committee 2016-
NIME (New Instruments for Musical Expression) **Co-chair 2013**, Reviewer, 2012-2018
IEEE VR (Virtual Reality) Paper reviewer 2015-2017
Computer Music Journal, Ad-hoc article reviewer 2016-2018
ICMC (International Computer Music Conference) Reviewer, 2008-2016
SMC (Sound and Music Computing Conference) Reviewer, 2015
ISEA (International Symposium on Electronic Art) Reviewer 2015-2017
ISUVR (International Symposium of Ubiquitous Virtual Reality) Reviewer 2013
VW (International Conference on Virtual Worlds) Reviewer 2012

SSHRC (Social Sciences and Humanities Research Council, Canada) Insight Grant reviewer 2016

NSF (National Science Foundation, USA) Major Research Infrastructure Grant reviewer 2013

Open source & commercialized software

Gibberwocky (<http://gibberwocky.cc>), in collaboration with Charles Roberts (RIT, NY). Gibberwocky is a trio of environments for music programming and live-coding performance. Each of these environments targets a different software environments (Ableton Live, Max/MSP, MIDI) but share principles and APIs for musical sequencing and musical control signals. All three environments use browser-based vanilla JavaScript as the end-user programming language.

VR for Max/MSP/Jitter (open source software extension, <https://github.com/worldmaking/vr>), created within the Alice lab at York. This software extension brings full high-end VR support to the Max/MSP/Jitter environment, and has seamlessly supported both HTC Vive and Oculus Rift throughout their developer kit to commercial product lifecycles, from 2014 to the present. It has been used by numerous artists in both small and large-scale exhibitions.

Gen for Max/MSP/Jitter (software product: <http://cycling74.com/products/gen/>). Wakefield, G., Smith, W., Clayton, J. K., Zicarelli, Z. Wakefield contributed approximately 40% of the development of Gen, and 80% of “gen[™]”, from his doctoral research. For more than a decade Max/MSP/Jitter has been one of the most widely used tools by computer musicians and media artists. Gen extends the programming environment to translate user designs into efficient native machine code at each edit, without interrupting execution, to support creative flow and the exploration of previously inaccessible algorithms. Code can be exported (C++ or GLSL) to integrate with other workflows. A commercial success (tens of thousands of users between 2011 and 2014), lauded by renowned artists (Autechre, Radiohead’s Jonny Greenwood), utilized in industrial labs (BMW, Germany), and graduate courses (Stanford, Columbia, UT Dallas).

Auralizer for Vizard, WorldViz LLC, Santa Barbara USA, 2008-2012

(<http://www.virtual3d.co.kr/products/peripherals/sound.html>). 3D audio software/hardware solution using higher order Ambisonics with distance simulation, incorporated into the company’s virtual reality products. Installed for many research and industry clients world-wide.

Teaching

Graduate Teaching

York University, Canada

- DIGM 5010 Foundations of Digital media, Fall 2018
- VISA 5600 Contemporary Theory and Visual Art. Fall 2017, Fall 2018
- FILM 6246 Future Cinema II: Applied Theory (Virtual Reality). Winter 2017
- FILM 6246 Future Cinema II: Applied Theory (Virtual Reality). Winter 2016
- FILM 6246 Future Cinema II: Applied Theory (Virtual Reality). Winter 2015
- FILM 5800 / VISA 6300 Directed Reading. Cinema and Media Studies, Communication & Culture, Interdisciplinary Studies. Winter 2016, Winter 2017, Fall 2017.

Korea Advanced Institute of Science and Technology (KAIST), Republic of Korea; Graduate School of Culture Technology:

- GCT 753 Topics in Computational Design: Artificial Natures. Winter 2014.
- GCT 753 Topics in Computational Design: Artificial Natures. Winter 2013.
- GCT 501 Introduction to Culture Technology. Winter 2014.
- GCT 633 Audio and Multimedia Programming. Fall 2013.

Southern California Institute for Architecture (SCI-Arc), USA; MediaScapes program:

- VS2501 Spatial Interactive Computing. Winter 2011.
- VS2500 Fundamentals of Spatial Interactive Computing. Fall 2010.
- VS2500 Fundamentals of Spatial Interactive Computing. Fall 2009.

Graduate Supervision

York University, Canada:

At York I am appointed to several graduate programs, including Cinema & Media Arts; Visual Art &

Art History; Interdisciplinary Studies; Electrical Engineering & Computer Science; and from 2018 I will teach and supervise students from the first cohort of the new Digital Media graduate program (co-run by AMPD and Lassonde), which I helped to design.

- PhD (ongoing). Primary supervisor. David Han. Cinema and Media Studies. SSHRC CGS Doctoral Scholarship.
- PhD (ongoing). Co-supervisor.. Alison Humphreys. Cinema and Media Studies. Vanier Scholarship.
- PhD (ongoing). Co-supervisor. Reşat Fuat Çam. Cinema and Media Studies.
- PhD (ongoing). Co-supervisor. Slavica Ceperkovic. Cinema and Media Studies.
- PhD (ongoing). Co-supervisor. Alia Miroshnichenko. Communications and Culture.
- PhD (ongoing). Co-supervisor. Robert Appleton. Interdisciplinary Studies.
- PhD (ongoing). Co-supervisor. Michael Palumbo Theatre & Performance Studies.
- MFA (ongoing). Co-supervisor. Ian Jarvis. Theatre & Performance Studies.
- MFA (ongoing). Co-supervisor. Ilze Briede. Visual Arts.
- MFA, filed 2016. Thesis committee. Svoboda, Elinor: A Drop Across. Cinema and Media Studies.
- MA, filed 2017. Thesis committee. Sidrah Laldin: Perceived Acceleration in Stereoscopic Animation. Interdisciplinary Studies.

Korea Advanced Institute of Science and Technology (KAIST), Republic of Korea:

- PhD, filed 2015. Thesis supervisor. Kim, Seunghun: Tendency Design in Audio Feedback. Employed by Samsung, Korea.
- PhD, filed 2015. Thesis co-supervisor. Lee, Jeong-seob: Performative Gesture and Natural Interaction.
- MS, filed 2015. Thesis supervisor, primary supervisor. Jang, Sunga: Augmenting Gestural Strokes with Dynamics-Driven Simulations for Immersive Freeform 3D Modeling. Employed by Korea Culture Technology Institute.
- MS, filed 2014. Thesis supervisor. Jeon, Jimin: TAPIR Sound Tag: Development of an Automatic Tagging System Based on Inaudible High-frequency Sound and Its Practical Applications. Continued to PhD at KAIST.
- MS, filed 2014. Thesis supervisor, primary supervisor. Bang, So Jung: Generative Multi-screen Montage. Continued to PhD at Monash University, Melbourne, Australia (with scholarship).
- MS, transferred 2014. Thesis co-supervisor. Patrick Hutchings. Transferred to PhD at Monash University, Melbourne, Australia.
- MS, filed 2013. Thesis co-supervisor. Hong, Daeryong: The Laptop Computer as a Musical Instrument using Audio Feedback.

Undergraduate Teaching

York University, Canada; multiple programs:

- DATT 3701 Digital Media: Collaborative Game. Undergraduate. Fall 2017,-Winter 2018, Fall 2018-Winter 2019
- DATT 3700 Digital Media: Collaborative Project. Undergraduate. Fall 2016,-Winter 2017.
- DATT 4950 Artificial Life, Generative Art and Creative Code. Undergraduate. Winter 2016.
- DATT 4950 Artificial Life, Generative Art and Creative Code. Undergraduate. Fall 2016.

- DATT 3935 New Media Forms: The Database. Undergraduate. Winter 2015.□
- Sogang University, Republic of Korea; Art & Technology program:
- ANT 3010 Digital Media Art Workshop. Undergraduate. Winter 2013.

University of California Santa Barbara; College of Creative Studies:

- MUSIC CS 105:2 Art Music Video: Editing and Production. Undergraduate. Winter 2008.
- MUSIC CS 105:1 Art Music Video: Theory and Technique. Undergraduate. Fall 2007.
- MUSIC CS 105 Art Music Video. Undergraduate. Fall 2006.

Undergraduate Supervision

Independently of courses taught, I have trained and supervised a number of undergraduate students through the Alice lab since joining York. Lalaine Ulit-Destajo, Youhan Guan, and Mengmei Zhou of the Digital Media program, produced an interactive installation “Encounter” using large-screen display and full-body tracking, and an augmented reality station with 3D printed markers, to present an alternate world in which interaction leads to ecological impacts. Zachary Shron, Nick Erkelenz, Sam Bebenek, and Rory Hoy, of the Digital Media program, collaborated in the Alice lab on the production of a game “Lucid” that explores alternate modes of navigation within room-scale virtual reality. Dale Rosen of the Digital Media program collaborated on the development of software extensions for virtual reality and full body tracking., and Hongliang Zeng worked with me and graduate student David Han on the installation of a Motion Capture system. Andrew Sidsworth, Nicholas Abbruzzese, Nicole Skrypuch, and Alex Zonta of the Digital Media program, along with graduate trainees Michael Palumbo and Ian Jarvis, are working on the collaborative creativity in virtual reality project, focusing on developing a fully VR visual programming interface. Nicholas Abbruzzese, Adiola Palmer, Amir Bahador Rostami, and Filiz Eryilmaz worked with me to produce physical computing components for the “Conservation of Shadows” art installation, and Alexander Zonta and Nicole Skrypuch, along with Andrew Sidsworth and Nicholas Abbruzzese, are also assisting on the creation of a large-scale installation “Inhabitat” to be exhibited in Korea in 2018.

External Workshops

1. Live Code a Language as Instrument. The International Conference on New Interfaces for Musical Expression, Aalborg University Copenhagen, Denmark, 2017-06-15
2. Design a Mini Live Coding Language. International Conference on Live Coding, Centre 3 for Print and Media Arts, Hamilton, Canada, 2016-10-12
3. Advanced Gen Programming. TACIT media studio, Korea, 2016-07-08
4. Bridging Web-Based Visualization and 3D . Canadian Visual Analytics School (CANVAS), York University, Toronto, Canada, 2015-07-28
5. Introduction to Artificial Life. Seoul Science High School, Korea, 2015-07-06
6. Artificial Life with LuaAV. Distortion Field, Ewha University, Seoul, Korea, 2014-02-09 - 2014-02-10
7. A-Life Art and Immersive Composition. Department of Media Arts, Soongsil University, Seoul, Korea, 2011-05 - 2011-06
8. Composing from Visual Input. Department of Music, Hanyang University, Seoul, Korea, 2011-05
9. Starting out with Max/MSP/Jitter: Creating Strange Loops . AkronFilm (open to the general public), University of Akron, Ohio, USA, 2011-02
10. LuaAV: Creating real-time audio-visual instruments. California Nanosystems Institute,

- University of California Santa Barbara, USA, 2010-09
11. Introduction to programming in Lua. California Nanosystems Institute, University of California Santa Barbara, USA, 2010-09
 12. Cosm for Max/MSP/Jitter and the AlloSphere. California Nanosystems Institute, University of California Santa Barbara, USA, 2010-09
 13. Composing Artificial Natures using Cosm. Hyperbody ProtoSpace, Technical University Delft, Holland, 2010-05
 14. Worldmaking with Max/MSP/Jitter and Cosm. TransLAB, University of California Santa Barbara, USA, 2008-12

Academic Service

- York University Strategic Research Plan Committee, 2017-2018.
- VISTA research award committee, 2017-present
- VISTA (Vision Science to Applications) \$33m Canada First Research Excellence Fund
□project submission committee, 2015-2017
- Organizational Committee, Canadian Visual Analytics School (hosted by the Centre for Innovation in Information Visualization and Data-Driven Design and the Canadian Network for Visual Analytics), 2015
- Faculty Search Committee (Canada Research Chair), 2016□

Program development

- Digital Media Graduate Program, program proposal and development committee, 2015-2018
- Intermedia Program, program proposal and development committee, 2016-2018.
- Markham Centre New Campus Working Group, including Visualization, Games & New Entertainment Media program development, 2016-present

Standing committees

- York University Teaching & Research at the CineSpace Film Studios, 2016-present
- Research in Arts, Media, Performance & Design, 2014-present
- Digital Media Program Executive, 2015-present
- Visual Art & Art History, Studio Sector Committee, 2015-2017
- Visual Art & Art History, Gallery Committee, 2016
- Member, Sensorium (AMPD Organized Research Unit), 2015-present
- Member, Centre for Vision Research (cross-faculty Organized Research Unit), 2015-present
- Core member, VISTA (Vision Science to Applications) program, 2017-present

CV prepared May 2018.