Jack Atherton, Ph.D. Curriculum Vitae

Center for Computer Research in Music and Acoustics (CCRMA)
Department of Music
Stanford University
lja@ccrma.stanford.edu
http://www.jack-atherton.com

RESEARCH INTERESTS

Human-Computer Interaction; Multimedia (Video, AR, VR); Interactive Machine Learning; Research Through Design; Interaction Design; Amateur Creativity; Social Design; Audiovisual Design; Programming Languages and Tools; Sound Synthesis and Analysis; Human Flourishing and Subjective Wellbeing.

EDUCATION

Institution	Degree	Date	Field
Stanford University	Ph.D.	2022	Music, Computing, Design Group; Ph.D. Minor in Computer Science
Stanford University	M.A.	2017	Music, Science, and Technology
University of California, Berkeley	B.A.	2015	Computer Science

THESIS

Tool-Building for Amateur Creativity in VR (2022). Implications for the design of virtual reality experiences, authoring tools using interactive machine learning for creativity support, and social connection, communication, and co-creation. Web release forthcoming.

JOURNAL PUBLICATIONS

Atherton, J., & Wang, G. (2020). Doing vs. Being: A Philosophy of Design for Artful VR. *Journal of New Music Research (Special Issue on Audio-First VR)*.

SELECTED CONFERENCE PUBLICATIONS

Atherton, J. 2020. "Artful Design for Positive Design: A Case Study in VR." *Design Research Society*. Brisbane, Australia.

Atherton, J. and Wang, G. 2020. “Curating Perspectives: Incorporating Virtual Reality into Laptop Orchestra Performance.” *New Interfaces for Musical Expression*. Birmingham, UK.

Atherton, J. and Wang, G. 2018. “Chunity: Integrated Audiovisual Programming in Unity.” *New Interfaces for Musical Expression*. Blacksburg, Virginia.

Atherton, J. and Wang, G. 2018. “Chunity for Audio-first VR.” Audio-first VR Workshop: Imagining the Future of Virtual Environments for Musical Expression, at *New Interfaces for Musical Expression*. Blacksburg, Virginia.

Atherton, J. and Blikstein, P. 2017. “Sonification Blocks: A Block-Based Programming Environment for Embodied Data Sonification.” *Interaction Design and Children*. Stanford, California.

SELECTED VIRTUAL REALITY WORKS

Reality by Example. Tool and meta-environment for *folk design* via *in-situ creation*. Amateur creators use interactive machine learning to create virtual worlds by example, shaping terrain, music, and virtual creature animation and sounds. The mapping from examples to reality is learned instantaneously from the user's provided examples and updates when they change the examples or provide more. The overarching goal is to improve creation methods for amateur creators and enable them to use VR as a medium for creation, not just content consumption. https://ccrma.stanford.edu/~lja/vr/RealityByExample/

Mapping By Example. An early prototype of using interactive machine learning to generate a mapping from controllers to synthesis parameters by placing examples of desired sounds.
https://ccrma.stanford.edu/~lja/vr/MappingByExample/

VRAPL. Block-based sculptural programming language, used from within VR to manipulate the virtual world with sound.
https://ccrma.stanford.edu/~lja/vr/VRAPL/

12 Sentiments for VR. Extended aesthetic exploration of the emotional life cycle of a plant. Users embody vines, seedlings, wind, and earth as they grow, cross the world, become lost, and find their way home again. The piece creates space for self-expression and exploration through making music. It also creates space for being, a deep stillness resulting from calm and intentional, inward reflection.
https://ccrma.stanford.edu/~lja/vr/12SentimentsForVR/

Resilience. Performance for laptop orchestra and one VR performer. The piece is an exploration of resilience through traumatic life events, finding peace and joy in small moments, and reconnecting with the ability to grow. https://ccrma.stanford.edu/~lja/vr/Resilience/

AWARDS

NSF Graduate Research Fellowship Recipient

UC Berkeley Computer Science Departmental Citation

WORK EXPERIENCE

2021 June—December. HCI Research Intern. Adobe.

Began forming new research agenda for audio, interaction, and AR. Conducted an exploratory research project on authoring methods for audio AR scenes.

2015—Present. Graduate Student and Research Assistant. Stanford University. Department of Music. Full-time research; teaching.

2016 Summer. Research & Development Intern. Shazam.

Created a suite of algorithms for generating playlists based on musical similarity and social data.

2014 Summer. Software Engineer Intern. Twilio.

Architected and built two full-stack video conferencing web apps using custom SIP signaling and presence service, testing internal video call infrastructure.

2013 Summer. Software Engineer Intern. Facebook.

Redesigned, rewrote, and maintained the video encoder as the sole video encoding engineer.

TEACHING EXPERIENCE

Teaching Assistant – **Stanford University** – 2017-2019

Stanford Laptop Orchestra: Composition, Coding, and Performance (for Ge Wang). Spring 2019.

Interaction - Intermedia - Immersion (for Patricia Alessandrini). Winter 2019.

Music, Computing, Design I: The Art of Design (for Ge Wang). Fall 2018.

Research Seminar in Computer-Generated Music (for Chris Chafe). Spring 2018.

Elements of Music I (for Erik Ulman). Winter 2018.

Music, Computing, Design I: Art of Design for Computer Music (for Ge Wang). Fall 2017.