Jeremy Hartmann, Curriculum Vitae

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PhD, University of Waterloo
Human-Computer Interaction, Graphics, AR/MR/VR/XR
Cheriton School of Computer Science

Degrees

PhD Computer Science, University of Waterloo   *2016 - 2021*
Cheriton School of Computer Science

B.S. Computer Science, Simon Fraser University   *2011-2016*
with an extended minor in music composition and electroacoustics
✱ DEAN'S HONOUR LIST

Professional Experience

CEO / Founder, Kitchener, 2021 - *present*
mtion interactive inc.
Virtual clubhouses for streamers

past

Research Assistant, University of Waterloo, *2016 - December 2021*
Human-Computer Interaction, Graphics, Computer Vision
Cheriton School of Computer Science

Research Intern, San Francisco, *May - September 2019*
Adobe Research
Human-computer interaction, graphics, 360° video, and virtual reality

Research Intern, Redmond, *May - September 2018*
Microsoft Research
Human-computer interaction, graphics, computer vision, and virtual reality

Research Assistant, Simon Fraser University, *April - August 2016*
Computational Vision Lab
Deep learning for colour vision

Computer Scientist, Vancouver, *2014 - 2015*
Simba Technologies
SQL drivers, unicode collation algorithm (UCA)

Audio Researcher, Simon Fraser University, *2013 - 2014*
The Secret Doctrine
Interactive audio interfaces for live performance

Scholarships and Awards

NSERC Doctoral Postgraduate Scholarship (PGS-D), 2020
$63,000 over 36 months based on research potential (Top 3% of applicants)

President's Graduate Scholarship (PGS), 2020
$30,000 over 36 months based on academic and research merit

Ontario and Queen Elizabeth II Graduate Scholarship (OGS/QEII-GSST), 2020
$15,000 over 12 months. Declined in lieu of NSERC PGS-D

Adobe Research Fellowship Finalist, 2019
Top candidate

Graduate Student Organization Travel Award, 2018
$500 for travel assistance to CHI

Exceptional Teaching Assistant Award, 2018
$500 for demonstrating initiative and leadership

David R. Cheriton Graduate Scholarship, 2017
$10, 000 scholarship based on academic merit

Math Domestic Graduate Student Award
$30, 000 over 5 years. Awarded to incoming Canadian graduate students.

Marcia Award in Electroacoustics, 2013
$500 award based on exceptional achievement

SFU Undergraduate Scholarship, 2012
$1000 scholarship based on academic merit

Publications

Peer-reviewed Conference Proceedings
Note about venues: CHI (the ACM Conference on Human Factors in Computing Systems) and UIST (the ACM Symposium on User Interface Software and Technology) are both recognized as very top tier HCI conferences (Google Scholar and Microsoft Academic both rank them as #1 and #3). The average acceptance rate for CHI is 23% and UIST 21%.

C5   **Hartmann, J.**, & Vogel, D. (2022). *Enhanced Videogame Livestreaming by Reconstructing an Interactive 3D Game View for Spectators*. In CHI Conference on Human Factors in Computing Systems (CHI '22), April 29- May 5, 2022, New Orleans, LA, USA. ACM, New York, NY, USA, 14 pages. https://doi.org/10.1145/3491102.3517521

C4   **Hartmann, J.**, Gupta, A., & Vogel, D. (2020). *Extend, Push, Pull: Smartphone Mediated Interaction in Spatial Augmented Reality via Intuitive Mode Switching*. Proceedings of the 2020 Symposium on Spatial User Interaction - SUI '20. https://doi.org/10.1145/3385959.3418456

C3   **Hartmann, J.**, Yeh, Y., & Vogel, D. (2020). *AAR: Augmenting a Wearable Augmented Reality Display with an Actuated Head-Mounted Projector*. Proceedings of the 33rd Annual ACM Symposium on User Interface Software and Technology - UIST '20. https://doi.org/10.1145/3379337.3415849

C2   **Hartmann, J.**, Diverdi, S., Nguyen, C., & Vogel, D. (2020). *View-Dependent Effects for 360◦ Virtual Reality Video*. Proceedings of the 33rd Annual ACM Symposium on User Interface Software and Technology - UIST '20. https://doi.org/10.1145/3379337.3415846

C1   **Hartmann J.**, Holz C., Ofek E., and Wilson A. D. 2019. *RealityCheck: Blending Virtual Environments with Situated Physical Reality*. In CHI Conference on Human Factors in Computing Systems Proceedings (CHI 2019), May 4–9, 2019, Glasgow, Scotland Uk. ACM, New York, NY, USA, 12 pages. https://doi.org/10.1145/3290605.33005771

Peer-reviewed Journal Articles

J2   Fennedy, K., **Hartmann, J.**, Roy, Q., Perrault, S. T., & Vogel, D. (2021). *OctoPocus in VR: Using a Dynamic Guide for 3D Mid-Air Gestures in Virtual Reality*. IEEE Transactions on Visualization and Computer Graphics, PP, 1−1. https://doi.org/10.1109/TVCG.2021.3101854

J1   **Hartmann, J.**, & Vogel, D. (2021). *An examination of mobile phone pointing in surface mapped spatial augmented reality*. International Journal of Human-Computer Studies, 153, 102662. https://doi.org/10.1016/j.ijhcs.2021.102662

Posters, Demonstrations, Editorials, Other Adjunct Publications

O3   Wentzel, J., Kim, D., & **Hartmann, J.** (2021). *Same Place, Different Space: Designing for Differing Physical Spaces in Social Virtual Reality*. Workshop on Social VR. CHI'21.

O2   **Hartmann, J.**, & Vogel, D. (2018). *An Evaluation of Mobile Phone Pointing in Spatial Augmented Reality*. In Extended Abstracts of the 2018 CHI Conference on Human Factors in Computing Systems - CHI '18 (pp. 1−6). New York, New York, USA: ACM Press.

O1   **Hartmann, J.**, Surale, H. B., Gupta, A., & Vogel, D. (2018). *Using Conformity to Probe Interaction Challenges in XR Collaboration*. Workshop on Novel Interaction Techniques for Collaboration in VR. CHI'18.

Thesis

T1   **Hartmann, J.** (2022). *Merging the Real and the Virtual: An Exploration of Interaction Methods to Blend Realities*. UWSpace. http://hdl.handle.net/10012/17926.

Patents

P1   Andrew D. Wilson, Christian Holz, Eyal Ofek, **Jeremy Hartmann**. 2021. *Blending Virtual Environments with Situated Physical Reality*. U.S. Patent 11,004,269

Teaching

Lecturer, University of Waterloo, *2016 -*
Select classes from CS105 an introduction to programming course, 2017, 2018
Select classes from CS383 a senior-level course on computational art, 2018, 2019, 2020, 2021

Instructional Apprentice, University of Waterloo, *2016 -*
3rd year computer science course in human-computer interaction (CS349), 2017. 2018
1st year computer science course (CS105), 2016, 2017, 2018

Teaching Assistant, University of Waterloo, *2016 -*
3rd year computer science course in human-computer interaction (CS349)
3rd year computer science course in computational art (CS383)

Supervision

Ziwei Han, University of Waterloo (undergraduate), *Sep 2018 - Dec 2018*
"Exploration in head-mounted projection mapping."

Jimmy Shan, University of Waterloo (undergraduate), *Jan 2019 - May 2019*
"Novel interactions in head-mounted spatial augmented reality."
- Now at SFU SIAT for CS Masters

Daekun Kim, University of Waterloo (undergraduate), *Sept 2020 - Dec 2020*
"Factors of human depth perception in virtual reality ."

Leo Wang, University of Waterloo (undergraduate), *Jan 2021 - May 2021*
"Principles of debugging and type conversion when reverse engineering graphic pipelines."

Review and Service

Conference Reviews
Reviewer, ACM Conference on Human Factors in Computing Systems (CHI), 2022
   ✱ **Special Recognition for Outstanding Review**
Reviewer, ACM Special Interest Group on Computer Graphics and Interactive Techniques
  Conference Posters (SIGGRAPH), 2021
Reviewer, ACM Interactive Surfaces and Spaces (ISS), 2021
Reviewer, IEEE Conference on Virtual Reality and 3D User Interfaces (IEEE VR), 2021
Reviewer, ACM Conference on Human Factors in Computing Systems (CHI), 2021
Reviewer, ACM Interactive Surfaces and Spaces (ISS), 2020
Reviewer, ACM Symposium on User Interface Software and Technology (UIST), 2020
Reviewer, ACM Symposium on Computer-Human Interaction in Play (CHI PLAY), 2020
Reviewer, ACM Conference on Human Factors in Computing Systems (CHI), 2020
Reviewer, ACM Interaction Design and Children (IDC), 2019

Reviewer, ACM Conference on Human Factors in Computing Systems (CHI), 2019
Reviewer, ACM International Conference on Interactive Surfaces and Spaces (ISS), 2018

Student Volunteer

Student volunteer, ACM User Interface Software and Technology Symposium (UIST), 2018

Press

Note: only a representative sample of press is listed below.

re: *C5* Enhanced Videogame Livestreaming

Gizmodo, "Research Lets Viewers Move Around a Live Video Game Stream Without Needing to Install the Game", May 2022

TechSpot, "Researchers develop a way to view livestreamed video games from any angle", May 2022

Select Compositional Works (Non-research)

Chamber

MC6 *Backstitch (10'), Soprano, Viola, Piano*

MC5 *Altered Horizons (8'),* Alto/Bari Saxophone, Piano, Percussion

MC4 *Crux Intrerpertum (5'),* Clarinet, Violin, Cello, Piano

MC3 *Made from Concentrate* (6'), String Quartet

MC2 *Cluster M81* (8'), String Quintet

MC1 *Response to an inFlux of Concentrated Energy* (6'), Flute, Alto Saxophone, Double Bass

Electroacoustic

ME5 *Lorem ipsum dolor sit (10'),* for eight laptop computers

ME4 *In Abstraction,* for laptop computer and ukulele

ME3 *I Am* (8'), for octophonic tape and cello

ME2 *Dysthymia* (7'), for octophonic tape (*published in CEC JTTP 2013*)

ME1 *In Reciprocity* (7'), for laptop, iPad, and dancer

Dance

MD2 *Entropy* (2013), Vancouver, Moberly Arts Centre

MD1 *Cluster M81* (2012), Vancouver, Goldcorp Centre for the Arts

Theatre

MT2 *The Secret Doctrine* (2013), Vancouver, Goldcorp Centre for the Arts

MT1 *Get Away* (2013), Vancouver, Goldcorp Centre for the Arts

Portfolio

research and music composition portfolio available

www.jjhartmann.org