Austin Erickson
Curriculum Vitae—January 13, 2023

Personal Information

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Google Scholar:	https://scholar.google.com/citations?user=wMzEzmYAAAAJ&hl=en

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Academic Studies and Degrees

Exp. by 04/2023	**Doctor of Philosophy in Computer Science**
	University of Central Florida, Orlando, Florida, United States
	Committee Members: Greg Welch, Gerd Bruder, Carolina Cruz-Neira, Dirk Reiners
05/2021	**Master of Science in Computer Science**
	University of Central Florida, Orlando, Florida, United States
07/2018	**Bachelor of Science in Computer Science**
	University of South Florida, Tampa, Florida, United States

Professional Positions

08/2018–Present	**Graduate Research Assistant**
	Synthetic Reality Lab (SREAL), *University of Central Florida*, United States
	Conducted human-subjects research to understand how a user's viewing conditions affects their user experience when viewing virtual imagery shown on augmented reality (AR) and virtual reality (VR) displays. Developed and tested perceptual models for AR displays that consider how the user's perception of AR imagery is influenced by the interaction between their AR display and their physical environment. Developed unity-based applications to simulate the appearance of AR virtual imagery in variable lighting conditions, and configurations of display parameters. Implemented various projects using the Unity game engine, C#, C++, Vuforia, and Cg/HLSL, including a cave automatic virtual environment (CAVE), foveated rendering for the HoloLens 2, and other AR and VR based experiences for head-

mounted displays and mobile AR. Conducted statistical analyses on large data sets using python, MATLAB, and/or SPSS. Supervised and mentored teams of students in implementing and completing research projects as a part of the NSF summer REU program.

01/2018–07/2018   ***Undergraduate Research Assistant***
Advancing Machine and Human Reasoning Lab (AMHR), *University of South Florida*, United States
Upgraded the networking capabilities of a unity engine based training environment for AI agents. Prototyped software-based methods of identifying potentially ambiguous words and phrases within commands given to intelligent agents using python and wordnet.

05/2014–07/2018   ***Certified Ophthalmic Assistant***
Center for Sight, Sarasota, Florida, United States
Performed eye function examinations on patients to diagnose vision related pathology prior to their consultation and/or surgery with the ophthalmologist. Routine testing included visual acuity, color vision, stereopsis, visual field, ocular alignment/movement, and pupillometry testing, as well as diagnostic imaging such as optical coherence tomography (OCT), fundus photography, and corneal topography.

Awards and Honors

10/2019   **Best Paper Award** for "Effects of Shared Gaze Parameters on Visual Target Identification Task Performance in Augmented Reality" at the ACM Conference on Spatial User Interfaces (SUI) 2019.

07/2019   **Graduate Presentation Fellowship** for presentation at 2019 IEEE International Symposium on Mixed and Augmented Reality in Beijing, China. Awarded by the University of Central Florida, Orlando, Florida, United States

Professional Service

- **Conference and Workshop Organization**

  - 2022 IEEE International Symposium on Mixed and Augmented Reality Poster Track - Technical Program Committee Member
  - 2020 International Conference on Artificial Reality and Telexistence & Eurographics Symposium on Virtual Environments (ICAT-EGVE) 2020 - Streaming Chair
  - Computing Community Consortium's (CCC) Content Generation for Workforce Training workshop, March 2019 - Invited Workshop Participant

- **Journal Reviewer**

  - IEEE Transactions on Visualization and Computer Graphics (TVCG)
  - Journal of NeuroEngineering and Rehabilitation
  - International Journal of HCI
  - Clinical Ophthalmology

- **Conference Reviewer**

  - IEEE Virtual Reality and 3D User Interfaces (VR) 2020-2022
  - IEEE International Symposium on Mixed and Augmented Reality (ISMAR) 2020-2022
  - ACM CHI Conference on Human Factors in Computing Systems (CHI) 2020-2022
  - ACM Symposium on User Interface Software and Technology (UIST) 2020
  - ACM NordiCHI: Nordic Conference on Human-Computer Interaction 2020
  - ACM Symposium on Virtual Reality Software and Technology (VRST) 2020
  - ACM International Conference on Intelligent Virtual Agents (IVA) 2020
  - ACM Spatial User Interaction (SUI) 2020-2021

- **Professional Associations**

  - Professional Member, Association for Computing Machinery (ACM)
  - Graduate Student Member, Institute of Electrical and Electronics Engineers (IEEE)
  - Student Member, The International Society for Optics and Photonics (SPIE)
  - Student Member, The Society for Information Display (SID)

Publications
(ordered by type and year; descending order)

Journals (Peer-Reviewed)

2021

[1] Austin Erickson, Gerd Bruder, and Greg Welch. Modeling luminance contrast for optical see-through displays. *Computers and Graphics*, Currently under review:1–11, 2022.

[2] Austin Erickson, Gerd Bruder, and Greg Welch. Analysis of the saliency of color-based dichoptic cues in optical see-through augmented reality. *IEEE Transactions on Visualization and Computer Graphics*, pages 1–16, 2022.

[3] Yifan Li, Kangsoo Kim, Austin Erickson, Nahal Norouzi, Jonathan Jules, Gerd Bruder, and Greg Welch. A scoping review of assistance and therapy with head-mounted displays for people who are visually impaired. *ACM Trans. Access. Comput.*, feb 2022. Just Accepted.

[4] Tabitha Peck, Jessica Good, Austin Erickson, Isaac Bynum, and Gerd Bruder. Effects of transparency on perceived humanness: Implications for rendering skin tones using optical see-through displays. *IEEE Transactions on Visualization & Computer Graphics*, (01):1–11, Feb 2022.

2021

[1] Norouzi Nahal, Gerd Bruder, Austin Erickson, Kangsoo Kim, Jeremy Bailenson, Pamela Wisniewski, Charlie Hughes, and Greg Welch. Virtual animals as diegetic attention guidance mechanisms in 360-degree experiences. *IEEE Transactions on Visualization and Computer Graphics*, 27(11):4321–4331, 2021.

[2] Austin Erickson, Kangsoo Kim, Alexis Lambert, Gerd Bruder, Michael Browne, and Greg Welch. An Extended Analysis on the Benefits of Dark Mode User Interfaces in Optical See-Through Head-Mounted Displays. *ACM Transactions on Applied Perception*, 18(3), May 2021.

2020

[1] Austin Erickson, Nahal Norouzi, Kangsoo Kim, Ryan Schubert, Jonathan Jules, Joseph LaViola, Gerd Bruder, and Greg Welch. Sharing Gaze Rays for Visual Target Identification Tasks in Collaborative Augmented Reality. *Journal on Multimodal User Interfaces*, pages 1–19, 2020.

[2] Austin Erickson, Nahal Norouzi, Kangsoo Kim, Joseph LaViola, Gerd Bruder, and Greg Welch. Understanding The Effects of Depth Information in Shared Gaze Augmented Reality Environments. *IEEE Transactions on Visualization and Computer Graphics (TVCG)*, 26 (5):1934–1944, 2020.

Conference Proceedings (Peer-Reviewed)

2021

[1] Connor Flick, Courtney Harris, Nikolas Yonkers, Nahal Norouzi, Austin Erickson, Zubin Choudhary, Matt Gottsacker, Gerd Bruder, and Greg Welch. Trade-offs in augmented reality user interfaces for controlling a smart environment. In *Symposium on Spatial User Interaction*, SUI '21, New York, NY, USA, 2021. Association for Computing Machinery.

[2] Austin Erickson, Kangsoo Kim, Gerd Bruder, and Greg Welch. Beyond visible light: User and societal impacts of egocentric multispectral vision. In *Virtual, Augmented and Mixed Reality*, pages 317–335. Springer International Publishing, 2021.

2020

[1] Austin Erickson, Kangsoo Kim, Gerd Bruder, and Greg Welch. A Review of Visual Perception Research in Optical See-Through Augmented Reality. In *Proceedings of ICAT-EGVE 2020 - International Conference on Artificial Reality and Telexistence and Eurographics Symposium on Virtual Environments*, pages 1–9. The Eurographics Association, 2020.

[2] Nahal Norouzi, Kangsoo Kim, Gerd Bruder, Austin Erickson, Zubin Choudhary, Yifan Li, and Greg Welch. A Systematic Literature Review of Embodied Augmented Reality Agents in Head-Mounted Display Environments. In *Proceedings of ICAT-EGVE 2020 - International Conference on Artificial Reality and Telexistence and Eurographics Symposium on Virtual Environments*. The Eurographics Association, 2020.

[3] Austin Erickson, Kangsoo Kim, Gerd Bruder, and Greg Welch. Exploring the Limitations of Environment Lighting on Optical See-Through Head-Mounted Displays. In *Proceedings of ACM Conference on Spatial User Interfaces (SUI)*, pages 1–8, 2020.

[4] Austin Erickson, Gerd Bruder, Pamela Wisniewski, and Greg Welch. Examining Whether Secondary Effects of Temperature-Associated Virtual Stimuli Influence Subjective Perception of Duration. In *Proceedings of IEEE Conference on Virtual Reality and 3D User Interfaces (VR)*, pages 493–499, 2020.

[5] Austin Erickson, Kangsoo Kim, Gerd Bruder, and Greg Welch. Effects of Dark Mode Graphics on Visual Acuity and Fatigue with Virtual Reality Head-Mounted Displays . In *Proceedings of IEEE Conference on Virtual Reality and 3D User Interfaces (VR)*, pages 434–442, 2020.

2019

[1] Austin Erickson, Ryan Schubert, Kangsoo Kim, Gerd Bruder, and Greg Welch. Is It Cold in Here or Is It Just Me? Analysis of Augmented Reality Temperature Visualization for Computer-Mediated Thermoception. In *Proceedings of IEEE International Symposium on Mixed and Augmented Reality (ISMAR)*, pages 202–211, 2019.

[2] Nahal Norouzi, Kangsoo Kim, Myungho Lee, Ryan Schubert, Austin Erickson, Jeremy Bailenson, Gerd Bruder, and Greg Welch. Walking Your Virtual Dog: Analysis of Awareness and Proxemics with Simulated Support Animals in Augmented Reality. In *Proceedings of IEEE International Symposium on Mixed and Augmented Reality (ISMAR)*, pages 157–168, 2019.

[3] Nahal Norouzi, Austin Erickson, Kangsoo Kim, Ryan Schubert, Joseph LaViola, Gerd Bruder, and Greg Welch. Effects of Shared Gaze Parameters on Visual Target Identification Task Performance in Augmented Reality. In *Proceedings of the 2019 ACM Symposium on Spatial User Interaction (SUI)*, pages 1–11, 2019.

[4] Kangsoo Kim, Austin Erickson, Alexis Lambert, Gerd Bruder, and Greg Welch. Effects of Dark Mode Visualization on Visual Fatigue and Acuity in Optical See-Through Head-Mounted Displays. In *Proceedings of the 2019 ACM Symposium on Spatial User Interaction (SUI)*, pages 1–9, 2019.

Tutorial, Demo Papers, and Other Presentations

[1] Jesus Ugarte, Nahal Norouzi, Austin Erickson, Gerd Bruder, and Greg Welch. Distant hand interaction framework in augmented reality. In *2022 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW)*, pages 962–963, 2022.

[2] Austin Erickson, Dirk Reiners, Gerd Bruder, and Greg Welch. Augmenting human perception: Mediation of extrasensory signals in head-worn augmented reality. In *2021 IEEE International Symposium on Mixed and Augmented Reality Adjunct (ISMAR-Adjunct)*, pages 373–377, 2021.

[3] Austin Erickson, Kangsoo Kim, Gerd Bruder, and Greg Welch. Dark/Light Mode Adaptation for Graphical User Interfaces on Near-Eye Displays. In *ICAT-EGVE 2020 - International Conference on Artificial Reality and Telexistence and Eurographics Symposium on Virtual Environments - Posters and Demos*. The Eurographics Association, 2020.

[4] Kangsoo Kim, Austin Erickson, and Nahal Norouzi. Developing embodied interactive virtual characters for human-subjects studies. In *2020 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW)*, pages 1–1. IEEE Computer Society, March 2020.