Hunter Finney

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Extended Reality Researcher with 7+ years of laboratory and development experience in leading projects from proposal to publication. My interdisciplinary research focuses on understanding how humans perceive, remember, navigate, and interact with real and virtual environments.

Education

PhD Computing – Human Centered Computing — **University of Utah**
Advisors: Sarah Creem-Regehr, PhD; Jeanine Stefanucci, PhD — *Expected May 2025*

B.S. Computer Science — **University of Mississippi**
Advisor: J. Adam Jones, PhD — *May 2020*

Course Highlights: Advanced Human Computer Interaction, Advanced Human Cognition, Virtual Reality (VR), Computer Vision, Discrete Math, Calculus IV

Technical Experience: Unity 3D, C#, Java, Python, C++, HTML, CSS, R, SPSS, Excel, LaTEX, Leap Motion, Varjo (VR-3, XR-3), Magic Leap 2, Meta/Oculus (Quest Pro, Rift DK1, Rift DK2, CV1, Quest 1, Quest 2), Valve Index, Pimax 8k, HTC Vive (Pro, Pro Eye, Pro 2, Focus), FakeSpace Wide5, NVIS nVisor SX60

Employment & Research Experience

Vision, Audition, & Action in Space & Time (VAAST) Lab — **Salt Lake City, UT**
Graduate Research Assistant — *August 2020 - Present*

Designing Virtual Worlds for Children - Funded by National Science Foundation

- Maintained and improved existing virtual environments to study children's action and perception in VR with an emphasis on creating an enjoyable experience.
- Designed and coded a co-located experiment to investigate the differences between reaching judgments in the real world, video pass-through AR, and high-fidelity VR using Varjo XR-3's hand tracking.

Evaluating the efficacy of simulated AR cueing in VR - Funded by U.S. Army Research Office and U.S. Army Research Laboratory

- Implemented eye-tracking and other experimental methodology to gauge the efficacy of different forms of heads-up displays.
- Designed and made experimenter UI to maintain critical information during a research subject such as trial information, notes, and status updates.

Effect of Hearing on Sensory Integration for Navigation - Funded by National Research Service Award

- Created a series of experiments exploring multisensory integration in VR in Unity 3D with a Varjo-XR3 and a wireless Vive Pro with both audio and visual landmarks.

Impact of HMD's Interpupillary Distance on Visual Perception in VR

- Investigated HMD ocular properties across a wide range of headsets.
- Used mathematical properties of HMDs to compare to human performance across perception tasks.

Using Sound for Distance Judgments in VR

- Created two experiments that investigated how vision interacts with audition in VR when perceiving distance.

FedEx Services **Memphis, TN**

Intern Information Technology *Summer 2019*

- Created UX prototypes for devices of real time package tracking.

High Fidelity Virtual Environments (Hi5) Lab **Oxford, MS**

Computer Science Research Experience Intern (CREX) *August 2018 - May 2020*

- Published work in IEEE on studying the Ebbinghaus illusion in VR to validate the Two-streams hypothesis in visual perception.
- Assisted in development in multiple master's and honor's projects on VR focused on vection and distance perception.
- Held office hours to teach VR development in Unity to students.
- Led teams to communicate VR applications to both businesses and educators.

Undergraduate Research Assistant **Oxford, MS**

August 2016 - May 2018

- Created foundational 3D models for repeated use in future experiments replicating existing physical architecture to a submillimeter accuracy.
- Utilized video editing and recording software to develop a video presentation shown at IEEE 2018.
- Created and demoed VR showcases for CSpire Tech Experience 2018.

Journal and Conference Articles

Stefanucci, J. K., Brickler, D., **Finney, H. C.**, Wilson, E., Drew, T., & Creem-Regehr, S. H. (2022). Effects of simulated augmented reality cueing in a virtual navigation task. *Frontiers in Virtual Reality*, Sec. Virtual Reality and Human Behaviour. Doi:10.3389/fvir.2022.971310.

Gagnon, H. C., Rohovit, T., **Finney, H.**, Zhao, Y., Franchak, J. K., Stefanucci, J. K., Creem-Regehr, S. H., & Bodenheimer, R. E. (2021). The effect of feedback on estimates of reaching ability in virtual reality. *Proceedings of the 2021 IEEE Virtual Reality (VR)*, Lisbon, Portugal.

Rohovit, T., Gagnon, H., **Finney, H.**, Zhao, Y., Franchak, J., Stefanucci, J., & Bodenheimer, B. (2021). Integrating feedback to improve reaching estimates in virtual reality. *Journal of Vision, 21*(9), 2162-2162.

Finney, H., & Jones, J. A. (2020, March). Asymmetric effects of the Ebbinghaus illusion on depth judgments. In 2020 IEEE Conference on Virtual Reality and 3D User Interfaces (VR) (pp. 573-578). IEEE.

Hopper, J. E., **Finney, H.**, & Jones, J. A. (2019, March). Field of view and forward motion discrimination in virtual reality. In 2019 IEEE conference on virtual reality and 3D user interfaces (VR) (pp. 1663-1666). IEEE.

McMillian, M., **Finney, H**., Hopper, J., & Jones, J. A. (2018, March). The Depth Light. In 2018 IEEE Conference on Virtual Reality and 3D User Interfaces (VR) (pp. 834-835). IEEE Computer Society.

Manuscripts in Preparation

Whitaker, M., **Finney, H.**, Elston, J., Epperson, L., Creem-Regehr, S. H., & Stefanucci, J. K. (in prep). The perceptual fidelity of affordance judgments in real and virtual environments.

Shayman, C. S., McCracken, M. K, **Finney, H. C.,** Katsanevas, A. M., Fino, P. C., Stefanucci, J. K., & Creem-Regehr, S. H. (in prep). Effects of Older Age on Visual and Self-Motion Sensory Cue Integration in Navigation

Finney, H. C., Gagnon, H. C., Creem-Regehr, S. H., Bodenheimer, R. E. & Stefanucci, J. K. (in prep). Children's Calibration of Reaching Estimates in Virtual Reality

Presentations

McCracken, M. K., **Finney, H. C.**, Creem-Regehr, S. H., & Stefanucci, J. K. (2023, November). Assessing Visual Capture of Audiovisual Distance Perception in Virtual Reality. Oral Presentation at the Psychonomic Society Annual Meeting, San Francisco, CA.

Shayman, C. S., McCracken, M. K., Carter, L. C., **Finney, H. C.**, Fino, P. C., Stefanucci, J. K., & Creem-Regehr, S. H. (2023, November) hEAR Today, Gone Tomorrow: The Relationship between Subjective and Objective Confidence in Auditory-based Navigation. Oral Presentation at the Auditory, Perception, Cognition, and Action Meeting (APCAM), San Francisco, CA.

Shayman, C. S, McCracken, M. K., Katsanevas, A., Carter, L. C., **Finney, H. C.**, Fino, P. C., Stefanucci, J. K., and Creem-Regehr, S. H. (2023, September). *Relative Reliability of Auditory and Self-Motion Cues for Navigation*. Talk presented at the 30th Anniversary of the University of Utah MD-PhD Program Retreat, Deer Valley, UT.

Shayman, C. S., **Finney, H. C.**, Fino, P. C., Stefanucci, J. K., & Creem-Regehr, S. H. (2022, November). *Sensory integration for navigation: Aging and virtual reality*. Talk presented at the annual meeting of the Psychonomic Society.

Gagnon, H. C., **Finney, H. C.**, Bodenheimer, R., Stefanucci, J. K., & Creem-Regehr, S. H. (2022, November). *Calibration of Passability Judgments in Virtual Reality Transfers to Augmented Reality*. Talk presented at the annual meeting of the Psychonomic Society.

Whitaker, M., **Finney, H. C.**, Elston, J., Epperson L., Stefanucci, J. K., & Creem-Regehr, S. H. (2022, November). *The Perceptual Fidelity of Affordance Judgments in Real and Virtual Environments.* Talk presented at the annual meeting of the Psychonomic Society.

Teaching Experience

PSY 3172 Human Performance & Engineering — **University of Utah**

Teaching Mentorship, 40 Students — Spring 2023

A course about cognitive abilities and limitations for humans and how to apply those aspects of cognition to real-world problems.

CS 2100 Discrete Structures — **University of Utah**

Teaching Mentorship, 200 Students — Fall 2023

An introduction to the discrete mathematics and structures that are at the foundation of computer science, as well as logical thinking about discrete objects for problem solving.

Professional Affiliation

Psychonomic Society

IEEE VR, 2022 Reviewer

ISMAR, 2020 Reviewer

Awards & Achievements

McLean VR Scholarship – 2019

CSpire Scholarship – 2019