Haley Adams

Enthusiastic researcher, diligent developer, and strong interdisciplinary collaborator
Special expertise with virtual & augmented reality (VR|AR), experimental design, perceptual psychology, and accessibility

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Education

PhD in Computer Science | Vanderbilt University — Expected 2022
- Thesis - Designing Mixed Reality to Improve Spatial Perception and Accessibility
- Microsoft Research Dissertation Grant Recipient
- Advisor: Bobby Bodenheimer

BSc in Computer Science | Rhodes College — 2011 - 2015
- Advisor: Betsy Williams Sanders

Honors & Awards

Microsoft Research Dissertation Grant, Microsoft — 2021 - present
Academic Merit Scholarship, Vanderbilt University — 2016 - present
Vanderbilt IBM Fellowship, Alumni Association — 2016 - 2020
Google Education's igniteCS Award, Google — 2015, 2016
DREU Award Recipient, Computer Research Association — 2013
Presidential Scholarship, Rhodes College — 2011 - 2015
Best Research Poster, ACM Symposium on Applied Perception (SAP) — 2015

Professional Experience

Graduate Research Assistant — Vanderbilt University
Department of Computer Science — 2016 - present
- Project 1: Isolated properties of AR displays that distort depth perception
- Project 2: Developed an eye-tracked MR vision simulation to assist accessibility evaluations for real and virtual products
- Project 3: Developed a deep learning walking-in-place system for infinite locomotion in VR
- Project 4: Designed an interface for visualization of ear anatomy in medical training
- Project 5: Revealed behavioural differences in children's motor recalibration after VR exposure

Magic Lab Intern — Sony Interactive Entertainment
PlayStation Research & Development — 2019
- Conducted preliminary data collection and cleaning for reinforcement learning project

Undergraduate Research Assistant — Rhodes College
Department of Math and Computer Science — 2015 - 2016
- Integrated Oculus Rift DK2 and WorldViz PPT Tracking System to create collaborative experience
- Evaluated how virtual reality affects collaboration when users are unable to meet their collaborators in person prior

Director, Instructor — Google, Rhodes College
Camp Codette — 2015 - 2016
- Founded a persisting summer coding program for middle and high school girls in Memphis, TN
- Formulated curriculum, led teams of undergraduate counselors, and instructed learning sessions
- Provided insights to Google Education and conferred pedagogical strategies for retention in CS

Front End Web Developer — Rhodes College
Crossroads to Freedom Digital Archive — 2013 - 2015
- Designed conceptual wireframes and coded front-end interfaces for archive app and website
- Incorporated feedback from development team. Instructed team in new HTML and CSS frameworks

Undergraduate Research Assistant — University of Minnesota
Department of Computer Science — 2013
- Awarded position through CRA's Distributed Research Experiences for Undergraduates (DREU) program
- Advised by Victoria Interrante. Conducted research on the use of VR for neurocognitive assessment

Technical Skills

Programming Languages C# · Python · R · Latex · HTML · CSS · C++ · OpenGL

3D and 2D Design Unity Game Engine · Photoshop · Blender

Publications

Journal & Conference Proceedings

- **Haley Adams**, Jeanine Stefanucci, Sarah Creem-Regehr, and Bobby Bodenheimer. Depth Perception in Augmented Reality: The Effects of Display, Shadow, and Position. *IEEE Virtual Reality (VR).* 2022.
- **Haley Adams**, Holly Gagnon, Jeanine Stefanucci, Sarah Creem-Regehr, and Bobby Bodenheimer. Stay in Touch! Shape and Shadow Influence Surface Contact in XR Displays. *IEEE Transactions on Visualization and Computer Graphics (TVCG).* 2021. [In Preparation]
- **Haley Adams**, Jeanine Stefanucci, Sarah Creem-Regehr, Grant Pointon, William Thompson,and Bobby Bodenheimer. Shedding Light on Cast Shadows: An Investigation of Perceived Ground Contact in AR and VR. *IEEE Transactions on Visualization and Computer Graphics (TVCG).* 2021.
- **Haley Adams**. Resolving Cue Conflicts in Augmented Reality. *IEEE Virtual Reality Abstracts and Workshops* . 2020.
- Gayathri Narasimham, **Haley Adams**, John Rieser, and Bobby Bodenheimer. Encoding Height: Egocentric Spatial Memory of Adults and Teens in a Virtual Stairwell. *Symposium on Applied Perception.* 2020.
- Hansen Wu, **Haley Adams**, Grant Pointon, Sarah Creem-Regehr, Jeanine Stefanucci, and Bobby Bodenheimer. Danger from the Deep: A Gap Affordance Study in Augmented Reality. *IEEE VR Workshop on Perceptual and Cognitive Issues in AR (PERCAR).* 2019.
- Carlos Salas-Rosales, Grant Pointon, **Haley Adams**, Sarah Creem-Regehr, Jeanine Stefanucci, and Bobby Bodenheimer. Distance Judgments to On- and Off-Ground Objects in Augmented Reality . *IEEE Virtual Reality.* 2019.
- Sara Hanson, Richard A. Paris, **Haley Adams**, and Bobby Bodenheimer. Improving Walking in Place Methods with Individualization and Deep Networks. *IEEE Virtual Reality.* 2019.
- **Haley Adams**, Justin Shinn, William G Morrel, Jack Noble, and Bobby Bodenheimer. Development and evaluation of an immersive virtual reality system for medical imaging of the ear. *SPIE: Image-Guided Procedures, Robotic Interventions, and Modeling*. 2019
- Noorin Asjad, **Haley Adams**, Richard Paris, and Bobby Bodenheimer. Perception of Height in Virtual Reality — A Study of Climbing Stairs. *In Proceedings of the ACM Symposium on Applied Perception (SAP).* 2018.
- **Haley Adams**, Gayathri Narasimham, John Rieser, Sarah Creem-Regehr, Jeanine Stefanucci, and Bobby Bodenheimer. Locomotive and Prism Recalibration of Children and Teens in Immersive Virtual Environments. *IEEE Transactions on Visualization and Computer Graphics (TVCG).* 2018.
- Haojie Wu, Daniel Ashmead, **Haley Adams**, and Bobby Bodenheimer. 3D Sound Rendering in a Virtual Environment to Evaluate Pedestrian Street Crossing Decisions at a Roundabout. *IEEE VR Workshop on Sonic Interactions for Virtual Environments (SIVE)*. 2018.
- Hannah Chipman, **Haley Adams**, Betsy Williams Sanders, D Brian Larkins Evaluating Computer Science Camp Topics in Increasing Girls' Confidence in Computer Science. *Journal of Computing Sciences in Colleges*. 2018.
- Erin Mindell Cannon, Priya Chawla, Katherine Lo, and **Haley Adams**. igniteCS: Addressing Undergraduate CS Retention. *In Proceedings of the 47th ACM Technical Symposium on Computing Science Education (SIGCSE).* 2016.

Presentations

- **Haley Adams**. A Strange View: Using Perception to Improve XR. *Hi5 Seminar Series, University of Mississippi.* 2020. *https://www.youtube.com/watch?v=ZbPsKN4H_nw*
- **Haley Adams**, Jack Noble, William G. Morrel, Alejandro Rivas, Justin Shinn, Robert Labadie, and Bobby Bodenheimer. Play it by Ear: An Immersive Ear Anatomy Tutorial. *In Proceedings of IEEE VR.* 2019.
- Gayathri Narasimham, **Haley Adams**, John Rieser, Sarah Creem-Regehr, Jeanine Stefanucci, and Bobby Bodenheimer. Spatial Memory of Children and Teens in Immersive Virtual Environments. *In Proceedings of the ACM Symposium on Applied Perception (SAP)*. 2018.
- Alex Ayris, Richard Paris, and **Haley Adams**. STEManism: Current and Future Horizons of Interdisciplinary Collaboration between the Humanities, Digital Humanities, and STEM. *In Proceedings of Humanities, Arts, Science, and Technology Alliance and Collaboratory (HASTAC)*. 2017.
- **Haley Adams**, Chelsey Thompson, David Thomas, Farah Sharis, Catherine Grace Jernigan, Corrie Moore, and Betsy Williams. The Effect of Interpersonal Familiarity on Cooperation in a Virtual Environment. *In Proceedings of the ACM Symposium on Applied Perception (SAP).* 2015.
- **Haley Adams**, Alyssa Crider, and Victoria Interrante. Virtual Reality Implementation for Neurocognitive Assessment. *In Proceedings of Grace Hopper Celebration of Women in Computing*. 2013.

Teaching & Mentorship Experience

Graduate Teaching Assistant
Department of Computer Science — Vanderbilt University, 2016 - 2019

- Evaluated assessments and provided meaningful feedback to 50-100 student classes in short time frames for Discrete Structures and Algorithms (CS 2212)
- Provided supplemental instruction to students on computer graphics principles and OpenGL programming. Assessed OpenGL and C++ code for Computer Graphics (CS 5258)
- Guest lectured for Discrete Structures and Algorithms (CS 2212), Virtual Reality for Interdisciplinary Applications (UNIV 3279), Introduction to Visualization (CS 5891), & Augmented Virtual Reality (CS 8395)
- Served as Experienced TA Panelist at Teaching Assistant Orientation

Graduate Research Mentor
Department of Computer Science — Vanderbilt University, 2016 - 2022

- Guided development of fundamental research skills and software development skills in C#
- Dictated project milestones and facilitated communication with research faculty

Students Mentored

Sonya Jayathilake, High school · School for Science and Math	2022
Sreynit Khatt, Undergrad · Berea University	2022
Jeong Eun (Elle) Choi, Undergrad · Vanderbilt University	2022
Carlos Salas Rosales, High school · School for Science and Math	2018 - 2020
Hansen Wu, Undergrad · Vanderbilt University	2018
Priya Rajan, Undergrad · University of Cincinnati	2018
Nidhi Mehta, Undergrad · Vanderbilt University	2018
Peter Cho, Undergrad · Vanderbilt University	2018
Noorin Asjad, Undergrad · Vanderbilt University	2017
Taylor Nye Smith, High school · School for Science and Math	2016 - 2017

Leadership & Service

Student Volunteer Chair
IEEE VR — 2020

Founding Member and Officer
ACM-W Student Chapters — 2013 - 2018

- Managed resources and mediated communications between students, faculty, and the ACM-W
- Provided opportunities for student advancement and organized events with diverse speakers and recruiters

Event Organizer
Emerge - Emerging Technology Symposium — 2017

- Handled event logistics for half-day symposium, including food, advertisement, and audio/video
- Recruited and arranged accommodation for keynote speakers

Director, Instructor
Camp Codette — 2015 - 2016

- Founded a persisting summer coding program for middle and high school girls
- Formulated curriculum, led team of undergraduate counselors, and instructed learning sessions
- Provided insights to Google Education and conferred pedagogical strategies for student retention in computer science