

# 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** 2024
- Dissertation - 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 - 2023
- Academic Merit Scholarship** Vanderbilt University 2016 - 2023
- Vanderbilt IBM Fellowship** Alumni Association 2016 - 2020
- Google Education igniteCS Award** Google 2015, 2016
- Best Research Poster** ACM Symposium on Applied Perception (SAP) 2015
- DREU Award Recipient** Computer Research Association 2013
- Presidential Scholarship** Rhodes College 2011 - 2015

## Professional Experience

- Applied Vision Scientist** Google 2023 - present
- Google AR Research & Development**
- Provide expertise on the human visual system and AR displays to improve the design of next gen displays
  - Create applications that illustrate trade-offs between different visualization and interaction techniques
- Graduate Research Assistant** Vanderbilt University 2016 - 2023
- Department of Computer Science**
- 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 machine 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 2019
- PlayStation Research & Development**
- Conducted preliminary data collection and cleaning for reinforcement learning project
- Undergraduate Research Assistant** Rhodes College 2015 - 2016
- Department of Math and Computer Science**
- 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 2015 - 2016
- Camp Codette**
- 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 2013 - 2015
- Crossroads to Freedom Digital Archive**
- 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

- Awarded position through CRA Distributed Research Experience 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.
- Bobby Bodenheimer, Haley Adams, Mirinda Whitaker, Jeanine Stefanucci, Sarah Creem-Regehr. [Perceiving Absolute Distance in Augmented Reality Displays with Realistic and Non-realistic Shadows](#). *ACM Symposium on Applied Perception*. 2023.
- 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. [Depth perception and stylized graphics in AR HMDs](#). *IEEE ISMAR Workshop on Perceptual and Cognitive Issues in AR (PERCxR)* 2022.
- Raja Kushalnagar, Steven Feiner, Haley Adams, and Ricardo Gonzalez. [Research to Practice in XR Accessibility](#). *XR Access* 2022 [https://youtu.be/ZG0w6l4qRr4?si=Nz-TJ\\_QspHZvDPJC](https://youtu.be/ZG0w6l4qRr4?si=Nz-TJ_QspHZvDPJC)
- Haley Adams. [A Strange View: Using Perception to Improve XR](#). *Hi5 Seminar Series, Mississippi State University*. 2020. [https://www.youtube.com/watch?v=ZbPsKN4H\\_nw](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

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### 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

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

## Leadership & Service

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### Peer Reviewer

- Journal - ACM TAP, IEEE TVCG, Frontiers in Virtual Reality, PLOS ONE
- Conference - ACM UIST, IEEE ISMAR, IEEE VR, SIGCHI PLAY

### Graduate Student Outreach Vanderbilt University School of Engineering

2019-2022

### 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