# Jerald Thomas

CIF Postdoctoral Researcher

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## Education

**University of Minnesota** — *Minneapolis, MN*

Doctorate of Philosophy in Computer Science advised by Dr. Evan Suma Rosenberg — *December 2021*

Thesis: "User Redirection and Alignment for Virtual Reality Experiences in Arbitrary Physical Spaces"

**University of Southern California** — *Los Angeles, CA*

Masters of Science in Computer Science advised by Dr. Evan Suma Rosenberg — *May 2018*

**University of Minnesota, Duluth** — *Duluth, MN*

Bachelors of Science in Electrical and Computer Engineering advised by Dr. Stan Burns — *May 2015*

## Awards and Honors

**CRA/CCC Computing Innovation Fellow** — *January 2022*

Postdoctoral position at Virginia Tech advised by Dr. Doug Bowman

**Best Paper - ACM Conference on Virtual Reality Systems and Technology** — *November 2020*

"Towards Physically Interactive Virtual Environments: Reactive Alignment with Redirected Walking"

**Ph.D. Merit Top-off Fellow** — *August 2015*

USC Viterbi School of Engineering

## Publications

Conference papers are the most important means of disseminating top scholarly work in HCI and VIS (in addition to other areas of CS). Unlike in many other disciplines, the proceedings of the best conferences in these areas are stringently peer-reviewed (on the basis of the complete paper, not an abstract), highly competitive (acceptance rates of 10-25% are common), and considered archival.

### Peer Reviewed Journal Papers

**[J1] Validating Simulation-Based Evaluation of Redirected Walking Systems** — *March 2022*

A. Azmandian, R. Yahata, T. Grechkin, J. Thomas, E.S. Rosenberg

IEEE VR presented in a special issue of IEEE Transactions on Visualization & Computer Graphics (15.3% Acceptance Rate)

**[J2] Level of immersion affects spatial learning in virtual environments: results of a three-condition within-subjects study with long inter-session intervals** — *February 2020*

K. Pollard, A. Oiknine, B. Files, A. Sinatra, D. Patton, M. Ericson, J. Thomas, P. Khooshabeh

Springer Journal on Virtual Reality (3.634 impact factor)

### Peer Reviewed Conference Papers

**[C1] Inverse Kinematics Assistance for the Creation of Redirected Walking Paths** — *October 2022*

J. Thomas, S. Yong, E.S. Rosenberg

IEEE International Symposium on Mixed and Augmented Reality (25% Acceptance Rate)

**[C2] Strafing Gain: Redirecting Users One Diagonal Step At A Time** — *October 2022*

C. You, B. Benda, E.S. Rosenberg, E. Ragan, B. Lok, J. Thomas

IEEE International Symposium on Mixed and Augmented Reality (25% Acceptance Rate)

**[C3] Exploring Communication Modalities to Support Collaborative Guidance in Virtual Reality** — *December 2020*

F. Wu, J. Thomas, S. Chinnola, E.S. Rosenberg

ACM Conference on Artificial Reality and Telexistence and the Eurographics Symposium on Virtual Environments

**[C4] 🏆 Towards Physically Interactive Virtual Environments: Reactive Alignment with Redirected Walking** *November 2020*
J. Thomas, C. Hutton Pospick, E.S. Rosenberg
ACM Conference on Virtual Reality Systems and Technologies (26% acceptance) - **Best Paper Award**

**[C5] Same task, different place: Developing novel simulation environments with equivalent task difficulties** *July 2019*
B.T. Files, A.H. Oiknine, J. Thomas, P. Khooshabeh, A.M. Sinatra, K.A. Pollard
Conference on Applied Human Factors and Ergonomics

**[C6] A General Reactive Algorithm for Redirected Walking Using Artificial Potential Functions** *March 2019*
J. Thomas, E.S. Rosenberg
IEEE Conference on Virtual Reality and 3D User Interfaces (21% acceptance)

**[C7] Assessing the quantitative and qualitative effects of using mixed reality for operational decision making** *November 2018*
M. Dennison, J. Thomas, T.T. Trout, E.S. Rosenberg
International Command and Control Research and Technology Symposium

**[C8] Effects of Personalized Avatar Texture Fidelity on Identity Recognition in Virtual Reality** *November 2017*
J. Thomas, M. Azmandian, S. Grunwald, D. Le, D. Krum, S. Kang, E.S. Rosenberg
ACM Conference on Artificial Reality and Telexistence and the Eurographics Symposium on Virtual Environments (51% acceptance)

**[C9] Revisiting detection thresholds for redirected walking: combining translation and curvature gains** *July 2016*
T. Grechkin, J. Thomas, M. Azmandian, M. Bolas, E. Suma
ACM Symposium on Applied Perception

## Peer Reviewed Conference Workshop Papers

**[W1] Reactive Alignment of Virtual and Physical Environments Using Redirected Walking** *March 2020*
J. Thomas, E.S. Rosenberg
IEEE Conference on Virtual Reality and 3D User Interfaces, Workshop on Everyday VR

**[W2] Exploring Communication Modalities to Support Collaborative Guidance in Virtual Reality** *March 2020*
F. Wu, J. Thomas, S. Chinnola, E.S. Rosenberg
IEEE Conference on Virtual Reality and 3D User Interfaces, Workshop on Simulated Training in Extended Reality

## Peer Reviewed Abstracts

**[A1] RED: A Real-Time Datalogging Toolkit for Remote Experiments** *March 2021*
S. Adeniyi, E.S. Rosenberg, J. Thomas
Poster at IEEE Conference on Virtual Reality and 3D User Interfaces

**[A2] Strafing Gain: A Novel Redirected Walking Technique** *October 2019*
C. You, E.S. Rosenberg, J. Thomas
Poster at ACM Symposium on Spatial User Interfaces

**[A3] Collaborative mixed reality (MxR) and networked decision making** *April 2018*
T. Trout, S. Russel, A. Harrison, R.Spicer, E.S. Rosenberg, and J. Thomas
SPIE Next Generation Analyst VI

**[A4] Leveraging Configuration Spaces and Navigation Functions for Redirected Walking** *March 2018*
J. Thomas
Doctoral Consortium at IEEE Conference on Virtual Reality and 3D User Interfaces

**[A5] MuVR: A Multi-user Virtual Reality Platform** *March 2014*
J. Thomas, R. Bashyal, S. Goldstein, E. Suma
Poster at IEEE Conference on Virtual Reality

**[A6] Effectiveness of commodity BCI devices as means to control an immersive virtual environment** *July 2013*
J. Thomas, S. Jungst, and P. Willemsen
Poster at ACM Symposium on Spatial User Interfaces

## Selected Research Experience

**Virginia Tech** — *January 2022 to Present*
Postdoctoral Researcher — *Blacksburg, VA*
- Propose and perform novel research in AR/VR areas
- Mentor and manage graduate and undergraduate students

**University of Minnesota** — *August 2018 to December 2021*
Graduate Research Assistant — *Minneapolis, MN*
- Helped design, implement, and run user studies
- Assisted with supervision and mentorship of undergraduate and masters level lab members

**Army Research Labs** — *May 2017 to May 2018*
Intern — *Playa Vista, CA*
- Developed virtual environments and platforms for experiments
- Helped design human subject studies

**University of Southern California** — *August 2015 to May 2017*
Graduate Research Assistant — *Los Angeles, CA*
- Helped design, implement, and run user studies
- Assisted with lab demonstrations

**Sony Interactive Entertainment America | Play Station** — *Summer 2016*
Summer Intern — *San Mateo, CA*
- Worked within the R&D Magic Lab group to prototype novel user interactions
- Filled many roles including 3D printed design, asset design, and game design

## Classes Taught

### Instructor of Record

**CS 2506: Computer Organization II** — *Summer 2022*
Virginia Tech, 59 students

**CSCI 1913: Introduction to Algorithms, Data Structures, and Program Development** — *Spring 2021*
University of Minnesota, 96 students

### Graduate Teaching Assistant

**CSCI 5619: Virtual Reality and 3D Interaction** — *Fall 2021*
University of Minnesota, 58 students

**CSCI 103: Introduction to Programming** — *Fall 2016*
University of Southern California, 275 students

## Student Mentoring and Advising

**Zhuoqun Wang, Undergraduate Student at Virginia Tech** — *Fall 2022*
"Physical Interactions for Remote Augmented Reality"

**Logan Lane, Doctoral Student at Virginia Tech** — *Spring 2022*
"Aligning Remote Physical Spaces to Facilitate Augmented Reality Brainstorming"

**Sam Adeniyi, Doctoral Student at University of Minnesota** — *Spring 2020*
"RED: A Real-Time Datalogging Toolkit for Remote Experiments"

**Christopher You, Undergraduate Student at University of Minnesota** — *Spring 2019*
"Strafing Gain: A Novel Redirected Walking Technique"

**Shreyas Chinnola, High School Student at Wayzata High School** — *Spring 2019*
"Networked Collaboration for Spatial Guidance Tasks"

## Invited Presentations

**Virginia Tech CS5754 Virtual Environments Guest Lecture** *Febuary 2022*
"Redirected Walking: Exploring Large Virtual Environments on Foot"

**University of Minnesota Computer Science and Engineering Colloquium** *October 2021*
"User Redirection and Alignment for Virtual Reality Experiences in Arbitrary Physical Spaces"

**University of Mississippi Hi5 Summer Seminar Series** *July 2020*
"User Redirection and Alignment for Virtual Reality Experiences in Arbitrary Physical Spaces"

## Professional Service

**Program Committee Member** *March 2023*
IEEE Conference on Virtual Reality and 3D User Interfaces

**Video Chair** *March 2023*
IEEE Conference on Virtual Reality and 3D User Interfaces

**Special Topic Coordinator and Guest Editor** *August 2022*
Frontiers in Virtual Reality

**Program Committee Member** *October 2022*
IEEE Symposium on Augmented and Mixed Reality

**Paper Session Chair** *October 2022*
IEEE Symposium on Augmented and Mixed Reality

**Program Committee Member** *March 2022*
IEEE Conference on Virtual Reality and 3D User Interfaces

**Conference Session Chair** *October 2020*
ACM Symposium on Spatial User Interfaces

**Streaming Chair** *March 2020*
IEEE Conference on Virtual Reality and 3D User Interfaces

**Student Volunteer Chair** *March 2019*
IEEE Conference on Virtual Reality and 3D User Interfaces

**Student Volunteer** *March 2018*
IEEE Conference on Virtual Reality and 3D User Interfaces

**Student Volunteer** *March 2017*
IEEE Conference on Virtual Reality and 3D User Interfaces

**Student Volunteer** *July 2013*
ACM Symposium on Spatial User Interaction

### Peer Review Experience (>50 papers reviewed)

- ACM Conference on Computer Graphics and Interaction Techniques (SIGGRAPH) (2020, 2022)
- ACM Conference on Human Factors in Computing Systems (CHI) (2020)
- ACM Symposium on Spatial User Interfaces (2021)
- ACM Symposium on User Interface Software and Technology (2019)
- ACM Symposium on Virtual Reality Systems and Technologies(2020)
- Elsevier Virtual Reality and Intelligent Hardware (2021)
- Eurographics Conference on Visualization (2020)
- Frontiers in Virtual Reality (2021)
- IEEE Conference on Virtual Reality and 3D User Interfaces (2020, 2021, 2022, 2023)
- IEEE International Symposium on Mixed and Augmented Reality (2021, 2022)
- IEEE Transactions on Visualization and Computer Graphics (2021, 2022)
- Springer Virtual Reality (2019, 2021)