

# Alexander Giovannelli

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## RESEARCH INTERESTS

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Human-Computer Interaction (HCI)  
Extended Reality (XR)  
Computer-Supported Cooperative Work (CSCW)

Human-AI Interaction (HAI)  
Collaborative Virtual Environments (CVEs)  
User Experience Design (UX)

## EDUCATION

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<b>Virginia Tech</b> Ph.D. in Computer Science	Aug. 2021–Present
<ul style="list-style-type: none"><li>• Thesis Title: “Investigating Immersive Collaboration across Temporal States”</li><li>• Thesis Advisor: Dr. Doug Bowman</li><li>• Thesis Committee: Dr. Brendan David-John, Dr. Yalong Yang, Dr. Sang Won Lee, Dr. Mar Gonzalez-Franco</li></ul>	

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<b>University of Cincinnati</b> B.S. in Computer Engineering	Aug. 2013–May 2018
<ul style="list-style-type: none"><li>• Minors in German Studies and Computer Science</li><li>• Graduated with Honors from the College of Engineering and Applied Science</li></ul>	

## PUBLICATIONS

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### Peer Reviewed Journal Papers

<b>[J1.] Working in Extended Reality in the Wild: Worker and Bystander Experiences of XR Virtual Displays in Public Real-World Settings</b> L. Pavanatto, V. Biener, J. Chandran, S. Kalamkar, F. Lu, J.J. Dudley, J. Hu, G.N. Ramirez-Saffy, P.O. Kristensson, A. Giovannelli, L. Schlueter, J. Müller, J. Grubert, D.A. Bowman <i>IEEE Transactions on Visualization and Computer Graphics (TVCG)</i>	Oct. 2025
<b>[J2.] Gestures vs. Emojis: Comparing Non-Verbal Reaction Visualizations for Immersive Collaboration</b> A. Giovannelli, J. Thomas, L. Lane, F. Rodrigues, D. A. Bowman <i>IEEE Transactions on Visualization and Computer Graphics (TVCG)</i>	Oct. 2023

### Peer Reviewed Conference Papers

<b>[C1.] Exploring Bichronous Collaboration in Virtual Environments</b> A. Giovannelli, S. Davari, C. Connor, F.C. Murphy, T. Davis, H. Miao, V. Chheang, B. Giera, T. Bremer, D.A. Bowman <i>ACM Symposium on Virtual Reality Software and Technology (VRST)</i>	Nov. 2025
<b>[C2.] Investigating the Influence of Playback Interactivity during Guided Tours for Asynchronous Collaboration in Virtual Reality</b> A. Giovannelli, L. Pavanatto, S. Davari, H. Miao, V. Chheang, B. Giera, T. Bremer, D.A. Bowman <i>IEEE Conference Virtual Reality and 3D User Interfaces (VR)</i>	Mar. 2025
<b>[C3.] Exploring Multiscale Navigation of Homogeneous and Dense Objects with Progressive Refinement in Virtual Reality</b> L. Pavanatto, A. Giovannelli, B. Giera, T. Bremer, H. Miao, D.A. Bowman <i>IEEE Conference Virtual Reality and 3D User Interfaces (VR)</i>	Mar. 2025

[C4.] AMP-IT and WISDOM: Improving 3D Manipulation for High-Precision Tasks in Virtual Reality	Oct. 2023
F. Rodrigues, A. Giovannelli, L. Pavanatto, H. Miao, J.C. Oliveira, D.A. Bowman	
<i>IEEE International Symposium on Mixed and Augmented Reality (ISMAR)</i>	
[C5.] Exploring the Impact of Visual Information on Intermittent Typing in Virtual Reality	Oct. 2022
A. Giovannelli, L. Lisle, D.A. Bowman	
<i>IEEE International Symposium on Mixed and Augmented Reality (ISMAR)</i>	

## Peer Reviewed Workshops, Posters, & Abstracts

[W1.] Planet Purifiers: A Collaborative Immersive Experience Proposing New Modifications to HOMER and Fishing Reel Interaction Techniques	Mar. 2025
A. Giovannelli, F.C. Murphy, T. Davis, C. Lee, R. Abulikemu, M. Gallagher, S. Sharma, L. Lisle, D.A. Bowman	
<i>IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW)</i>	
[W2.] Exploring the Effects of Level of Control in the Initialization of Shared Whiteboarding Sessions in Collaborative Augmented Reality	Mar. 2025
L. Lane, J. Thomas, A. Giovannelli, I. Tahmid, D.A. Bowman	
<i>IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW)</i>	
[W3.] The Alchemist: A Gesture-Based 3D User Interface for Engaging Arithmetic Calculations	Mar. 2024
L. Lane, A. Giovannelli, I. Tahmid, F. Rodrigues, C. Ilo, D. Hsu, C. Lougiakis, S. Davari, D.A. Bowman	
<i>IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW)</i>	
[W4.] CoLT: Enhancing Collaborative Literature Review Tasks with Synchronous and Asynchronous Awareness Across the Reality-Virtuality Continuum	Oct. 2023
I. Tahmid, F. Rodrigues, A. Giovannelli, L. Lisle, J. Thomas, D.A. Bowman	
<i>IEEE International Symposium on Mixed and Augmented Reality Adjunct (ISMAR-Adjunct)</i>	
[W5.] CLUE HOG: An Immersive Competitive Lock-Unlock Experience using Hook On Go-Go Technique for Authentication in the Metaverse	Mar. 2023
A. Giovannelli, F. Rodrigues, S. Davari, I. Tahmid, L. Lane, C. Connor, K. Davidson, G.N. Ramirez-Saffy, B. David-John, D.A. Bowman	
<i>IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW)</i>	
[W6.] A Communication-Focused Framework for Understanding Immersive Collaboration Experiences	Mar. 2023
J. Thomas, S. Won Lee, A. Giovannelli, L. Lane, D.A. Bowman	
<i>IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW)</i>	
[W7.] Clean the Ocean: An Immersive VR Experience Proposing New Modifications to Go-Go and WiM Techniques	Mar. 2022
L. Lisle, F. Lu, S. Davari, I. Tahmid, A. Giovannelli, C. Llo, L. Pavanatto, L. Zhang, L. Schlueter, D.A. Bowman	
<i>IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW)</i>	

## RESEARCH EXPERIENCE

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<b>Virginia Tech</b>	Jan. 2023–Present
Graduate Research Assistant	
<ul style="list-style-type: none"> <li>• Conducted a systematic literature review of 100+ academic articles on XR-supported collaborative work, identifying two research gaps in user communication across asynchronous and synchronous contexts</li> <li>• Developed two XR applications for remote work using user-centered design principles, conducting interviews, facilitating co-design sessions, and iteratively prototyping in Unity with C# scripting</li> <li>• Designed and led two user studies with 40 participants examining the influence of collaborator presence in XR, employing quantitative measures (system interactions, trust, satisfaction, information recall) and qualitative research methods (semi-structured interviews, think-aloud protocols)</li> </ul>	

- Integrated quantitative analyses (statistical tests using Python and R) with qualitative analyses (inductive thematic coding) to produce findings published in two peer-reviewed conference proceedings

**Lawrence Livermore National Laboratory**

May 2023–Aug. 2023

Computing Research Intern

- Built a VR system for asynchronous training and knowledge sharing, incorporating recording and playback features in Unity with C# scripting
- Evaluated the system with 40 participants through a mixed-methods study comparing VR to traditional video-based training, employing quantitative metrics (engagement, task load, information recall) and qualitative methods (semi-structured interviews)
- Synthesized statistical analyses using Python and R with inductive thematic coding to generate findings published in a peer-reviewed conference

**Virginia Tech**

May 2022–Aug. 2022

Graduate Research Assistant

- Performed a literature review of 50+ academic articles on embodiment and social interaction in XR, identifying a research gap in visualizing non-verbal gestures using avatars
- Created a VR system to evaluate the noticeability of non-verbal gesture visualization, capturing quantitative data (eye-tracking, response time, accuracy) and qualitative insights (semi-structured interview, observation)
- Mentored two graduate students in designing and analyzing a mixed methods study using the system with 30 participants, culminating in a peer-reviewed journal publication

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**WORK EXPERIENCE****JPMorgan Chase & Co.**

Jul. 2018–Jul. 2021

Associate Software Engineer

- Served as the sole developer for the Chase COVID Hub, partnering with product, design, and legal teams to deliver financial resource tools to 58 million customers
- Co-developed the Chase Security Center, implementing six major privacy and security controls using JavaScript, HTML, and CSS
- Redesigned the Chase Offers widget with proprietary styling frameworks across web, Android, and iOS, contributing to \$2 billion in monthly gross revenue

**Siemens Healthineers**

Jan. 2017–Aug. 2017

Software Engineer Intern

- Co-developed a physician-centric procedural management system in C#, enabling precise control of advanced therapy devices across eight product models
- Created 10+ system architecture diagrams in Sparx Systems Enterprise Architect to document design dependencies and streamline organizational knowledge transfer
- Bridged communication across globally distributed software teams by presenting in German and English during weekly system integration meetings

**Granville Exempted Village Schools**

May 2016–Jul. 2016

Systems Administrator Intern

- Upgraded Windows and Linux server infrastructure, accelerating the administration of 1000+ devices while enabling seamless software deployments for enhanced classroom learning
- Led the Google Chromebook management system, equipping every student with a device across two schools

**Matrix Technologies, Inc.**

Aug. 2015–Dec. 2015

Computer Programmer and Systems Analyst Intern

- Synthesized insights from three cross-functional stakeholders to inform the implementation of two engineering and project management features

- Developed project dashboards using C# and Windows Forms, providing critical management tools across six offices

### **Matrix Technologies, Inc.**

Computer Programmer and Systems Analyst Intern

Aug. 2014–Dec. 2014

- Built a project dashboard using C# and Windows Forms, improving management of 300+ employees

## AWARDS

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<b>Davenport Leadership Fellowship</b> Virginia Tech	2023–2024
<b>Leonard P. Gollobin Scholarship</b> Interservice/Industry Training, Simulation and Education Conference (I/ITSEC)	2023–2024
<b>Best Paper Honorable Mention [C5.]</b> IEEE International Symposium on Mixed and Augmented Reality (ISMAR)	2022
<b>3DUI Contest Best Paper [W7.]</b> IEEE Conference Virtual Reality and 3D User Interfaces (VR)	2022
<b>International Co-op Program Scholarship</b> University of Cincinnati	2016–2017
<b>Cooperative Education Scholarship</b> Matrix Technologies, Inc.	2014–2016
<b>Cincinnatus Scholarship</b> University of Cincinnati	2013–2014

## STUDENT MENTORING AND ADVISING

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### Graduate Students

Tanya Dinesh	Jun. 2025–Dec. 2025
Sahil Sharma	Oct. 2024–Mar. 2025
Rehema Abulikemu	Sep. 2023–Dec. 2025

### Undergraduate Students

Celine Mang	Jul. 2025–Oct. 2025
Chaerin Lee	Oct. 2024–Mar. 2025
Trey Davis	Aug. 2024–Mar. 2025
Fionn Murphy	Aug. 2024–Mar. 2025

## TEACHING

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<b>Graduate Teaching Assistant</b> Virginia Tech Department of Computer Science: Comparative Languages (CS-3304)	Aug. 2022–Dec. 2022
<b>Graduate Teaching Assistant</b> Virginia Tech Department of Computer Science: Software Design & Data Structures (CS-2114)	Jan. 2022–May 2022
<b>Graduate Teaching Assistant</b> Virginia Tech Department of Computer Science: Software Design & Data Structures (CS-2114)	Aug. 2021–Dec. 2021

## INVITED TALKS

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<b>College of Computing and Software Engineering at Kennesaw State University</b>	Dec. 2025
Title: Towards Immersive Collaboration Across Temporal States	
<b>Center for Human-Computer Interaction at Virginia Tech</b>	Sep. 2025
Title: Exploring Bichronous Collaboration in Virtual Environments	

## PROFESSIONAL SERVICE

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<b>Student Volunteer Chair</b>	2025–Present
IEEE International Symposium on Mixed and Augmented Reality (ISMAR)	
<b>Ethics and Privacy Committee Member</b>	2024–Present
Virtual Experience Research Accelerator (VERA)	
<b>Communications Chair</b>	2023–2024
IEEE Conference Virtual Reality and 3D User Interfaces (VR)	
<b>Student Volunteer</b>	2023
IEEE International Symposium on Mixed and Augmented Reality (ISMAR)	
<b>Student Volunteer</b>	2022
IEEE International Symposium on Mixed and Augmented Reality (ISMAR)	

## PEER REVIEW EXPERIENCE

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### **IEEE Transactions on Visualization and Computer Graphics (TVCG)**

Years served: 2024, 2025

### **IEEE Conference Virtual Reality and 3D User Interfaces (VR)**

Years served: 2023, 2024, 2025

### **IEEE International Symposium on Mixed and Augmented Reality (ISMAR)**

Years served: 2024, 2025

### **ACM Conference on Human Factors in Computing Systems (CHI)**

Years served: 2025

### **ACM Symposium on Virtual Reality Software and Technology (VRST)**

Years served: 2025

### **ACM Symposium on Spatial User Interaction (SUI)**

Years served: 2024