

Alexander Giovannelli

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RESEARCH INTERESTS

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

Virginia Tech

Ph.D. in Computer Science advised by Doug A. Bowman, GPA: 4.00/4.00

Blacksburg, VA, USA

Aug. 2021–Present

University of Cincinnati

B.S. in Computer Engineering with German Studies minor, GPA: 3.30/4.00

Cincinnati, OH, USA

Aug. 2013–May 2018

PUBLICATIONS

Peer Reviewed Journal Papers

[J1.] Working in Extended Reality in the Wild: Worker and Bystander Experiences of XR Virtual Displays in Public Real-World Settings Oct. 2025

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

IEEE Transactions on Visualization and Computer Graphics (TVCG)

[J2.] Gestures vs. Emojis: Comparing Non-Verbal Reaction Visualizations for Immersive Collaboration Oct. 2023

A. Giovannelli, J. Thomas, L. Lane, F. Rodrigues, D. A. Bowman

IEEE Transactions on Visualization and Computer Graphics (TVCG)

Peer Reviewed Conference Papers

[C1.] Exploring Bichronous Collaboration in Virtual Environments Nov. 2025

A. Giovannelli, S. Davari, C. Connor, F.C. Murphy, T. Davis, H. Miao, V. Chheang, B. Giera, T. Bremer, D.A. Bowman

ACM Symposium on Virtual Reality Software and Technology (VRST)

[C2.] Investigating the Influence of Playback Interactivity during Guided Tours for Asynchronous Collaboration in Virtual Reality Mar. 2025

A. Giovannelli, L. Pavanatto, S. Davari, H. Miao, V. Chheang, B. Giera, T. Bremer, D.A. Bowman

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

[C3.] Exploring Multiscale Navigation of Homogeneous and Dense Objects with Progressive Refinement in Virtual Reality Mar. 2025

L. Pavanatto, A. Giovannelli, B. Giera, T. Bremer, H. Miao, D.A. Bowman

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

[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

IEEE International Symposium on Mixed and Augmented Reality (ISMAR)

[C5.] Exploring the Impact of Visual Information on Intermittent Typing in Virtual Reality Oct. 2022
A. Giovannelli, L. Lisle, D.A. Bowman
IEEE International Symposium on Mixed and Augmented Reality (ISMAR)

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

IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW)

[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

IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW)

[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

IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW)

[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

IEEE International Symposium on Mixed and Augmented Reality Adjunct (ISMAR-Adjunct)

[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

IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW)

[W6.] A Communication-Focused Framework for Understanding Immersive Collaboration Experiences Mar. 2023
J. Thomas, S. Won Lee, A. Giovannelli, L. Lane, D.A. Bowman

IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW)

[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

IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW)

RESEARCH EXPERIENCE

Virginia Tech

Graduate Research Assistant

Blacksburg, VA, USA

Jan. 2023–Present

- 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
- 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
- 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)
- 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

Computing Research Intern

Livermore, CA, USA

May 2023–Aug. 2023

- 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

Graduate Research Assistant

Blacksburg, VA, USA

May 2022–Aug. 2022

- 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

WORK EXPERIENCE**JPMorgan Chase & Co.**

Associate Software Engineer

Columbus, OH, USA

Jul. 2018–Jul. 2021

- 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

Software Engineer Intern

Forchheim, BY, DE

Jan. 2017–Aug. 2017

- 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

Systems Administrator Intern

Granville, OH, USA

May 2016–Jul. 2016

- 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.

Computer Programmer and Systems Analyst Intern

Maumee, OH, USA

Aug. 2015–Dec. 2015

- 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.	Maumee, OH, USA
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

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

STUDENT MENTORING AND ADVISING

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

Graduate Teaching Assistant	Blacksburg, VA, USA
Virginia Tech Department of Computer Science: Comparative Languages (CS-3304)	Aug. 2022–Dec. 2022
Graduate Teaching Assistant	Blacksburg, VA, USA
Virginia Tech Department of Computer Science: Software Design & Data Structures (CS-2114)	Jan. 2022–May 2022
Graduate Teaching Assistant	Blacksburg, VA, USA
Virginia Tech Department of Computer Science: Software Design & Data Structures (CS-2114)	Aug. 2021–Dec. 2021

INVITED TALKS

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

PROFESSIONAL SERVICE

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

PEER REVIEW EXPERIENCE

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