Alexander Giovannelli

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RESEARCH INTERESTS

- Human-Computer Interaction (HCI)
- User Experience Design (UX)
- Usability Evaluation
- Extended Reality (XR)
- Computer-Supported Cooperative Work (CSCW)
- Human-Language Model Interaction
- Collaborative Virtual Environments (CVEs)
- 3D Interaction Techniques

EDUCATION

Virginia Tech **EXPECTED 05/2026**
Ph.D. in Computer Science Blacksburg, VA, USA
- Thesis Title: "Investigating Immersive Collaboration across Temporal States"
- Thesis Advisor: Dr. Doug Bowman
- Thesis Committee: Dr. Brendan David-John, Dr. Yalong Yang, Dr. Sang Won Lee, Dr. Mar Gonzalez-Franco

University of Cincinnati **04/2018**
Bachelor of Science in Computer Engineering Cincinnati, OH, USA
- Minor in German Studies and Computer Science
- Graduate with Honors from the College of Engineering and Applied Science

PUBLICATIONS

A full list of my latest publications can be found on my Google Scholar Profile | Citations: 66 | h-index: 5

Peer-Reviewed Journal Papers

- L. Pavanatto et al., "Working in Extended Reality in the Wild: Worker and Bystander Experiences of XR Virtual Displays in Public Real-World Settings," in IEEE Transactions on Visualization and Computer Graphics, doi: 10.1109/TVCG.2025.3589283. **[Impact Factor : 6.5]**
- A. Giovannelli et al., "Gestures vs. Emojis: Comparing Non-Verbal Reaction Visualizations for Immersive Collaboration," in IEEE Transactions on Visualization and Computer Graphics, vol. 29, no. 11, pp. 4772-4781, Nov. 2023, doi: 10.1109/TVCG.2023.3320254. **[Acceptance Rate: 19.6%]**

Peer-Reviewed Conference Papers

- A. Giovannelli et al., "Investigating the Influence of Playback Interactivity during Guided Tours for Asynchronous Collaboration in Virtual Reality," 2025 IEEE Conference Virtual Reality and 3D User Interfaces (VR), Saint Malo, France, 2025, pp. 23-33, doi: 10.1109/VR59515.2025.00027. **[Acceptance Rate: 28.7%]**
- L. Pavanatto, A. Giovannelli et al., "Exploring Multiscale Navigation of Homogeneous and Dense Objects with Progressive Refinement in Virtual Reality," 2025 IEEE Conference Virtual Reality and 3D User Interfaces (VR), Saint Malo, France, 2025, pp. 228-237, doi: 10.1109/VR59515.2025.00047. **[Acceptance Rate: 28.7%]**
- F. Rodrigues, A. Giovannelli et al., "AMP-IT and WISDOM: Improving 3D Manipulation for High-Precision Tasks in Virtual Reality," 2023 IEEE International Symposium on Mixed and Augmented Reality (ISMAR), Sydney, Australia, 2023, pp. 303-311, doi: 10.1109/ISMAR59233.2023.00045. **[Acceptance Rate: 32.2%]**
- A. Giovannelli et al., "Exploring the Impact of Visual Information on Intermittent Typing in Virtual Reality," 2022 IEEE International Symposium on Mixed and Augmented Reality (ISMAR), Singapore, Singapore, 2022, pp. 8-17, doi: 10.1109/ISMAR55827.2022.00014. **[Acceptance Rate: 21.6%, Best Paper Honorable Mention]**

Peer-Reviewed Workshops and Extended Abstracts

- A. Giovannelli et al., "Planet Purifiers: A Collaborative Immersive Experience Proposing New Modifications to HOMER and Fishing Reel Interaction Techniques," 2025 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW), Saint Malo, France, 2025, pp. 1528-1529, doi: 10.1109/VRW66409.2025.00409.
- L. Lane, J. Thomas, A. Giovannelli et al., "Exploring the Effects of Level of Control in the Initialization of Shared Whiteboarding Sessions in Collaborative Augmented Reality," 2025 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW), Saint Malo, France, 2025, pp. 1101-1109, doi: 10.1109/VRW66409.2025.00220.
- L. Lane, A. Giovannelli et al., "The Alchemist: A Gesture-Based 3D User Interface for Engaging Arithmetic Calculations," 2024 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW), Orlando, FL, USA, 2024, pp. 1106-1107, doi: 10.1109/VRW62533.2024.00347.
- I. A. Tahmid, F. Rodrigues, A. Giovannelli et al., "CoLT: Enhancing Collaborative Literature Review Tasks with Synchronous and Asynchronous Awareness Across the Reality-Virtuality Continuum," 2023 IEEE International Symposium on Mixed and Augmented Reality Adjunct (ISMAR-Adjunct), Sydney, Australia, 2023, pp. 831-836, doi: 10.1109/ISMAR-Adjunct60411.2023.00183.
- A. Giovannelli et al., "CLUE HOG: An Immersive Competitive Lock-Unlock Experience using Hook On Go-Go Technique for Authentication in the Metaverse," 2023 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW), Shanghai, China, 2023, pp. 945-946, doi: 10.1109/VRW58643.2023.00315.
- J. Thomas, S. W. Lee, A. Giovannelli et al., "A Communication-Focused Framework for Understanding Immersive Collaboration Experiences," 2023 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW), Shanghai, China, 2023, pp. 301-304, doi: 10.1109/VRW58643.2023.00070.
- L. Lisle et al., "Clean the Ocean: An Immersive VR Experience Proposing New Modifications to Go-Go and WiM Techniques," 2022 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW), Christchurch, New Zealand, 2022, pp. 920-921, doi: 10.1109/VRW55335.2022.00311. **[Best Contest Paper]**

EXPERIENCE

Virginia Tech **08/2023 – Present**
Graduate Research Assistant Blacksburg, VA, USA

- 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 **05/2023 – 08/2023**
Computing Research Intern Livermore, CA, USA

- 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 **05/2022 – 08/2022**
Graduate Research Assistant Blacksburg, VA, USA
- 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

J.P. Morgan Chase **07/2018 – 07/2021**
Associate Software Engineer Columbus, OH, USA
- 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
- 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
- Recognized in the top 5% of software developers for contributions to the Chase.com customer dashboard, earning an early promotion

Siemens Healthineers **01/2017 – 08/2017**
Software Engineer Intern Forchheim, BY, DE
- 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 School District **05/2016 – 07/2016**
Systems Administration Intern Granville, OH, USA
- 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. **08/2015 – 12/2015**
Computer Programmer and Systems Analyst Intern Maumee, OH, USA
- 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. **08/2014 – 12/2014**
Computer Programmer and Systems Analyst Intern Maumee, OH, USA
- Built a project dashboard using C# and Windows Forms, improving management of 300+ employees

AWARDS

Virginia Tech Davenport Leadership Fellowship	2023 – 2024
I/ITSEC Leonard P. Gollobin Scholarship	2023 – 2024
IEEE ISMAR Best Paper Honorable Mention	2022
IEEE VR Best 3DUI Contest Paper	2022
University of Cincinnati International Co-op Program Scholarship	2016 – 2017
Matrix Technologies, Inc. Cooperative Education Scholarship	2014 – 2016

MENTORING

Graduate Students

Tanya Dinesh	06/2025 – Present
Sahil Sharma	10/2024 – 03/2025
Rehema Abulikemu	09/2023 – Present

Undergraduate Students

Chaerin Lee	10/2024 – 03/2025
Trey Davis	09/2024 – 03/2025
Fionn Murphy	09/2024 – 03/2025

INVITED TALKS

Center for Human-Computer Interaction at Virginia Tech **09/2025**
Title: *Exploring Bichronous Collaboration in Virtual Environments* Blacksburg, VA, USA

TEACHING

Virginia Tech **08/2022 – 12/2022**
Comparative Languages (CS-3304) Teaching Assistant Blacksburg, VA, USA

Virginia Tech **08/2021 – 05/2022**
Software Design & Data Structures (CS-2114) Teaching Assistant Blacksburg, VA, USA

PROFESSIONAL SERVICE

ACM VRST Peer Reviewer	2025
IEEE ISMAR Peer Reviewer	2025
Virtual Experience Research Accelerator (VERA) Ethics and Privacy Committee	2024 – Present
IEEE Transactions on Visualization and Computer Graphics Peer Reviewer	2024 – Present
IEEE VR Poster Committee	2024
IEEE VR Peer Reviewer	2024
ACM SUI Peer Reviewer	2024

IEEE ISMAR Peer Reviewer	2024
IEEE VR Communications Chair	2023 – 2024
IEEE VR Peer Reviewer	2023
IEEE ISMAR Student Volunteer	2023
IEEE ISMAR Student Volunteer	2022