ALEXANDER GIOVANNELLI

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RESEARCH INTERESTS

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

EDUCATION

Ph.D. in Computer Science | Virginia Tech
Degree expected May 2026

- GPA: 4.0
- Member of the 3D Interaction Lab advised by Dr. Doug Bowman

Bachelor of Science in Computer Engineering, Minor in German Studies and Computer Science | University of Cincinnati
Degree obtained May 2018

- GPA: 3.3
- Member of the Honors College International Cooperative Education Program

EXPERIENCE

Graduate Research Assistant | Virginia Tech | Blacksburg, VA, USA
January 2023 – Present

- Conduct research on how XR technologies support spatial and temporal dimensions of collaborative work
- Design, prototype, and iterate XR applications based on stakeholder requirements and user needs
- Perform user studies to evaluate collaboration features and contribute to peer-reviewed publications

Computing Research Intern | Lawrence Livermore National Laboratory | Livermore, CA, USA
May 2023 – August 2023

- Collaborated with subject matter experts to define the goals and scope of a summer research initiative
- Designed and developed virtual reality (VR) prototypes to support distributed collaborative workflows
- Iteratively improved prototypes based on stakeholder input and user study findings to enhance usability

Graduate Research Assistant | Virginia Tech | Blacksburg, VA, USA
May 2022 – August 2022

- Conducted a literature review to identify research gaps in avatar-mediated communication within XR environments
- Synthesized and presented findings to stakeholders to secure project approval and guide design direction
- Led the development and user evaluation of an XR prototype; published results in peer-reviewed venues

Associate Software Engineer | J.P. Morgan Chase & Co. | Columbus, OH, USA
July 2018 – July 2021

- Led the design and development of the Chase COVID Hub, enabling clients to access financial assistance resources
- Built and launched the Chase Security Center, improving accessibility to client privacy and security controls
- Maintained and enhanced the Chase Offers widget across web and mobile platforms
- Led behavioral-driven development on Chase.com to align design decisions with user behavior insights
- Communicated feature updates to stakeholders through documentation and presentations

Software Engineer Intern | Siemens Healthineers | Forchheim, BY, DE
January 2017 – August 2017

- Developed a procedural management system to support physicians in operating advanced therapy devices
- Created system architecture diagrams to document design changes and core functionalities for cross-team alignment
- Collaborated in international software integration meetings, contributing in both German and English to ensure clear communication across teams

Systems Administration Intern | Granville Exempted Village School District | Granville, OH, USA
May 2016 – July 2016

- Administered Windows and Linux servers to maintain school network infrastructure and ensure reliable performance
- Managed and deployed software updates across devices to enhance security and functionality

Computer Programmer and Systems Analyst Intern | Matrix Technologies, Inc. | Maumee, OH, USA
August 2015 – December 2015

- Conducted field interviews with cross-functional stakeholders to identify user needs and inform feature prioritization
- Designed and built internal tools to streamline and automate project management workflows

Computer Programmer and Systems Analyst Intern | Matrix Technologies, Inc. | Maumee, OH, USA
August 2014 – December 2014

- Designed and developed a managerial dashboard to monitor project data
- Proposed, implemented, and evaluated front-end design enhancements to improve usability and overall UX

PUBLICATIONS

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.
- *A. Giovannelli*, J. Thomas, L. Lane, F. Rodrigues and D. A. Bowman, "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.

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.
- L. Pavanatto, *A. Giovannelli*, B. Giera, T. Bremer, H. Miao and D. A. Bowman, "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.

- F. Rodrigues, *A. Giovannelli*, L. Pavanatto, H. Miao, J. C. d. Oliveira and D. A. Bowman, "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.
- *A. Giovannelli*, L. Lisle and D. A. Bowman, "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.

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*, I. Tahmid and D. A. Bowman, "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 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*, L. Lisle, J. Thomas and D. A. Bowman, "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*, L. Lane and D. Bowman, "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.

AWARDS

Davenport Leadership Fellowship
2023-2024

ITSEC Leonard P. Gollobin Scholarship
2023-2024

IEEE ISMAR Best Conference Paper Honorable Mention
2022

IEEE VR Best 3DUI Contest Entry
2022

Matrix Technologies, Inc. Cooperative Education Scholarship
2014-2016

PROFESSIONAL SERVICE

Virtual Experience Research Accelerator (VERA)
2024 – Present

- Inaugural member of the VERA Ethics and Privacy Committee

Poster Committee
2024 – 2025

- Appointed to review and evaluate poster submissions for the IEEE VR 2025 conference

Communications Chair
2023 – 2024

- Setup and moderated discussion platforms for the IEEE VR 2024 conference

Student Volunteer
2023

- Assisted in event operations at the IEEE ISMAR 2023 conference

Student Volunteer
2022

- Assisted in event operations at the IEEE ISMAR 2022 conference

TEACHING

Graduate Teaching Assistant | Virginia Tech
August 2022 – December 2022

- Comparative Languages (CS-3304)

Graduate Teaching Assistant | Virginia Tech
August 2021 – May 2022

- Software Design & Data Structures (CS-2114)

PEER REVIEW

IEEE Transactions on Visualization and Computer Graphics
Reviewed two journal papers

ACM VRST 2025
Reviewed two conference papers

IEEE ISMAR 2025
Reviewed four conference papers and received special recognition for outstanding review

IEEE VR 2025
Reviewed five poster paper submissions

IEEE ISMAR 2024
Reviewed one journal paper and one conference paper

ACM SUI 2024
Reviewed one conference paper

IEEE VR 2024
Reviewed one conference paper and one workshop paper