

# Alexander Giovannelli

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## STATEMENT OF PURPOSE

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My expertise lies in the intersection of human-computer interaction (HCI), extended reality (XR), and computer-supported cooperative work (CSCW). I am interested in developing and evaluating XR systems that facilitate real-time, synchronous collaboration for simultaneous user cooperation, as well as recording and playback functionalities to support asynchronous collaboration over different time periods.

## EDUCATION

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<b>Virginia Tech</b> Ph.D. in Computer Science advised by Doug A. Bowman, GPA: 4.00/4.00	Blacksburg, VA, USA Aug. 2021–Present
<b>University of Cincinnati</b> B.S. in Computer Engineering with German Studies minor, GPA: 3.30/4.00	Cincinnati, OH, USA Aug. 2013–May 2018

## RESEARCH EXPERIENCE

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<b>Virginia Tech</b> Graduate Research Assistant	Blacksburg, VA, USA Jan. 2023–Present
<ul style="list-style-type: none"><li>– Investigate the usage of extended reality technologies for time and place attributes of collaborative tasks</li><li>– Design and develop extended reality prototype applications according to project stakeholder specifications</li><li>– Report and publish findings from user studies evaluating prototype features</li></ul>	
<b>Lawrence Livermore National Laboratory</b> Computing Research Intern	Livermore, CA, USA May 2023–Aug. 2023
<ul style="list-style-type: none"><li>– Coordinated meetings with subject matter experts to derive a summer research initiative and objective</li><li>– Designed and developed virtual reality prototype applications to assist in remote collaborative processes</li><li>– Enhanced prototype capabilities following stakeholder evaluations and user study feedback</li></ul>	
<b>Virginia Tech</b> Graduate Research Assistant	Blacksburg, VA, USA May 2022–Aug. 2022
<ul style="list-style-type: none"><li>– Researched and identified knowledge gaps in avatar-mediated communication for extended reality</li><li>– Documented and presented systematically reviewed literature to stakeholders for proposed project approval</li><li>– Developed, evaluated, and published findings from the resulting extended reality prototype</li></ul>	

## WORK EXPERIENCE

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<b>JPMorgan Chase &amp; Co.</b> Associate Software Engineer I	Columbus, OH, USA Jul. 2018–Jul. 2021
<ul style="list-style-type: none"><li>– Lead development and design of Chase COVID Hub to assist and inform clients of available financial assistance</li><li>– Developed Chase Security Center to provide ease of access to client security and privacy settings</li><li>– Maintained and enhanced the Chase Offers feature across web and mobile platforms</li><li>– Acted as the subject matter expert for the behavioral-driven development initiative of Chase.com</li><li>– Documented and presented new feature highlights and advancements to project stakeholders</li></ul>	

**Siemens Healthineers**

Software Engineer Intern

Forchheim, BY, DE

Jan. 2017–Aug. 2017

- Developed a procedural management system to assist physician usage of advanced therapy devices
- Produced system architecture diagrams to document project design modifications and functionalities
- Participated in international software integration meetings utilizing both German and English languages

**Granville Exempted Village Schools**

Systems Administrator Intern

Granville, OH, USA

May 2016–Jul. 2016

- Managed Windows and Linux servers to maintain and improve school network infrastructure
- Regulated software updates to devices including operating systems and applications
- Lead a team of technicians to fulfill field service requests on behalf of school staff

**Matrix Technologies, Inc.**

Computer Programmer and Systems Analyst Intern

Maumee, OH, USA

Aug. 2015–Dec. 2015

- Conducted field service interviews with various stakeholders to distill features for user experience improvements
- Designed and developed internal software tools to automate project management processes
- Evaluated software tool quality in accordance with end-user feedback to improve existing tool capabilities

**Matrix Technologies, Inc.**

Computer Programmer and Systems Analyst Intern

Maumee, OH, USA

Aug. 2014–Dec. 2014

- Developed a managerial dashboard for tracking project data including financial and engineering documents
- Proposed, implemented, and evaluated front-end design changes for improved end-user application experience
- Participated in multi-disciplinary planning meetings to add and supplement the application feature backlog

## PUBLICATIONS

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### Peer Reviewed Journal Papers

- J1. **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

- C1. **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.
- C2. 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.
- C3. 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,” in *2023 IEEE International Symposium on Mixed and Augmented Reality (ISMAR)*, Sydney, Australia, 2023, pp. 303-311, doi: 10.1109/ISMAR59233.2023.00045.
- C4. **A. Giovannelli**, L. Lisle, and D. A. Bowman, “Exploring the impact of visual information on intermittent typing in virtual reality”, in *2022 IEEE International Symposium on Mixed and Augmented Reality (ISMAR)*, 2022, pp. 8-17, doi: 10.1109/ISMAR55827.2022.00014.

## Peer Reviewed Workshops, Posters, & Abstracts

- W1. **A. Giovannelli** et al., “Planet Purifiers: A Collaborative Immersive Experience Proposing New Modifications to HOMER and Fishing Reel Interaction Techniques,” 2025 IEEE Conference Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW), Saint Malo, France, 2025.
- W2. L. Lane, J. Thomas, **A. Giovannelli**, I. A. 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 Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW), Saint Malo, France, 2025.
- W3. L. Lane, **A. Giovannelli**, I. A. Tahmid, F. Rodrigues, C. Ilo, D. Hsu, C. Lougiakis, S. Davari, and D. A. Bowman, “The Alchemist: A Gesture-Based 3D User Interface for Engaging Arithmetic Calculations”, *to appear in 2024 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW), 2024, pp. 1106-1107*, doi: 10.1109/VRW62533.2024.00347.
- W4. 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,” in *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.
- W5. **A. Giovannelli** et al., “Clue hog: An immersive competitive lock-unlock experience using hook on go-go technique for authentication in the metaverse”, in *2023 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW), 2023, pp. 945-946*, doi: 10.1109/VRW58643.2023.00315.
- W6. J. Thomas, S. W. Lee, **A. Giovannelli**, L. Lane, and D. Bowman, “A communication-focused framework for understanding immersive collaboration experiences”, in *2023 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW), 2023, pp. 301-304*, doi: 10.1109/VRW58643.2023.00070.
- W7. L. Lisle, F. Lu, S. Davari, I. A. Tahmid, **A. Giovannelli**, C. Llo, L. Pavanatto, L. Zhang, L. Schlueter, and D. A. Bowman, “Clean the ocean: An immersive vr experience proposing new modifications to go-go and wim techniques”, in *2022 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW), 2022, pp. 920-921*, doi: 10.1109/VRW55335.2022.00311.
- W8. E. Mohammadrezaei, **A. Giovannelli**, L. Lane, and D. Gračanin, “A digital twin based approach to smart lighting design”, in *2022 Winter Simulation Conference (WSC), 2022*.

## AWARDS

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| • Davenport Leadership Fellowship                              | 2023–2024 |
| • I/ITSEC Leonard P. Gollobin Scholarship                      | 2023      |
| • Best Conference Paper Honorable Mention IEEE ISMAR 2022 [C4] | 2022      |
| • Best 3DUI Contest Entry [W7]                                 | 2022      |
| • International Co-op Program Scholarship                      | 2016–2017 |
| • Matrix Technologies, Inc. Co-op Scholarship                  | 2014–2016 |

## TEACHING

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| • <b>Graduate Teaching Assistant</b> at Virginia Tech<br><i>Comparative Languages (CS-3304)</i>                 | Aug. 2022–Dec. 2022 |
| • <b>Graduate Teaching Assistant</b> at Virginia Tech<br><i>Software Design &amp; Data Structures (CS-2114)</i> | Jan. 2022–May 2022  |
| • <b>Graduate Teaching Assistant</b> at Virginia Tech<br><i>Software Design &amp; Data Structures (CS-2114)</i> | Aug. 2021–Dec. 2021 |

## PROFESSIONAL SERVICE

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- VERA Committee Member 2024–Present  
*Inaugural member of the Virtual Experience Research Accelerator (VERA) Ethics and Privacy Committee*
- Reviewer 2022–Present  
*Served as a reviewer for paper and workshop submissions for the following venues: IEEE Transactions on Visualization and Computer Graphics (TVCG), IEEE Virtual Reality (VR), IEEE International Symposium on Mixed and Augmented Reality (ISMAR), and ACM Symposium on Spatial User Interaction (SUI)*
- Member of the Center for Human-Computer Interaction 2021–Present  
*Actively participate in seminars at the Center focusing on the study of human-computer interaction*
- Communications Chair 2023–2024  
*Developed and moderated discussion platforms for the 2024 IEEE VR conference*
- Student Volunteer 2022–2023  
*Assisted in event operations at the IEEE International Symposium on Mixed and Augmented Reality (ISMAR) and IEEE Virtual Reality (VR)*
- Member of Computer Science Graduate Student Council 2021–2023  
*Represent the interests of the CS graduate student body and assist in event planning*
- Poster Committee Member 2024  
*Appointed to review and evaluate poster submissions for IEEE Virtual Reality (VR)*

## SKILLS

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**Programming Languages:** C#, Python, JavaScript, Java, HTML, CSS

**Productivity Tools:** Unity, Git, JMP, SPSS, LaTeX, Tableau