Alexander Giovannelli

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Summary

My research interest lies in the intersections of Human-Computer Interaction (HCI), Augmented/Virtual Reality (AR/VR), and 3D User Interfaces (3DUI). My current work involves prototyping and evaluating communication methods for collaborative work in AR/VR. Specifically, I am exploring how we could improve non-verbal communicative cues when using avatars and visual information in immersive collaboration applications.

Education

Virginia Tech — Blacksburg, VA, USA
Ph.D. in Computer Science advised by Doug A. Bowman, GPA: 4.00/4.00 — Aug. 2021–Present

University of Cincinnati — Cincinnati, OH, USA
B.S. in Computer Engineering with German Studies minor, GPA: 3.30/4.00 — Aug. 2013–May 2018

Skills

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

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

Experience

Lawrence Livermore National Lab — Livermore, CA, USA
Computing Research Intern — Summer 2023

- Perform contextual inquiry and analysis to derive research intent and contribution for project team
- Create prototype applications for virtual reality experiences using C# and Unity technologies
- Facilitate meetings between multi-disciplinary project stakeholders

Virginia Tech — Blacksburg, VA, USA
Graduate Research Assistant — Summer 2022 & Spring 2023

- Conduct research regarding collaboration using avatars in augmented and virtual reality
- Generate prototype applications and experimental studies using C# and Unity technologies
- Design and administer user studies in accordance with Institutional Review Board regulations

JPMorgan Chase & Co. — Columbus, OH, USA
Associate Software Engineer I — Jul. 2018–Jul. 2021

- Developed front-end features for Chase.com using JavaScript, HTML, and CSS technologies
- Designed and implemented minimum viable product user interfaces via Figma design tool
- Authored technical documentation for product owners and developers
- Appointed subject matter expert in behavioral-driven development and CI/CD initiatives

Siemens Healthineers — Forchheim, BY, DE
Software Engineer Intern — Jan. 2017–Aug. 2017

- Developed back-end software for use in advanced therapy devices using the C# programming language
- Created system architecture diagrams to record project design changes and behaviors with Sparx Enterprise Architect
- Represented project team in international software integration meetings using German and English languages

Projects

- Avatars for Multiscale Collaborative Virtual Environments — Mar. 2023–Present
  Design and prototyping of a virtual environment for collaboration in multiscale inspection processes
- Virtual Avatar Reaction Visualizations in VR — Jun. 2022–Mar. 2023
  Development of a virtual environment for user studies investigating avatar reaction visualizations in collaboration
- Environment for Intermittent Typing Experiments in VR — Jan. 2022–May 2022
  Creation of a virtual environment with mixed reality capabilities for conducting text-entry user studies

Publications

[1] **A. Giovannelli**, F. Rodrigues, S. Davari, I. A. Tahmid, L. Lane, C. Connor, K. Davidson, G. N. Ramirez, B. David-John, and D. A. Bowman, "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.

[2] 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.

[3] **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.

[4] 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.

[5] 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 & Scholarships

- Honorable Mention for Best IEEE ISMAR 2022 Conference Paper [3] — 2022
- Best 3DUI Contest Entry [4] — 2022

Teaching

- **Graduate Teaching Assistant** at Virginia Tech — Fall 2022
  Comparative Languages (CS-3304)
- **Graduate Teaching Assistant** at Virginia Tech — Fall 2021 & Spring 2022
  Software Design & Data Structures (CS-2114)

Organizations

- Member of Computer Science Graduate Student Council — 2021–Present
  Represented the interests of the CS graduate student body, helped organize social events among graduate students, and helped incoming students become familiar with departmental procedures and activities
- Member of the Center for Human-Computer Interaction — 2021–Present
  Active participant in the Center seminars regarding the design of novel interactive experiences and the study of human interaction with and through technology.