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 visualizations for collaborative work in AR/VR. Specifically, I am exploring how we could improve non-verbal communicative cues when using avatars 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

Development Tools: Unity, Git, Jira

Research Tools: JMP, SPSS, LaTeX, Tableau

EXPERIENCE

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

- Conduct research regarding asynchronous collaboration and affective visualization enhancements for avatars in augmented and virtual reality
- Generate prototype applications and experimental studies using C# and Unity technologies
- Design and administer user studies in accordance to Institutional Review Board regulations
- Analyze user study data using Python, JMP, & SPSS technologies

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
- Automated logging of proprietary systems using the Python programming language

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 system integration meetings using German and English languages

Projects

- CLUE: An Immersive Competitive Lock-Unlock Experience   Nov. 2022–Present
  Development of a gamified experience for Metaverse security using token sequences as an authentication method
- Virtual Avatar Reaction Visualizations in VR   Jun. 2022–Present
  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
  Created a virtual environment with mixed reality capabilities for conducting text-entry user studies
- Smart Lighting Design in Immersive VR   Jan. 2022–Apr. 2022
  Developed methods and techniques to support smart real-time lighting design in virtual reality
- Clean the Ocean: An Immersive VR Experience   Oct. 2021–Mar. 2022
  Created a virtual reality experience implementing novel enhancements to classic 3D interaction techniques

Publications

[1] J. Thomas, S. W. Lee, **A. Giovannelli**, L. Lane, and D. A. 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.

[2] **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.

[3] 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.

[4] 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 [2]   2022
- Best 3DUI Contest Entry [3]   2022
- International Co-op Program Scholarship   2016–2017
- Matrix Technologies, Inc. Co-op Scholarship   2014–2016

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–Current
  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