

MATT GOTTSACKER
Curriculum Vitae—March 15, 2025

PERSONAL INFORMATION

Name & Titles: Mr. Matt Gottsacker, PhD Candidate
Nationality: USA
Languages: English (Fluent), Spanish (Intermediate proficiency)

CONTACT INFORMATION

E-Mail: matthew.gottsacker@ucf.edu
Personal website: <https://mattgottsacker.space/>
Lab Website: <https://sreal.ucf.edu>
Google Scholar: <https://scholar.google.com/citations?user=1HM2NP4AAAAJ>
LinkedIn: <https://www.linkedin.com/in/matthewgottsacker/>

ACADEMIC STUDIES AND DEGREES

08/2020–present **Doctoral** degree (expected 09/2025, advisor Prof. Gregory Welch) in
Computer Science at the University of Central Florida
08/2015–05/2019 **Bachelor of Science** degree in Computer Science, with a minor in
English (concentration on Rhetoric, Writing, and Technology) at Saint
Louis University
01/2017–05/2017 **Semester abroad** at Webster University in Vienna, Austria

RESEARCH INTERESTS

Virtual/Mixed/Augmented Reality, Human-Computer Interaction, Interruptions, Cross-Reality Interactions and Transitions, Generative AI

PROFESSIONAL POSITIONS AND AFFILIATIONS

08/2020–present ***Graduate Research Assistant***

Synthetic Reality Lab (SREAL), Institute for Simulation and Training,
University of Central Florida, Orlando, FL, United States

- Research novel interfaces for facilitating transitions and interactions across different Mixed Reality computing environments. Conduct human-subjects experiments capturing quantitative and qualitative data. Analyze results and share findings through peer-reviewed academic publications, conference presentations, and public social media posts. Advised by Prof. Greg Welch.

06/2023–12/2024 ***Research Intern***

Global Technology Applied Research, *JPMorganChase*, New York, NY,
United States

- Formed connections and engaged with company stakeholders to identify needs that could be addressed with emerging technology. Designed and implemented novel prototypes. Conducted user studies to quantitatively and qualitatively evaluate users' experiences. Mentored and managed by Dr. Mengyu Chen, Dr. Blair MacIntyre.

05/2022–08/2022 ***Visiting Researcher***

Computer Graphics and User Interfaces Lab, *Columbia University*,
New York, NY, United States

- Research techniques for transitioning among multiple perspectives in a collaborative Mixed Reality virtual environment, and explore interfaces to resolve mismatches between AR users' physical and virtual positions after transitioning into another virtual perspective. Advised by Prof. Steven Feiner.

08/2019–06/2020 ***Alumni Service Corps Teacher***

Department of Mathematics, *Marquette University High School*, Milwaukee, WI, United States

- Taught Computer Programming course using the Java programming language; designed curriculum to be interdisciplinary, creative, innovative, collaborative, and ethical. Mentored students on the FIRST Robotics Competition programming subteam. Served as a Kairos retreat leader. Co-directed the 2019 production of *Senior Follies*, a play written by students.

06/2019–08/2019 ***Data Science Research Intern***

Nintex, Bellevue, WA, United States

- Developed a fully automated data analysis pipeline to gain insights about user behavior. The pipeline detects fresh data and transforms meaningful information into reports for company executives that summarizes customer usage and highlights interesting or outlier activity.

05/2018–07/2018 **Research Intern**

MIT Lincoln Laboratory, Lexington, MA, United States

- Worked on a Software-Defined Networking application that allows network analysts to write access control policies based on high-level identifiers like usernames that are enforced at the network level. Created a web-based application for the system to visualize the bindings between pairs of network identifiers.

08/2018–05/2019 **Web Developer and Technology Consultant**

Computer Assisted Instruction Lab (Compass Lab), *Saint Louis University*, St. Louis, MO, United States

- Designed and implemented a website (slucompasslab.com) to better connect students and instructors in the SLU English Department with the Lab's technology resources. Built a web-based virtual reality tour to acquaint users with the technology.

05/2017–08/2017 **Application Development Intern**

State Farm, Bloomington, IL, United States

- Created an Enterprise Service Bus to connect a UI to an API.

05/2016–08/2016 **Technical Writer and Pre-Sales Support**

airSpring Software, Lexington, KY, United States

- Edited and created high-level product documentation around instruction and usage examples of the company software. Created product demos for software sales.

AWARDS AND HONORS

- 2022 **Meta PhD Research Fellowship Finalist.** One of two finalists in the AR/VR Future Technologies program track. There were over 2,300 applicants across 21 tracks.
- 2022 **Doctoral Consortium** at *IEEE Virtual Reality and 3D User Interfaces (VR)*. Selected to present and discuss dissertation plans with AR/VR researchers from academia and industry.
- 2019 **James D. Collins Award for Academic Excellence** at *Saint Louis University*. Recognized by the Computer Science department for outstanding scholastic and creative achievement, awarded to one senior each year.

- 2018 ***Intern Idea Innovation Challenge Winner*** at *MIT Lincoln Laboratory*. With four other interns, designed a system that uses natural language processing techniques to analyze workplace speech patterns to detect and inform employees of implicit biases. Presented to five executives of MIT LL.
- 2018 ***Deloitte Consulting Challenge Winner*** at *Saint Louis University*. Designed and presented a mixed-use urban redevelopment plan for Midtown in St. Louis.
- 2018 ***PricewaterhouseCoopers Consulting Challenge Winner*** at *Saint Louis University*. Designed and presented a case study solution for convenience store point of sale automation.
- 2018 ***Knoedler Student Research Grant***, travel scholarship to attend the *ACM Internet Measurement Conference* at Northeastern University in Boston, MA, United States.
- 2017 ***GENI Regional Workshop Travel Grant***, travel scholarship to attend workshop about using the Global Environment for Network Innovations at the University of Oregon in Eugene, OR, United States.
- 2015 ***Presidential Scholarship Finalist*** at *Saint Louis University*, scholarship for exemplary student leaders, totaling \$80,000 over four years

PATENTS

- **Matt Gottsacker**, Mengyu Chen, David Saffeo, Feiyu Lu, Blair MacIntyre. United States Provisional Patent Pub. No. 2025/0022020 A1: **Systems and Methods for Audience Feedback Guided Mixed Reality (Pending)**.
- Gregory Welch, **Matt Gottsacker**, Nahal Norouzi, Gerd Bruder. United States Provisional Patent Pub. No. 2023/0336804 A1: **Contextual Audiovisual Synthesis for Attention State Management (Pending)**.
- Gregory Welch, **Matt Gottsacker**, Nahal Norouzi, Gerd Bruder. United States Patent No. 11,729,448: **Intelligent Digital Interruption Management**.

JOURNAL PUBLICATIONS

- [1] Robbe Cools, Inne Maerevoet, Matt Gottsacker, and Adalberto Simeone. **Comparison of Cross-Reality Transition Techniques Between 3D and 2D Display Spaces in Desktop-AR Systems**. In *IEEE Conference on Virtual Reality and 3D User Interfaces (VR)*, pages 1–8, 2025.

- [2] **Matt Gottsacker**, Hiroshi Furuya, Zubin Datta Choudhary, Austin Erickson, Ryan Schubert, Gerd Bruder, Michael P. Browne, and Gregory F. Welch. **Investigating the relationships between user behaviors and tracking factors on task performance and trust in augmented reality**. In *Elsevier Computers & Graphics*, pages 1–14, 2024.

CONFERENCE PUBLICATIONS

- [3] **Matt Gottsacker**, Mengyu Chen, David Saffo, Feiyu Lu, Benjamin Lee, and Blair MacIntyre. **Examining the Effects of Immersive and Non-Immersive Presenter Modalities on Engagement and Social Interaction in Co-located Augmented Presentations**. In *CHI Conference on Human Factors in Computing Systems (CHI)*, pages 1–19, 2025.
- [4] **Matt Gottsacker**, Hiroshi Furuya, Laura Battistel, Carlos Pinto Jimenez, Nicholas LaMontagna, Gerd Bruder, and Gregory F. Welch. **Exploring Spatial Cognitive Residue and Methods to Clear Users’ Minds When Transitioning Between Virtual Environments**. In *Proceedings of the IEEE International Symposium on Mixed and Augmented Reality (ISMAR)*, pages 1000–1009, 2024.
- [5] Hiroshi Furuya, Laura Battistel, Zubin Datta Choudhary, **Matt Gottsacker**, Gerd Bruder, and Gregory F. Welch. **Difficulties in Perceiving and Understanding Robot Reliability Changes in a Sequential Binary Task**. In *Proceedings of the ACM Symposium on Spatial User Interaction (SUI)*, pages 1–11, 2024.
- [6] Juanita Benjamin, Austin Erickson, **Matt Gottsacker**, Gerd Bruder, and Gregory F. Welch. **Evaluating Transitive Perceptual Effects Between Virtual Entities in Outdoor Augmented Reality**. In *Proceedings of the IEEE Conference on Virtual Reality and 3D User Interfaces (VR)*, pages 619–629, 2024.
- [7] Hiroshi Furuya, Zubin Choudhary, Jasmine Joyce DeGuzman, **Matt Gottsacker**, Gerd Bruder, and Gregory F. Welch. **Using Simulated Real-world Terrain in VR to Study Outdoor AR Topographic Map Interfaces**. In *Proceedings of the International Conference on Artificial Reality and Telexistence Eurographics Symposium on Virtual Environments (ICAT-EGVE)*, pages 1–10, 2023.
- [8] **Matt Gottsacker**, Nahal Norouzi, Ryan Schubert, Frank Guido-Sanz, Gerd Bruder, and Gregory F. Welch. **Effects of Environmental Noise Levels on Patient Hand-off Communication in a Mixed Reality Simulation**. In *Proceedings of the ACM Conference on Virtual Reality and Software Technology (VRST)*, pages 1–10, 2022.
- [9] Nahal Norouzi, **Matt Gottsacker**, Gerd Bruder, Pamela J. Wisniewski, Jeremy Bailenson, and Gregory F. Welch. **Virtual Humans with Pets and Robots: Exploring**

- the Influence of Social Priming on One’s Perception of a Virtual Human.** In *Proceedings of the IEEE Conference on Virtual Reality and 3D User Interfaces (VR)*, pages 311–320, 2022.
- [10] **Matt Gottsacker**, Nahal Norouzi, Kangsoo Kim, Gerd Bruder, and Gregory F. Welch. **Diegetic Representations for Seamless Cross-Reality Interruptions.** In *Proceedings of the IEEE International Symposium on Mixed and Augmented Reality (ISMAR)*, pages 310–319, 2021.
- [11] Connor D. Flick, Courtney J. Harris, Nikolas T. Yonkers, Nahal Norouzi, Austin Erickson, Zubin Choudhary, **Matt Gottsacker**, Gerd Bruder, and Gregory F. Welch. **Trade-Offs in Augmented Reality User Interfaces for Controlling a Smart Environment.** In *Proceedings of the ACM Symposium on Spatial User Interaction (SUI)*, pages 1–11, 2021.
- [12] Zubin Choudhary, **Matt Gottsacker**, Kangsoo Kim, Ryan Schubert, Jeanine Stefanucci, Gerd Bruder, and Gregory F. Welch. **Revisiting Distance Perception with Scaled Embodied Cues in Social Virtual Reality.** In *Proceedings of the IEEE International Conference on Virtual Reality and 3D User Interfaces (VR)*, pages 788–797, 2021.

CONFERENCE PUBLICATIONS

- [13] Laura Battistel, **Matt Gottsacker**, Gerd Bruder, Gregory F Welch, Riccardo Parin, and Massimiliano Zampini. **Chill or Warmth: Exploring Temperature’s Impact on Interpersonal Boundaries in VR.** In *IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW)*, pages 621–623, 2024.
- [14] **Matt Gottsacker**, Mengyu Chen, David Saffo, Feiyu Lu, and Blair MacIntyre. **Asymmetric Immersive Presentation System for Financial Data Visualization.** In *IEEE Visualization and Visual Analytics (VIS) MERCADO Workshop*, pages 1–6, 2023.
- [15] **Matt Gottsacker**, Mengyu Chen, David Saffo, Feiyu Lu, and Blair MacIntyre. **Hybrid User Interface for Audience Feedback Guided Asymmetric Immersive Presentation of Financial Data.** In *Adjunct Proceedings of IEEE International Symposium on Mixed and Augmented Reality (ISMAR)*, pages 199–204, 2023.
- [16] Robbe Cools⁺, **Matt Gottsacker**⁺, Adalberto Simeone, Gerd Bruder, Gregory F. Welch, and Steven Feiner. **Towards a Desktop-AR Prototyping Framework: Prototyping Cross-Reality Between Desktops and Augmented Reality.** In *Adjunct Proceedings of IEEE International Symposium on Mixed and Augmented Reality (ISMAR)*, pages 175–182, 2022.

⁺ : Denotes equal contributions.

POSTERS, DEMOS & ABSTRACTS

- [17] **Matt Gottsacker**, Nels Numan, Anthony Steed, Gerd Bruder, Gregory F. Welch, and Steven Feiner. **Decoupled Hands: An Approach for Aligning Perspectives in Collaborative Mixed Reality**. In *CHI Conference on Human Factors in Computing Systems (CHI) Extended Abstracts (Late Breaking Work)*, pages 1–8, 2025.
- [18] **Matt Gottsacker**, Gerd Bruder, and Gregory F. Welch. **rlty2rlty: Transitioning Between Realities with Generative AI**. In *IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW)*, pages 1160–1161, 2024.
- [19] **Matt Gottsacker**, Raiffa Syamil, Pamela J. Wisniewski, Gerd Bruder, Carolina Cruz-Neira, and Gregory F. Welch. **Exploring Cues and Signaling to Improve Cross-Reality Interruptions**. In *Adjunct Proceedings of IEEE International Symposium on Mixed and Augmented Reality (ISMAR)*, pages 827–832, 2022.
- [20] **Matt Gottsacker**. [DC] **Balancing Realities by Improving Cross-Reality Interactions**. In *IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW)*, pages 944–945, 2022.
- [21] **Matt Gottsacker**, Steven R. Gomez, Richard Skowyra, and Flavio Esposito. **Toward Effective Visualization of Network Identifier Bindings in a Software-Defined Network**. In *ACM Internet Measurement Conference (IMC)*, 2018.

TEACHING

- *Teacher*, Computer Programming, Marquette University High School, 2019-2020
 - Introductory Computer Science class taught to grades 10-12 using the Java programming language. Designed the course curriculum to be interdisciplinary and creative through projects that allowed students to incorporate their interests from other classes. Brought in guest speakers professionally designing and building software at companies such as Epic and Rivian. Archived course website: <https://mattgottsacker.space/comp-prog-website/>
- *Teaching Assistant*, CAP 5115 Virtual Reality Engineering, Spring 2025
 - Created tutorial videos, provided technical and teaching support in office hours, graded assignments.
- *Teaching Assistant*, CGS 3269 Computer Architecture Concepts, Spring 2025
 - Provided teaching support in office hours, graded assignments.

- *Teaching Assistant*, CAP 6110 Augmented Reality Engineering, Fall 2024
 - Created tutorial videos, provided technical and teaching support in office hours, graded assignments.
- *Guest Lecturer*, CAP 6119 Advanced Virtual Reality, taught by Dr. Carolina Cruz-Neira, University of Central Florida, 2024.
 - “Transitional Reality User Interfaces”
- *Guest Lecturer*, CAP 5115 Virtual Reality Engineering, taught by Dr. Ryan McMahan, University of Central Florida, 2021.
 - “System Fidelity”
 - “Haptics”
- *Guest Lecturer*, UCF NASA SUITS Workshop, Marquette University High School, 2021
 - As the Outreach Lead on the UCF NASA SUITS team, led an educational event at MUHS Hilltopper Robotics to demonstrate and discuss how XR technology is used for space exploration.
- Students Mentored
 - Abraham Hernandez, University of Central Florida, undergraduate student (Computer Science)
 - Carlos Jimenez, University of Central Florida, undergraduate student (Game Design)
 - Nicholas LaMontagna, University of Central Florida, undergraduate student (Game Design)
 - Inne Maerevoet, KU Leuven, Master’s student (Computer Science)

PROFESSIONAL SERVICE

- **XR Future Faculty Forum (F3)**
 - With Cassidy R. Nelson and Niall L. Williams, I created F3 to connect aspiring and current faculty in the XR field through tutorials, panels, and 1-1 mentorship sessions at the IEEE ISMAR and VR conferences. Since its inception at ISMAR 2023, I have regularly served on the organizing committee.

- **XR Student Researchers Community**
 - Created a Discord server to connect students researching XR technologies all around the world. Over 350 students discuss research, organize meet-ups, recruit participants for online studies, and socialize.
- **Journal and Conference Reviewer** Since 2022, I have regularly reviewed multiple papers at the following conferences and journals. I have received three special recognitions for writing outstanding reviews.
 - ACM SIGCHI
 - IEEE ISMAR
 - IEEE VR
 - Frontiers in Virtual Reality
- **Professional Associations**
 - Member, Association for Computing Machinery (ACM)
 - Member, Institute of Electrical and Electronics Engineers (IEEE)
- **Conference Chair Positions**
 - *XR Future Faculty Forum Chair*, IEEE VR 2025
 - *XR Future Faculty Forum Chair*, IEEE ISMAR 2024
 - *XR Future Faculty Forum Chair*, IEEE VR 2024
 - *Student Volunteer Chair*, IEEE VR 2024
 - *XR Future Faculty Forum Chair*, IEEE ISMAR 2023
- **Other Conference Service Positions**
 - *Student Volunteer*, IEEE ISMAR 2024
 - *Paper Session Chair*, “Virtual Humans, Collaboration, and Social Interaction 1,” ACM Conference on Virtual Reality Software and Technology (VRST), 2022
 - *Student Volunteer and Mentor*, IEEE Virtual Reality and 3D User Interfaces (VR), 2022
 - *Student Volunteer and Mentor*, IEEE International Symposium on Mixed and Augmented Reality (ISMAR), 2021
 - *Student Mentor*, IEEE Virtual Reality and 3D User Interfaces (VR), 2021
 - *Social Media Chair*, International Conference on Artificial Reality and Telexistence (ICAT) & Eurographics Symposium on Virtual Environments (EGVE), 2020