# MATT GOTTSACKER

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## EDUCATION

**Ph.D in Computer Science (Doctorate anticipated 2025)**  GPA: 3.92
*University of Central Florida, Orlando, FL*
Advisor: Prof. Gregory Welch
Selected Coursework: HCI Research Methods, Research Methods in Cognitive Science, VR Engineering, AR Engineering, Mixed Reality Project, Design & Analysis of Algorithms, Computer Architecture, Computational Complexity

**B.S. in Computer Science, English (Minor), May 2019**  GPA: 3.93 (Summa cum laude)
*Saint Louis University,* St. Louis, MO
*Webster University,* Vienna, Austria (Spring 2017)

## PUBLICATIONS

- **M. Gottsacker**, N. Norouzi, K. Kim. G. Bruder, G. Welch. Diegetic Representations for Seamless Cross-Reality Interruptions. Proceedings of the *IEEE International Symposium on Mixed and Augmented Reality (ISMAR),* pp. 310-319. 2021.
- C. Flick, C. J. Harris, N. Yonkers, N. Norouzi, A. Erickson, Z. Choudhary, **M. Gottsacker**, G. Bruder, G. Welch. Trade-offs in Augmented Reality User Interfaces for Controlling a Smart Environment. Proceedings of the *ACM Symposium on Spatial User Interfaces (SUI),* pp. 1-11. 2021.
- Z. Choudhary, **M. Gottsacker**, K. Kim, R. Schubert, J. Stefanucci, G. Bruder, G. Welch. Revisiting Distance Perception with Scaled Embodied Cues in Social Virtual Reality. Proceedings of *IEEE Conference on Virtual Reality and 3D User Interfaces (VR)*, pp. 788-797. 2021.
- **M. Gottsacker**, S.R. Gomez, R. Skowyra, and F. Esposito. Toward Effective Visualization of Network Identifier Bindings in a Software-Defined Network. Poster at *ACM Internet Measurement Conference*. 2018.

## ACCEPTED PUBLICATIONS

- **M. Gottsacker**. [DC] Balancing Realities by Smoothing Cross-Reality Interactions. *IEEE Conference on Virtual Reality and 3D User Interfaces (VR) Extended Abstracts*. 2022.

## UNDER REVIEW

- **M. Gottsacker**, R. Syamil, P. Wisniewski, G. Bruder, C. Cruz-Neira, G. Welch. Exploring Cues and Signalling to Improve Cross-Reality Interruptions. *ACM CHI Conference on Human Factors in Computing Systems Extended Abstracts*. 2022.

## PENDING PATENTS

G. Welch, **M. Gottsacker**, N. Norouzi, G. Bruder. United States Patent: *Intelligent Digital Interruption Management*.

## AWARDS AND HONORS

**2022 Meta PhD Research Fellowship Finalist,** *Meta*
One of two finalists in the AR/VR Future Technologies track. There were over 2,300 applicants across 21 tracks.
**James D. Collins Award for Academic Excellence,** *Saint Louis University*
Recognized by the Computer Science Department for outstanding scholastic and creative achievement. Awarded to one senior in the department each year.
**Intern Idea Innovation Challenge Winner**, *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.
**Presidential Scholarship Finalist**, *Saint Louis University*
Scholarship totaling $80,000 over 4 years.

## WORK EXPERIENCE

**Graduate Research Assistant**  *August 2020 – Present*
*SREAL Lab, University of Central Florida,* Orlando, FL
Research AR/VR technologies and HCI. Particular research interests include cross-reality interactions, transitioning users between physical and virtual realities, interruptions.
Work with Soar Technology Inc. to create an MR testbed to evaluate a training tool for combat casualty handoffs.
Guest lecturer in VR Engineering course (taught by Prof. Ryan McMahan).

**Alumni Service Corps Teacher** *August 2019 – June 2020*
*Marquette University High School*, Milwaukee, WI
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.

**Data Science Research Intern** *June 2019 – August 2019*
*Nintex,* Bellevue, WA
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.

**Research Intern** *May 2018 – July 2018*
*MIT Lincoln Laboratory,* Lexington, MA
Worked on a Software-Defined Networking application that allows network analysts to write access control policies 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.

**Web Developer and Technology Consultant** *August 2018 – May 2019*
*Computer Assisted Instruction Lab, Saint Louis University English Department*, St. Louis, MO
Designed and implemented a website (`slucompasslab.com`) to better connect students and instructors with the Lab's technology resources. Built a web-based virtual reality tour to acquaint users with the technology.

## PROFESSIONAL SERVICE

**Student Volunteer and Mentor,** *IEEE International Symposium on Mixed and Augmented Reality (ISMAR).* 2021.
**Student Mentor,** *IEEE Conference on Virtual Reality and 3D User Interfaces (VR).* 2021.
**Outreach Lead**, UCF "Eyes of the Pegasus" NASA SUITS team. 2021. Led an outreach event with Hilltopper Robotics (MUHS in Milwaukee, WI) to discuss and demonstrate XR technology for space exploration.
**Social Media Chair,** *International Conference on Artificial Reality and Telexistence & Eurographics Symposium on Virtual Environments (ICAT-EGVE)*. 2020.
**XR Grad Student Discord Server,** Started a Discord server to connect students researching XR technologies all around the world. Over 150 students share ideas, recruit participants for online studies, and socialize.
**Reviewer,** *IEEE Conference on Virtual Reality and 3D User Interfaces (VR).* 2022.
**Reviewer,** *ACM CHI Conference on Human Factors in Computing Systems.* 2022.

## PROFESSIONAL ASSOCIATIONS

**Student Member,** Association for Computing Machinery (ACM)
**Student Member,** Institute of Electrical and Electronics Engineers (IEEE)

## SELECTED PROJECTS  (DEMOS, CODE, AND MORE PROJECTS LINKED ON PERSONAL WEBSITE)

**AR Placemaking (mobile AR app)**
Collaboration with UCF Architecture Department to create a mobile application that allows users to view virtual models of proposed architecture projects situated where they will be built. Users can provide feedback on different architecture models through a survey in the app. Created an authoring tool app to allow architects to position virtual models easily with respect to an image target and update the positions for all users.

**DigitalNative.space (web)**
Observations, analysis, and experiments exploring how humans interact with computers. Includes a web-based virtual reality experience designed to study how people attend to an entirely digital world.

**SLU+ (Android app)**
Augmented reality map of Saint Louis University's campus. SLU+ adds markers on top of buildings and statues around campus and displays interactive, historic information to the user.

**St. Louis Parcel Data Aggregation (Bash)**
Collaboration project with a sociology researcher. This set of scripts scrapes the St. Louis Government's Open Data project and filters relevant parcel data into a tab-separated file. This data helped produce maps of the city of St. Louis based on total parcel value and how each parcel is used.

## PROGRAMMING

**Languages**: Python, C#, C++, JavaScript, Java, R, Bash, HTML, CSS
**Tools & Platforms**: Unity, Vuforia, Oculus Quest 2, SPSS, D3.js, A-Frame, Git, Node.js, Express.js, Databricks, Azure, AWS, Alexa Skills Kit, LaTeX, Mendeley, Flutter, Windows, Linux, Mac OSX