

# MATT GOTTSACKER

[mattgottsacker.space](https://mattgottsacker.space) | [matt.gottsacker@gmail.com](mailto:matt.gottsacker@gmail.com) | [github.com/mott-lab](https://github.com/mott-lab)

## EDUCATION

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### 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

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- **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. Skowrya, and F. Esposito. Toward Effective Visualization of Network Identifier Bindings in a Software-Defined Network. Poster at ACM Internet Measurement Conference. 2018.

## UNDER REVIEW

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

## PENDING PATENTS

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

## WORK EXPERIENCE

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### 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](http://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.

## Application Development Internship

May 2017 – August 2017

State Farm, Bloomington, IL

Created an Enterprise Service Bus using MuleSoft to connect a UI to a REST API.

## Technical Writer and Pre-Sales Support

May 2016 – August 2016

airSpring Software, Lexington, KY

Created and edited high-level product documentation around instruction and usage examples of the company's software. Created product demos for software sales.

## PROFESSIONAL SERVICE

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**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.

## PROFESSIONAL ASSOCIATIONS

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**Student Member**, Association for Computing Machinery (ACM)

**Student Member**, Institute of Electrical and Electronics Engineers (IEEE)

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

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### 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.

### WikiLearn Spanish (Alexa Skill)

Alexa application to improve Spanish learners' listening comprehension by reading Wikipedia articles in alternating English and Spanish.

### St. Louis Parcel Data Aggregation (Bash)

Collaboration with a sociology researcher. Wrote a set of scripts to scrape the St. Louis Government's Open Data project and filter relevant parcel data into a tab-separated file. The data helped produce maps of the city of St. Louis based on total parcel value and how each parcel is used.

### Sentiment Analysis (Python)

Python program to use 30,000 tweets marked as positive and negative in the Basque language as training data to classify 3,000 unknown tweets. Most accurate results in class with 73% correct classification.

## PROGRAMMING

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**Languages:** Python, C#, C++, JavaScript, Java, Bash, HTML, CSS

**Tools & Platforms:** Unity, Vuforia, Oculus Quest 2, D3.js, A-Frame, Git, Node.js, Express.js, Databricks, Azure, AWS, Alexa Skills Kit, LaTeX, Mendeley, Windows, Linux, Mac OSX

## AWARDS AND HONORS

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**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, developed an idea for a system that uses natural language processing techniques to analyze speech patterns in the workplace in order to detect and inform employees of implicit biases. Presented idea to five executives of MIT LL.

**Deloitte Consulting Challenge Winner, Deloitte**

Designed and presented a mixed use, pedestrian-first redevelopment plan for Midtown in St. Louis.

**Presidential Scholarship Finalist, Saint Louis University**

Scholarship totaling \$80,000 over 4 years.