Karina LaRubbio

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EDUCATION

Bachelor of Science in Computer Science, University of Florida, Gainesville, FL August 2020 - May 2024
GPA: 3.97 | *Selected Coursework:* Human-Centered Input Recognition Algorithms, Programming Language Concepts, Computer Science Teaching and Learning, Information and Database Systems, Computer Networks (In Progress)

SKILLS

Languages: C++, Java, Python, R, C#, Matlab, Javascript
Softwares & Toolkits: Unity (XR Interaction Toolkit, Microsoft Mixed Reality Toolkit), GitHub, Qt, OpenCV, Linux CLI
Hardware: Meta Quest, Oculus Rift, Microsoft HoloLens, HTC Vive, Pico Neo 2 Eye, Omni Omnidirectional Treadmill

RESEARCH EXPERIENCE

Mitigating Harassment in Virtual Reality, University of Florida July 2022 - present
Undergraduate Research Assistant / REU Participant, Jain Lab Gainesville, FL
- Interpreted user feedback to understand harassment's impact and craft safety techniques in the metaverse
- Conducted statistical analysis using R to identify effective safety techniques for VR work training applications

Spatial Navigation in Virtual Reality, University of Florida January 2023 - present
Undergraduate Research Assistant, Spatial Cognition and Navigational Neuroscience Lab Gainesville, FL
- Adapted virtual environments in Unity to study gender differences in the psychology of spatial navigation
- Guided participants through cognitive exercises using PsychoPy and virtual reality with HTC Vive headsets

Gaze-Based Authentication for Workers in Virtual Reality, University of Florida January 2021 - March 2022
Undergraduate Research Assistant / REU Participant, Jain Lab Gainesville, FL
- Collaborated with nuclear engineers to implement a virtual reality training simulation in Unity with C# for Pico Neo 2
- Modified a machine learning algorithm in Matlab to use eye gaze for authentication, achieving up to 82% accuracy

WORK EXPERIENCE

Oak Ridge National Laboratory May 2023 - July 2023
Science Undergraduate Laboratory Intern (SULI), Digital Analyses and Frameworks Group Knoxville, TN
- Visualized data in augmented reality with Unity for HoloLens to improve awareness of manufacturing processes
- Leveraged gaze tracking to allow extracting insights on engineer behavior and visual information usage
- Implemented a G-Code visualization feature using Qt and C++ to improve engineers' understanding of parts

General Electric Power January 2022 - April 2022
Digital Technology Intern, Software Architecture Group Remote
- Enhanced application deployment frequency by applying CI/CD through Jenkins and Agile software principles
- Piloted an MVP dashboard using JavaScript and PowerShell queries to detect software vulnerabilities

PUBLICATIONS

Give me some room please! Personal space bubbles for safety and performance, **LaRubbio, K.**, Wilson, E., Koppal, Jörg, S., Jain, E. (2023) IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW) (poster).

Who do you look like? Gaze-based authentication for workers in VR, **LaRubbio, K.**, Wright, J., David-John, B., Enqvist, A., Jain, E. (2022) IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW) (poster).

TEACHING EXPERIENCE

Operating Systems August 2023 - present

Peer Mentor, University of Florida

- Instructed 30 students weekly on concepts such as memory management and scheduling
- Automated project grading processes, leaving time for constructive and detailed feedback

Programming Fundamentals 1 August 2022 - May 2023

Teaching Assistant, University of Florida

- Instructed 30 students weekly on fundamental programming thinking and object-oriented programming concepts
- Led course material development, including Python-based projects and clarifying documentation

Research and Creativity August 2021 - December 2021

Teaching Assistant, University of Florida

- Mentored 20 first-year undergraduates in research skills including literature reviews and oral presentations
- Moderated faculty panels to facilitate learning about interdisciplinary research opportunities for students

PROJECTS

Diabetes VR January 2023 - present

Project Lead, Dream Team Engineering, University of Florida Gainesville, FL

- Created a virtual reality game with pediatric endocrinologists at UF Health to enhance education for diabetes patients
- Guided a team of 5 peers through learning Unity with C# for Meta headsets and coordinated biweekly sprint cycles

Eye Movement Gesture Drawing and Recognition April 2023

Project Lead, Human-Centered Input Recognition Algorithms, University of Florida Gainesville, FL

- Designed a data collection environment using Python and OpenCV to allow drawing with eye gaze on a webcam
- Implemented an instance-based nearest-neighbor classifier to achieve 98% gesture recognition accuracy with trackpad-based drawings and up to 55% accuracy with eye gaze-based drawings versus chance recognition of 6.25%

AWARDS

Cottmeyer Family Scholarship, University of Florida (2023)
University Scholars Program, University of Florida (2023)
IEEE VR Bridge to VR Scholarship, IEEE (2021, 2022)
University Research Scholars Program, University of Florida (2020 - present)
Elks Foundation Most Valuable Scholar Semifinalist (2020)

LEADERSHIP EXPERIENCE

Dream Team Engineering September 2021 - present

Director of Recruitment, University of Florida Gainesville, FL

- Expanded to reach >200 undergraduates interested in creating technologies for medical applications at UF Health
- Automated interview scheduling using C++ to streamline recruitment

University Research Scholars Program December 2020 - present

Director of Events, University of Florida Gainesville, FL

- Organized professional development workshops and social serving >500 undergraduates interested in research

Study Abroad Peer Advisors January 2023 - present

Peer Advisor, University of Florida Gainesville, FL

- Aided prospective study abroad students in locating resources such as program information and financial aid