

Brianna R Cochran

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Education

- ❖ University of Wisconsin-Madison – **Master of Science, Computer Science**. Graduated May 2023.
- ❖ Concord University - **Bachelor of Science, Computer Science/ Mathematics, and Comprehensive Mathematics**. Graduated May 2020.

Research Publications

- ❖ “Exploring the Design Space of Optical See-through AR Head-Mounted Displays to Support First Responders in the Field”. CHI 2024 Paper Accepted Waiting on finalization.
- ❖ Ji, Tiger F., Brianna Cochran, and Yuhang Zhao. "Vrbubble: Enhancing peripheral awareness of avatars for people with visual impairments in social virtual reality." *Proceedings of the 24th International ACM SIGACCESS Conference on Computers and Accessibility*. 2022.

Research Projects

- ❖ **Leveraging AR for First Responders Needs and Challenges**, *Exploratory Study*, 2022 – 2023
Worked with a team of 20 people. Contributions include recruiting, interviewing, leading study, giving user interface feedback, and the writing publication. A formative study was conducted which interviewed 11 first responders of varying experience to understand their challenges and needs. Then a summative study with 26 first responders was completed where we showed them several examples in AR that could potentially help them in the field and received their feedback. Paper under review currently.
- ❖ **AR Landmark Navigation for Individuals with Low Vision**, *Exploratory Study*, 2022 – 2023
Created and launched project. Project sought to explore 2 different ideas (Rings, Signboards) in AR to see if they could benefit people with low vision. These 2 ideas are as follows: (1) 3 rings would be placed on real landmarks at different distances. Entering or leaving each ring would provide the user with the distance, the landmark object title, and whether they were leaving or entering; (2) Signboards would be placed at crucial intersections that would display important landmark information that the user could expect if they chose a specific path. A formative study was conducted on 6 people to first explore how low vision people navigate using landmarks. An ongoing summative study was in the process where 12 low vision individuals would use the created ideas on a HoloLens 2.

- ❖ **VRBubble**, *2nd Author*, Fall 2022
Assisted Project lead in conducting remote studies and writing publication. Remote study included interviewing blind participants remotely and helping lead them through the study. Project details can be found in the publication above.
- ❖ **Understanding User Expectations of a Smart Kitchen**, *Modeling User Interfaces*, Spring 2021
A semester-long group project that consisted of three people. The project's focus was to understand user expectations of a smart kitchen by collecting survey data from individuals that showed interest in smart kitchen technology or have previous experience with the technology. Sentiment Analysis and Text Summarization were performed on the data to get a more objective overview of participants' responses and to understand their views and feelings of smart kitchen technology.
- ❖ **Undergraduate Summer Research Internship**, *MAOP*, Summer 2018
Worked as a research assistant on dental caries data. Provided scripts for genome-wide data analysis. Independently worked with Dr. Xiaowei Wu, an Assistant Professor in the department of statistics at Virginia Tech.
- ❖ **TeachEasy**, *Software Engineering*, Fall 2018
A semester-long group project of five people called TeachEasy. TeachEasy is an online gradebook for teachers. Some features present in the project were a calendar, gradebook, and attendance sheet. The program used HTML and JavaScript for the website and PHP and MySQL for the database.
- ❖ **Operating System Simulator**, *Operating System*, Spring 2019
A semester-long solo project where I designed an OS simulator in Java. Every two weeks new sections of the project were released. Had to adapt to changing project requirements and adjust previous versions of the project for newer requirements. Started with a basic shell and built up to memory access and process scheduling.
- ❖ **Mystery Backgrounds**, *Senior Project*, Spring 2019
A semester-long solo project called Mystery Backgrounds. Mystery Backgrounds are a collective group of backgrounds like screensavers that are written in Java. The project's goal was to freshen up on Java again and learn more about graphical user interfaces.
- ❖ **Hack Computer**, *Computer Organization Hardware*, Spring 2018
Used a hardware definition language (HDL) to construct a toy computer from NAND gates. Was responsible for building all parts of the machine, including CPU and RAM.
- ❖ **Assembler**, *Computer Organization Hardware*, Spring 2018
Constructed a C program that converted assembly language instructions into machine language for the HACK instruction set. Implemented a symbol table using a linked list. Ran and tested the results on the HACK computer.
- ❖ **Virtual Machine**, *Computer Organization Hardware*, Spring 2018

Built a C program to translate an intermediary virtual machine language instruction to HACK assembly. Implemented a stack with push and pop methods to handle memory access operations.

- ❖ **Phase 10 Dice: Virtual Board Game**, *Introduction to Programming II*, Spring 2017
Implemented a playable text-based Phase 10 Dice game for multiple players using Java. Used object-oriented programming techniques to construct components of the game. Utilized various data structures, including dynamic arrays, queues, and hash tables.

Non-Professional Experience

- ❖ **Research Assistant**, *University of Wisconsin-Madison*, May 2022 – May 2023
Worked with Professor Yuhang Zhao for three research projects. (1) Enhancing Peripheral Awareness of Avatars for People with Visual Impairments in Social Virtual Reality [Published, 2nd Author]. (2) An exploratory study into AR Landmark Navigation for individuals with Low Vision [Ongoing, was the main contributor]. (3) Exploring First Responders' needs and challenges and how AR (HoloLens 2) can be leveraged to benefit them in the field [Ongoing].
- ❖ **Programming III Head Teaching Assistant**, *University of Wisconsin-Madison*, August 2020 – May 2022]
Teaching Assistant for CS 400 Programming III and a Head TA for the duration of a semester. Duties included proctoring exams, grading assignments, creating quizzes, and overseeing large group projects for students.
- ❖ **Math and Programming Tutor**, *Concord University*, Fall 2017 – Spring 2020
Tutored students face to face in lower-level Math and Programming courses.
- ❖ **Undergraduate Teaching Assistant**, *Concord University*, Spring 2019
Graded Introduction to Programming and Elementary Statistics course work.

Languages/Tools

- ❖ **Familiar** – Unity, Java, Python, HTML, JavaScript, C++
- ❖ **Used Before** – C#, Blender, React, MATLAB, R, MySQL, C, PHP

Extracurricular Activities

- ❖ **SACM**, Fall 2021 – Spring 2023
- ❖ **Hopper-Turing Society**, Fall 2019 – Spring 2020
Vice President. The Hopper-Turing Society is a combination of the Math Club and Coding Coalition. It is named after Grace Hopper and Alan Turing, two major contributors to Mathematics and Computer Science. Goals of the club include a

semester long project, discussing relevant topics in the field, and bringing students together.

❖ **Math Club**, Fall 2017-Spring 2019

❖ **Coding Coalition**, Fall 2016- Spring 2019