Margaret Peterson

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EDUCATION

University of Michigan, Ann Arbor, MI — B.S.E., Computer Science AUG 2021 - APR 2024

- GPA: 3.86/4.00
- Coursework: Discrete Mathematics, Data Structures and Algorithms, Foundations of Computer Science, Introduction to Computer Organization
- Student Organizations: Women in Science and Engineering Residence Program, Girls in Electrical Engineering and Computer Science, Society of Women Engineers, Michigan Hackers, Eta Kappa Nu (HKN)

WORK EXPERIENCE

Data Structures and Algorithms, Ann Arbor, MI — Instructional Aide AUG 2022 - PRESENT

- Assist professors in teaching course of 1000+ students on data structures and algorithms in C++
- Hold one-on-one office hours and answer questions on Piazza to guide students through projects
- Teach weekly lab section to reinforce course content covering hash tables, trees, graphs, dynamic programming, and complexity analysis

Curtis Instruments, Livermore, CA — Software Engineering Intern MAY 2022 - AUG 2022

- Developed C++ modules for motor speed-based controller vehicle systems using object-oriented programming
- Designed software to catch faults in under 100ms to meet new safety standards for the international market
- Created a standardized SDO protocol that reduces memory usage by managing shared CAN mailboxes and provides an interface for communication between motor controllers
- Optimized transferring data tables onto the controller and interpolated between points to calculate the speed limit of the lift truck

INVOLVEMENT

The Michigan Daily, Ann Arbor, MI — Mobile App Project Manager MAY 2022 - AUG 2022

- Led a subteam of 6 students to create a mobile app with React Native for the 237k readers of The Michigan Daily
- Organized and conducted user testing interviews to evaluate current designs
- Expanded the features of the app by developing the search bar and reading history page

The LAUNCH Group, Ann Arbor, MI — Research Assistant SEP 2021 - MAY 2022

- Collaborated with Dr. Lu Wang and Ph.D. students to create a protocol for analyzing sentiments in news articles
- Contributed a dataset of 150+ annotated news articles to train a natural language processing algorithm to recognize political bias in media

Augmented Design Lab, Santa Cruz, CA — Research Intern JUN 2020 - AUG 2020

- Assisted a research team in developing the autonomous vehicle simulator Cruzway in Unreal Engine
- Devised a plugin using Blueprint Visual Scripting and C++ to implement a user interface for Cruzway

PROJECTS

Pokemon Shortest Path Algorithm

- Implemented arbitrary insertion heuristic and Prim's Algorithm to find a nearly optimal tour of a graph of Pokemon locations
- Devised a branch and bound algorithm that uses the MST from Prim's algorithm as a lower bound and prunes unpromising solutions to get an optimal shortest path between all the Pokemon

Computer Vision System for Autonomous Robots

- Configured a Raspberry Pi with OpenCV to process images captured from a webcam on the robot
- Calculated the robot's orientation from the goal by applying HSV filtering over the images
- Sent data from the Pi to the robot controller over a UDP port to inform the robot's autonomous movements

SKILLS

C++, React Native, Java, HTML, CSS, Computer Vision, Git