Ryoma Kawakami

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OBJECTIVE

Engineering internship opportunity for May - August 2021 applying computer science and engineering skills.

EDUCATION

The Ohio State University, Columbus, Ohio August 2018 - May 2022

Bachelor of Science in Computer Science and Engineering (Artificial Intelligence Specialization), Minor in Physics
GPA: 3.985; Recipient of Maximus Scholarship and Honda-Ohio State STEM Scholarship

WORK EXPERIENCE

HPC Intern at Ohio Supercomputer Center May 2019 - August 2019

- Worked with XALT, an application capable of tracking which applications and libraries are being used on HPC systems, to determine usage statistics of all versions of software
- Wrote GitLab webhook ReFrame tests that check functionality of code, automatically launched each time code is pushed, in order to maintain functioning code on the systems

Undergraduate Research Assistant at Purdue University May 2020 - August 2020

- Funded through Purdue's Summer Undergraduate Research Fellowship for a project titled "Automated fitting of freeform surfaces to point cloud datasets for comparison of manufactured components"
- Created Python scripts to update a framework containing information about a component (such as geometry and lifecycle data) and to update the CAD model to reflect real-world geometries (read in as a point cloud data file)

ACTIVITIES AND INTERESTS

EcoCAR August 2018 - Spring 2020

- Connected and Automated Vehicles (CAVs) Team
- Developing driver assistance systems that minimize human error and increase road safety
- Working with hardware (sensors and processors) and software (sensor fusion, filters, and simulations) to allow the vehicle to better analyze its surroundings

Code 4 Community August 2019 - Present

- School Outreach Project: Visiting grade schools to introduce students to programming in an interactive way
- Wrote a two-player game where each player writes a basic program to control a character (with conditionals and loops, as well as commands such as "move (*direction*)") and attempts to defeat the other with snowballs

American Society for Engineering Education (ASEE) August 2018 - Present

- Website Committee: Performing maintenance on website to promote ASEE
- Creating a publicly accessible resource with undergraduate research opportunities that allows professors to submit descriptions and requirements of open positions

VEX Robotics Competition (VRC) Team Captain June 2013 - April 2018

- 2-Time State Champion, 4-Time Worlds Competitor
- Built robot and programmed movement control with motion profiling (PID) in C++
- Documented the building, programming, and debugging processes during every meeting

PROJECT EXPERIENCE

Robot Autonomy May 2019 - Present

- Developed software in Simulink to allow robot to drive between two lanes by using Robot Operating System (ROS) to interface Raspberry Pi with Windows laptop running MATLAB (Summer 2019)
- Used different supervised and unsupervised learning techniques to make a robot (with a Jetson Nano) drive around courses like circular tracks and cones (Summer 2020)
- Currently working on a higher level scheme to help robot navigate more complex courses, similar to city roads

Fundamentals of Engineering Honors (FEH) Robot Project January 2019 - April 2019

- Built and programmed robot using provided robot controller to do simple tasks such as flicking a lever
- Documented entire process, compiling everything into final report and website at the end of the semester

Genetic Algorithm / Neural Network May 2018 - August 2018

- Programmed genetic algorithms in C++ to learn to play games like Nim and Tetris
- Created neural network framework from scratch to allow the AI to make more advanced decisions based on game conditions and to train an AI to identify handwritten digits (from the MNIST database)

QUALIFICATIONS

- Coursework: Fundamentals of Engineering Honors (FEH), Software, Data Structures, Algorithms, Systems
- Languages: C, C#, C++, Java, JavaScript, SQL, Python, Ruby, Swift
- Some experience with Node.js, Deno, TypeScript, Julia
- Experience with MATLAB, Simulink, Stateflow, CAD software, ROS
- Knowledge of machine learning, neural networks, transfer learning, reinforcement learning, autoencoders