Ryan Ching | Seattle, WA | 206-788-7282 | ching.ryan123@gmail.com | linkedin.com/in/ching-ryan

Education

University of Washington Seattle: Electrical and Computer Engineering - M.S (GPA: 3.57) **(June 2023)**
University of Washington Seattle: Electrical and Computer Engineering - B.S (GPA: 3.67) **(June 2022)**
Relevant Coursework: Data Structures, Algorithms, Linear Algebra, Digital Logic, Computer Vision, Computer Architecture, Hardware-Software Interface, Machine Learning, Signal Processing.

Skills

Languages (Proficient): Python, SystemVerilog
Languages (Familiar): Java, C, C#
Libraries: pandas, PyTorch, SciPy, NumPy, DGL
Tools: Git, Jupyter Notebooks, LaTeX, Vim

Relevant Experience

Device Movement Detection for Amazon - UW ENGINE Capstone **(January - June 2023)**
• Led algorithm development for a team of 7, creating and implementing an algorithm for tracking the rotational movement of a radar, given a point cloud of detections from radar.
• Used thresholding and nearest neighbor matching to track radar detection trajectories across time steps and implemented averaging for trajectories to estimate overall radar rotation. (Python, NumPy, SciPy)
• Presented algorithm in live testing environments achieving accuracy within 5 degrees for all tests.

Graduate Researcher - University of Washington Applied Physics Laboratory **(July - December 2022)**
• Given a video of moving objects, created a graph based on the spatial and temporal location of objects. Detected and tracked the movement of each detection. (Python, Deep Graph Library (DGL), NetworkX)
• Created a bipartite graph based on position and time to track the movement of each detection.

Image Quality Control for Coupang - UW ENGINE Capstone **(January - June 2022)**
• Developed a custom dataset and trained on YOLOv5, detecting unwanted elements in seller-uploaded images and storing the location and class of elements. (Python, YOLOv5)
• Developed web application, where a user uploads images and a resulting image displays all detection locations of logos, watermarks, etc. (Flask)

Machine Learning Undergraduate Researcher - University of Washington **(June 2021 - April 2022)**
• Co-authored “Stackelberg Policy Gradient: Evaluating the Performance of Leaders and Followers” accepted into Gamification and Multiagent Solutions. (ICLR 2022) (LaTeX)

Software Engineer Intern - Papaya IoT **(May 2021 - September 2021)**
• GPIB instrument (Agilent, Keysight, Keithley) driver development and API for users to control measurement equipment in R&D and test environment.

Additional Experience:

Machine Learning Method Implementations **(January - March 2023)**
• Implemented random forest, gradient-boosted decision trees, K-nearest neighbors, and logistic regressions for classification and predictions on public datasets - Boston Housing, Cancer Screening, etc. (Python, NumPy)

SystemVerilog FPGA Game Programming (Pong, Flappy Bird) **(December 2020 - March 2021)**
• Created a Flappy Bird port using an LED board to show random obstacles, controlled using FPGA switches.
• Created a Pong port using an FPGA, keyboard, and monitor, with two player and AI player options.

SystemVerilog Pipelined CPU **(October 2021 - December 2021)**
• Developed a 5-stage pipelined CPU with ALU and memory functions using forwarding and delay slots.

Dynamic Memory Allocation **(March 2020 - June 2020)**
• Wrote functions for allocating, removing, and coalescing specified memory blocks. (C)

UW EcoCAR Hardware Integration Team **(March 2019 – March 2020)**
• Assisted in development benchmark testing to decode CAN messages from car sensors. (C++, ROS)