Holden Adamec

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EDUCATION

University of California San Diego
Computer Engineering Major, Class of 2024, 3.6 GPA

EXPERIENCE

Autonomy and AI Intern (Summer 2022)
General Atomics Aeronautical Systems - Poway, CA
- Developed a Python interface to autonomously control a drone using a reinforcement learning (RL) model; successfully tested in an aircraft flight. Article Link.
- Wrote unit tests, and validated software functionality through simulation testing in a lab environment, and documented system architecture with UML diagrams for future scalability.
- Optimized Docker deployment, reducing container size from 14GB to 2GB by implementing multistage builds, ensuring compatibility with the flight computer.

Bombardier Project Member (Oct 2020 - Jun 2021)
SEDS@UCSD - San Diego, CA
- Designed custom PCBs for a rocket test stand, selecting temperature probes, force sensors, and MOSFETs, to assess the feasibility of high-concentration hydrogen peroxide as a monopropellant.
- Developed a Python-based ground control station GUI, enabling remote monitoring and control of test stand operations for thrust measurement experiments.

Programming Lead (2017 - 2020)
FIRST Robotics Team 972 - Los Gatos, CA
- Mentored 14 students in Java programming and PID control systems; led software project management, coordinating with design teams to complete a functional codebase within a six-week build season.
- Implemented autonomous routines, integrating path planning, trajectory generation, and feedback control systems using encoder data and IMU orientation over CAN bus for odometry.

Software Intern (Summer 2019)
MagikVision - Los Gatos, CA
- Developed a video quality analysis system using OpenCV and Python, detecting frame loss across 100+ YouTube livestreams and storing results in MongoDB.
- Built a Progressive Web App (PWA) with JavaScript and Node.js, enabling users to navigate recordings based on detected frame loss for efficient video review. PWA Demo

PROJECTS

Custom RISC Processor (SystemVerilog, Assembly, Python)
- Formulated a 9-bit ISA from scratch to run two programs and made a microprocessor in Verilog
- Created a Python assembler and translated the programs into the custom ISA to be run on the processor

Relational Database (C++)
- Created a fully functional relational database and query language based off of SQL syntax
- Used OOP design principles alongside different design patterns to manage codebase complexity

SKILLS

Languages: Python, Javascript, Java, C++, C, HTML, CSS, Bash, Verilog
Software: Docker, Git, GitHub, Linux, MongoDB, Nginx, Node.js, OpenCV, Heroku, Vim, OpenGL, Figma
Coursework: Advanced Data Structures, Design & Analysis of Algorithms, Parallel Programming, Software Engineering, Computer Networking