Ethan Carroll

Sunnyvale, CA · (650) 823-0584 · ejcarroll@g.hmc.edu

I am seeking an engineering internship for Summer 2021 in which I can improve my technical skills in designing and testing complex systems

EDUCATION

HARVEY MUDD COLLEGE
BS in Engineering
Aug 2018 – Jun 2022 (expected)
Claremont, CA

Saint Francis High School
Aug 2014 – May 2018
Mountain View, CA
Maximum Cum Laude

RELEVANT COURSEWORK

Engineering
- Special Topics
- Design and Manufacturing
- Advanced Systems Engineering
- Engineering Mathematics
- Experimental Engineering
- Continuum Mechanics
- Materials Engineering
- Advanced Systems Engineering
- Fluid Mechanics
- Digital Electronics and Computer Engineering
- Biomaterials Engineering
- Electrical and Magnetic Devices

Mathematics
- Calculus
- Statistics
- Linear Algebra
- Differential Equations
- Multivariable Calculus

Special Relativity
Mechanics and Wave Motion
Electricity and Magnetism
Intro to Computer Science

SKILLS

Tools
SolidWorks CAD, ANSYS Fluid Mechanics, Matlab, SystemVerilog, RISC-V, COMSOL, Arduino, GitHub, RStudio, LabView
AutoDesk Product Suite, Adobe Creative Suite, Microsoft Office, G Suite, iCloud services

Programming languages
Python, Java, C, HTML, Swift

Other concepts
CNC machining, circuit design, mobile app development

TECHNICAL PROJECTS

Meggitt Engine Systems: High Temperature Applications | Spring 2021
- Objectives: Develop means for implementing electrical systems that meet aerospace high temperature requirements

Communication System Design | Fall 2020
- Assessed the feasibility of a proposed communication system design
- Implemented a 4th order Butterworth filter with a two-stage Sallen Key circuit
- Signals processed through multiple comb filters to isolate Fourier coefficient

Machine Learning Two-Factor Identification | Spring 2020
- Developed a wearable system with a heart rate sensor and accelerometer.
- Used a neural network to verify identity using heart rate and gait characteristics.
- Achieved 95% identification accuracy.

Autonomous Underwater Robot | Fall 2019-Spring 2020
- Designed and built an autonomous robot to collect data in a pool and in a lake.
- Incorporated thermocouples, turbidity sensors, pressure sensors, gyroscopes, and accelerometers. Measured temperature, turbidity, and depth.
- Tools included COMSOL (fluid dynamics), Arduino, LabVIEW, and oscilloscopes.

Diagnosed and Revitalized my Used Car | Summer 2019 - Present
- Purchased a used car in a state of disrepair and diagnosed various issues relating to the engine, transmission, brakes, and other complex systems.
- Repaired and restored the vehicle to perfect operating condition, having driven 12,000 miles since restoration without any critical failures.

Cornhole Design Project | Spring 2019
- Designed and constructed a marketable cornhole launching device intended for the elderly and individuals with physical limitations.

Hammer Design Project | Spring 2019
- Modeled a hammer using 3D CAD and machined it to a tolerance of 1/1000 inch.

WORK EXPERIENCE

Converge Media Ventures | Intern
June 2018 – August 2018 | Sunnyvale, CA
- Set up video cameras, mics, and studio lights for a technical telecom journal.
- Managed files and edited videos using the Adobe Creative Suite.

Florin Marica Tennis Academy | Coach
June 2018 – August 2019 | Saratoga, CA
- Coached advanced junior players in clinics and in private lessons.
- Demonstrated leadership skills in motivating players to improve their stroke fundamentals and on-court competitive performance.

Saint Francis High School Work Grant Program
September 2014 – June 2018 | Mountain View, CA
- Earned approximately $60,000 of tuition credits over hundreds of hours.
- Directed facilities maintenance work and special events on campus.

ACTIVITIES

Claremont-Mudd Scripps Varsity Tennis Team | Member
- Dedicate 20+ hours/week of training for the #2 ranked Division III team in the US
- Division III NCAA Finalists 2019; SCIAC Champions 2019.