Clement Hathaway

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Personal projects at: tiny.cc/clementECE | GitHub at: https://github.com/CwbhX | IEEE Member

EDUCATION

LAFAYETTE COLLEGE
Electrical & Computer Engineering, Class of 2020

- Battery & Firmware Engineer on the electric car team (SAE Formula Hybrid) • Engineer for radio station WJRH, worked on acoustic fingerprinting using Nvidia's CUDA • Member of Lafayette Environmental Awareness and Protection (LEAP)
- Senior Year: 3.52 GPA & Dean's List

EXPERIENCE

SAE FORMULA HYBRID CAR TEAM
Engineer, Easton PA, Fall 2018 – May 2020

- Led the firmware and high-level design of a new Battery Management System (BMS) architecture which allowed us much more flexibility in functionality, decreased development time, and lowered cost per board. Also implemented the CANopen stack on the ESP32 microcontroller for better communication between car subsystems via CAN bus in C++.

ISS FACILITY SERVICES GMBH
Testing Intern, Düsseldorf DE, Summer 2018

- Wrote tests for IBM's TRIRIGA system to validate our requirements and wrote scripts in Python 3 to translate tests between systems, essential in helping ISS secure a 9-figure Euro contract.

PROJECTS & ACCOMPLISHMENTS

CUSTOM BATTERY MANAGEMENT SYSTEM
Winter Break, 2019

- Developed, manufactured, and built a BMS PCB for my electric bike project with support for 16 cells, passive balancing, temperature monitoring via I2C, and wireless capability for 1/3rd the cost of comparable systems on the market.

FULL-STACK JAVASCRIPT PROJECT MANAGEMENT WEBSITE
Summer, 2019

- Made a web-based project management tool in a team of 6 for my BU Masters class (CS673), I wrote the backend in Node.JS and Express and the frontend with React JavaScript. This full-stack architecture allowed for a more cohesive system and much faster development.

ELECTRIC LONGBOARD
Summer, 2019

- Built a second electric longboard for my daily commute using recycled 18650 cells, this allowed me to get the cost of cell down to ~$1 cell and extended my range beyond 25 miles. It was fitted using my own custom-designed 3D-printed enclosure which significantly reduced weight, and increased acceleration & protection of the cells.

ANALOG IR CAMERA TRACKER
Spring, 2019

- Created an all-analog circuit using Op-Amps and 7400 series logic to: intercept a RS170 signal from a camera, draw a crosshair, and track infrared (IR) targets in the camera's field of view by adjusting its servo motors. My design had the least amount of noise and most accurate crosshair out of the groups.

TECHCRUNCH DISRUPT EUROPE HACKATHON WINNER
Fall, 2014

- Won the UK Ministry of Justice's Award for an iOS app, developed in 24 hours in a team, to enable faster emergency response by law enforcement to reported crime.

TECHNICAL SKILLS

CIRCUIT DESIGN & SIMULATION AND PCB LAYOUT

- Extensive use of LTSpice and KiCAD for schematic capture to build my BMS system, class AB Amplifier, and an SMPS.

PATCH ANTENNAE & RF: DESIGN, SIMULATION, BUILD, & TEST

- Used Keysight Advanced Design System (ADS) to design a patch antenna and built simple a diode AM detector circuit
- Used Vector Network Analyzer (VNA) to measure S11 parameter of said patch antenna to validate its performance