Cole Fuerth

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SKILLS

Languages : Python, C/C++, Java, Rust, Markdown, MATLAB, LaTeX, bash

Tools : NumPy, Pandas, Jupyter, Docker, PCB Fabrication, Battery Management Systems, Drive Inverters, Git, 3D Printing, Regex, Embedded Systems, Serial/I2C/UART/CAN, Arduino, Linux, PLC/Robotics, RF(433/2.4/BT), Data Acquisition

EXPERIENCE

University of Windsor
Jan. 2022 – Apr. 2023

Research Assistant
Windsor, ON

- Developed a cloud-based data collection and SOC-estimation tool for Battery Management Systems
- Made a dynamic interface between **I2C/UART** on **Arduino** and **Python** over USB using JSON packets, allowing for real-time data collection and analysis for thesis projects.

Smyth Innovations
November 2021 – July 2022

Embedded Engineer
Chatham, ON

- Developed a custom ECU for an RD400 motorcycle using **EasyEDA** for board design, and **C++** for software development. Custom wiring and PCB assembly done by hand.

PROJECTS

Electric Motorcycle

- Programmed and assembled an electric dirt-bike.
- Assembled using an **Arduino Mega** for control with **C++**, a touchscreen display, custom aluminum panels, isolated inputs and outputs, and **all-custom power distribution and analog sensing**, mounted on a stripped frame.

Electric Long-boards

- Electronics enclosure designed and 3d printed, with custom wiring.
- Batteries are a **completely custom design**, built with 21700 Lithium cells.

AI Battery Characterization

- A CNN built with **NumPy** and **Keras** that can characterize messy real-world battery data using the Combined+3 lithium model.

NumpAI

- A hard-coded, fully functional convolutional neural network that can recognize handwritten digits.
- I used **Python** and **NumPy** to implement the neural network on the MNIST dataset.

EDUCATION

University of Windsor
BSc[H] Computer Science with Artificial Intelligence Specialization | Minor in Mathematics Windsor, ON

- Won first place at both CSGames 2023 for Emulators and WinHacks 2021 for Hardware.

St. Clair College
Electronics Engineering Technology, Associate Degree Windsor, ON