Elias Kountouris

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Technical Skills

Languages	C++, C, Python, Javascript, Go, Rust, Bash, SQL, Java
Tools / Frameworks	PyTorch, Tensorflow, Numpy, React.js, Node.js, Django, Git
Technologies	KiCAD, VSCode, SPICE, SolidWorks, AutoCAD, AWS, Microsoft Azure, Arch Linux

Experience

Waterloo Rocketry - Electrical Team September 2021 - Present

- Designed and created sensor schematics, and PCBs for sensors in rocket's CAN to collect data on rocket health and trajectory during tests.
- Developed firmware for the boards, using **I^2C and SPI**, to interact with sensors and control the rocket in real-time.
- Manufactured and debugged data acquisition system's power boards using reflow ovens and oscilloscopes.

Zappos - Software Developer June 2020 - September 2020

- Utilized **PyTorch** to create a sentiment analysis algorithm to analyze reviews of products and adjust on-site product recommendations accordingly. Improved site retention by 10%.
- Implemented natural language processing with PyTorch to improve site search results by analyzing search queries for key topics.

Feautred Projects

MacroPad - Keypad PCB and Firmware - C, KiCAD

- Designed and created PCBs for a small keyboard with custom macros to improve productivity.
- Developed firmware for the keypad. Firmware was later contributed to the open source QMK library.

Synbiolic - AI Drug Discovery - Python, PyTorch, React, Django, Azure

- **Microsoft Image Cup 2020 North American Finalist.**
- Probabilistic model to produce possible drug candidates and decrease drug discovery time.
- Developed stacked RNN algorithm for small molecule generation in PyTorch.

TakeAways - Chrome Extension - Javascript

- Chrome extension which produces summaries of web pages to make it easier to skim through dense web articles.
- Created web scraper and filter algorithm to identify article text on a website and prepare it for processing.
- Designed algorithm to use noun frequency to heuristically determine the most common topics so that they may be presented to the user.

VIKING - Chess Engine - Javascript, TensorflowJS

- Chess AI designed to rival older versions of StockFish (currently the highest reated chses AI).
- Implemented alpha-beta search algorithm and heuristic techniques to optimize move searching by prioritizing certain types of moves and play-styles.
- Trained evaluation function using **TensorflowJS** and database of over 20,000 chess games.

LabAssist - Polynomial Regression Calculator - C++

- Implemented Vandermonde Matrix algorithm for polynomial regression to find any degree polynomial curve of best fit for data gathered in lab experiments.
- Created custom Matrix class to support matrix algebra for simpler implementation of future add-ons.

Education

University of Waterloo 2021 - 2026

Candidate for Bachelor of Applied Science in Mechatronics Engineering GPA: 3.97