

Gosha Dulkan

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Education

McMaster University

Hamilton, Canada

Engineering Physics (B.Eng)

Sep. 2018 - Apr. 2023

- **Relevant Courses:** Object-Oriented Programming, Data Structures and Algorithms, Semiconductor Manufacturing

Skills

Languages Python, Java, C, C++, MATLAB, JS, HTML/CSS, SQL, LaTeX, Bash

Tools Git/Github, OpenCV, Pandas, Numpy, Linux, Embedded Systems

Experience

Coordinate Industries Ltd.

Oakville, Canada

Electrical Engineer Intern

Aug. 2021 - Aug. 2022

- Developed internal wire harness test programs, resulting in a **150%** product test rate increase.
- Reviewed customer requirements to develop **200+** internal control plans for the Electro-Mechanical Assembly Lab.
- Developed wiring diagrams, integrated harness assemblies and set up test beds.
- Leveraged **Python scripts** to automate file manipulation within the organization's system, reducing data entry time by more than **5 hours per week**.

McMaster Rocketry Team

Hamilton, Canada

Flight Controls Team Lead

Oct. 2020 - Sep 2021

- Led a team of four in developing three flight computer modules for a competition model rocket.
- Tested payload sensors and transceiver, resulting in a **200%** successful launch rate improvement from previous year.
- Gathered rocket flight data through an **Arduino controller** using the I2C communication protocol.
- Onboarded and trained new team members to facilitate a smooth integration into the team.

Projects

Digital Chessboard

Engineering Capstone

- Developed a digital chess board using **Python** that allows the user to play with physical pieces against a remote opponent whose moves are displayed on the board screen.
- Implemented **OpenCV computer vision** to store the board state and relay piece movement to a custom chess engine.
- Emphasized user experience by adding features that let the user validate moves and export game transcriptions.

PathFinder

Personal Project

- Created a **Python application** that visualizes three pathfinding algorithms: BFS, DFS, and A*.
- Users are able to place start, end, and barrier nodes on an interactive **Pygame** grid and observe how each algorithm navigates through the grid.

Power Plant Control System

Electronics II: Embedding and Programming a Micro-Controller

- Performed system control for a simulated power plant using micro controller **embedded C programming**.
- Effectively troubleshooted software to optimize system performance and reduce overshoot.
- Developed a **Matlab GUI** for signal visualization and user variable input.

Ultrasonic Range Finder

Electronics I: Circuits with Non-Linear and Active Components

- Utilized **analog/digital signal processing** to design an ultrasonic range finder capable of sensing distances up to 1m.
- Introduced sequential flip-flop logic and op-amp configurations to convert an analog signal to a digital output.
- Simulated and tested the system schematics with Multisim, enabling troubleshooting and debugging.