Gosha Dulkin

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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, Embedding Microcontrollers

Skills

Languages Python, Java, C, C++, MATLAB, HTML, SQL, LateX

Tools Git/Github, IntelliJ IDEA, Pycharm, Visual Studio, Embedded systems, Arduino, Raspberry Pi

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.
- Used **Python scripts** to rename and edit files in the company's system, reducing data entry time by **5+ hours/week**.
- Onboarded and trained new team members to facilitate a smooth integration into the team.

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.
- Maintained clear and concise documentation of the software and hardware design components.

Projects

Digital Chessboard

Engineering Capstone

- Developed a chess board that allows the user to play with physical pieces against a remote opponent whose moves are displayed on the digital 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 troubleshot 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.