

Mackenzie Wilson

3B Engineering

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SKILL SUMMARY

- Designs informative experiments and performs detailed data analysis (Python, R, Excel, etc.).
- Forms effective requirements, specifications and decisions based on research and data.
- Natural project leader and team player with outstanding technical communication skills.
- Extensive development experience in Python, Matlab, C#, C++, Javascript.
- Proficient with mechanical (Solidworks) and electrical design (Altium, cabling, circuitry).
- Co-op Student of the Year 2017 nomination due to superior initiative and problem solving.

EXPERIENCE

R&D and Hardware Specialist, P&P Optica – *Aug 2017-Jan 2018*

- Researched, sourced, and tested technology to be included in new designs of an artificially-intelligent food-quality detection system.
- Made informed design decisions, redefined system requirements and developed sub-system specifications backed by effective experiment design and data analysis (Python, Excel).
- Coordinated the integration and installation of large systems into client processing plants.
- Developed new parts (Solidworks) and redefined the growing production facility workflow.

Optical Systems Engineer, Synaptive Medical – *Jan-Apr 2017*

- Improved imaging system performance and tripled sample-detection algorithm efficiency through factorial experiment design and statistical data analysis (R, Excel).
- Developed streamlined production processes and technical documentation for new parts.
- Sourced, specified, and designed (Solidworks) new optical system components as needed.

Research Assistant, Vision and Image Processing Research Group – *May-Dec 2016*

- Designed experiments to test a novel infrared-imaging system for performance and quality.
- Redesigned electrical and optical subsystems based on data analysis (Matlab).
- Published a paper and gave a conference presentation on biomarker imaging technology.

PROJECTS

Stair Tracker, Signal Processing Project – *May-Jul 2017*

- Processed cell-phone accelerometer data to apply signal theory concepts.
- Developed algorithms (Python, Jupyter) to analyze frequency and time domain signals.
- Coordinated task breakdown, managed algorithm requirements, presented design decisions.

NatalNet, Break Inequality Hackathon 1st-Place Winner – *Nov 2016*

- A web app to allow mothers and healthcare workers to interact in rural developing areas.
- Integrated JavaScript (Node.js), No-SQL database, front-end (HTML/CSS) and APIs.
- Gave prize-winning pitches and managed the project requirements and scope.

AntiFreeze, Freezing of Gait Prevention Project – *Sep-Nov 2016*

- A wearable for real-time detection and counteraction of Parkinson's freezing of gait.
- Designed circuits and delegated software (C) and mechanical subsystem tasks.

LEADERSHIP

Community Kids' Softball Head Coach; Orientation Week Leader; Engineering Society Director

EDUCATION

Candidate for B. A. Sc., Biomedical Engineering, University of Waterloo – *2015-2020*

INTERESTS

Hiking and canoeing; sound design and music production; craft beer; travel photography