Mackenzie Wilson

3B Biomedical Engineering

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SKILL SUMMARY

- **Project Management:** Data-driven decision making, task management, prioritization
- **Data Analysis:** Experiment design, user research, statistical analysis, Python, R, Matlab, Excel
- **Development:** Skilled in Python, C#, HTML/CSS; Experienced in C++, Javascript
- **Technical Communication:** Design specifications, project documentation, presentations

EXPERIENCE

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

- Developed metrics and experiments to test and specify new technology and components
- Made data-driven design decisions based on user research and analysis of experiment results
- Coordinated the integration and installation of large imaging systems into client processing plants
- Redefined and improved the production facility workflow to accommodate future growth

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

- Improved system performance and algorithm efficiency by 300% through factorial experiments and statistical data analysis (R, Excel)
- Determined the root cause of inefficiencies and presented recommendations for improvement
- Researched, specified, recommended, and sourced new system components
- Developed technical documentation for new, streamlined production processes

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

- Improved hyperspectral image signal-to-noise ratio via system testing and data analysis
- Performed data-driven re-design of electrical and optical subsystems
- Authored and presented a paper on biomarker imaging technology and system improvements

PROJECTS

Tumour Classifier, Artificial Intelligence Project – *Apr-Jun 2018*

- Developed a 99% accurate malignant tumour classifier after analyzing and comparing performance metrics on various classifier styles and parameters (Python, Sci-Kit Learn)

Endoscope Guide Tube, Esophageal Perforation Prevention Project – *Feb-Jun 2018*

- Developed a product design specification and a need specification as solution validation tools
- Researched the market and solution space, organized deliverables and deadlines

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

- Prioritized team tasks and deliverables to meet deadlines, managed requirements and scope
- Made informed algorithm design decisions and presented reasoning to peers
- Developed algorithms (Python, Jupyter) to process and analyze cell phone accelerometer data

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

- Managed project requirements and scope for an SMS-integrated web app for rural Bangladesh
- Presented the product to a panel of industry professionals, competitors, and peers
- Integrated JavaScript, No-SQL database, HTML, CSS and several APIs

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*

- Co-op Student of the Year 2017 Nomination for superior initiative and problem solving skills
- Dean's Honour List 2017 for overall average within top 10% of class

INTERESTS

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