mackenzie wilson

2B Biomedical Engineering

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skills

Hardware:

CAD (SolidWorks)
Machining
3D printing
Circuit/PCB design
System test design
Design for manufacture

Software:

C#, C++
Node.js, Javascript
HTML, CSS
Matlab
Arduino
Basic signal processing

Other:

Biology/biomechanics
Statistics (and R)
Optical theory

publications

M. Wilson, et al.
"Co-integrating thermal and hemodynamic imaging for physiological monitoring,"
Journal of Computational Vision and Imaging Systems, 2016/09/02.

interests

Varsity Softball, and other sports
Backcountry camping
Interesting space facts
Self-taught guitar, ukulele
Furniture refurbishing

experience

Optical Systems Engineer
Jan.–Apr. 2017

Synaptive Medical, Inc.

Led experiments analyzing the performance of an ex-vivo tissue imaging system by developing detailed tests, statistically analyzing data and creating recommendations for software and hardware improvements.

Also tested optical components and designed manufacturing tools.

Research Assistant
May–Dec. 2016

Vision and Image Processing Research Group

Redesigned mechanical, electrical and optical subsystems of a non-contact hemodynamic imaging system using basic circuit theory, Matlab, microcontrollers, SolidWorks, 3D printing and PCB design.

Integrated thermal imaging into the system for metabolic monitoring, resulting in a published academic paper and conference presentation.

Co-Founder and Developer
Nov. 2016–Present

"NatalNet" for Plan International Canada, Inc.

Integrated front and back end using HTML, Node.js, and several APIs to develop a mobile web app that interacts with SMS in real time.

Connects mothers in rural Bangladesh with a maternal health information database and trained healthcare providers..

projects

Cybathlon Powered Arm Team
Jan. 2016–Present

Biomechatronics Club, University of Waterloo

Oversaw the 3D printing of housing for a user-controlled, powered prosthetic hand as part of the Mechanical sub team.

Contributed designs and CAD for the second iteration of the prototype.

1st place solution "NatalNet"
Nov. 2016

**
eak Inequality Hackathon for Social Impact Apps**

Developed front and back end code for an app connecting new mothers in rural Bangladesh to the healthcare information and access they need. .

Correction of Freezing of Gait
Sep.–Dec. 2016

University of Waterloo

Implemented circuit design, Arduino, Matlab, and signal processing skills to design, test and implement a system to detect onset of Parkinson's freezing of gait and apply directed stimulus to restart normal walking.