mackenzie wilson

2B Biomedical Engineering

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skills

Hardware:

CAD (SolidWorks)
Machining
3D printing
Basic circuit design/testing
System test design
V&V
PCB design

Software:

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

Other:

Biology/biomechanics
Statistics (and R)

publications

M. Wilson, et al.
"Co-integrating thermal and hemodynamic imaging for physiological monitoring,"
J. Comp. Vis. and Imaging Sys., 2016/09/02.

interests

Varsity Softball team
Camping, canoeing, portaging
Rugby, volleyball, hockey, Frisbee
Self-taught guitar, ukulele
Furniture refurbishing and design

experience

Optical Systems Engineer
Jan.–Apr. 2017

Synaptive Medical, Inc.

Optimized the function of a real-time tissue sample imaging system throughout systematic test protocols and calibration experiments.

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, JSON 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 first iteration 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's housing and movement mechanism.

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.