ROBERT POTRA

rpotra@uwo.ca | +1 (226) 582-3569 | London, ON, N5Y 5H4 | linkedin.com/in/robert-potra | Portfolio

EDUCATION

Western University *Sep. 2016 - Present*
BESc. Mechatronic Systems Engineering London, ON

- GPA of 3.67 (83.83 %), Dean's Honour List, Certificate of Leadership and Innovation

WORK EXPERIENCE

Macquarie University *May 2019 - Aug. 2020*
Visiting Scholar Engineering Intern Sydney, NSW

- Created mechanical components to integrate cadaver specimens, sensors, and actuators based on anatomic landmarks from CT scans for a specimen-specific, parametric shoulder simulator
- Implemented PID and open-loop control algorithms using kinematic feedback and force sensor limits to achieve tracking errors of less than one degree along trajectories in experiments with native cadaver joints
- Designed software used to conduct biomechanics shoulder simulator experiments and plot collected data

Roth McFarlane Hand and Upper Limb Centre *May-Aug. 2017 and 2018*
NSERC Undergraduate Student Research Award (USRA) London, ON

- Scanned, designed, and 3D printed splints for patients with chronic hand and wrist conditions
- Evaluated surgical approaches of the shoulder and elbow with surgical fellows through cadaver studies
- Performed statistical analyses for cadaver studies (ANOVA and inter/intra-rater reliability)
- Reverse-engineered cadaver specimens using the Artec Space Spider 3D scanner

EXTRACURRICULAR ACTIVITIES

Western Formula Racing (Formula SAE) *Sep. 2016 - Present*
Grounded Low Voltage Lead

- Designed the Grounded Low Voltage Systems for the 2018-2019 and 2020-2021 seasons as part of a student team that builds formula-style vehicles
- Completed design documentation such as Failure Mode and Effects Analysis to comply with FSAE regulations
- Mentored junior team members
- Integrated sensors, constructed wire harnesses, and performed data acquisition using a MoTeC M150 ECU

PROJECTS

Electrical Powertrain Capstone Project

- Final year project of constructing an electrified powertrain containing a DTI HV-500 inverter, Emrax 228 Motor, and 500 V Lithium-ion battery
- Developed custom battery management system for a 720 Lithium-ion cells in a 6P120S configuration

LED Cube

- Soldered 8x8x8 cube of LEDs and electronic components required for control with an Arduino Nano
- Implemented Serial Peripheral Interface (SPI) with daisy-chained shift registers
- For more information please visit https://www.youtube.com/watch?v=gPpLKZm38aA

SKILLS

Computer-Aided Design: SolidWorks (CSWA), Geomagic Wrap, Autodesk EAGLE
Programming: MATLAB, Simulink, LabVIEW, C++, Python
Prototyping: Arduino, Soldering, 3D Scanning, Wire Harness Construction, 3D Printing (FDM and SLA)
Creative Design: Microsoft Office, PhotoView 360, Keyshot, Photoshop, LaTeX