Robert Potra

BESc. Mechatronic Systems Engineering
Western University

15 months as Visiting Scholar at
Macquarie University

Formula SAE

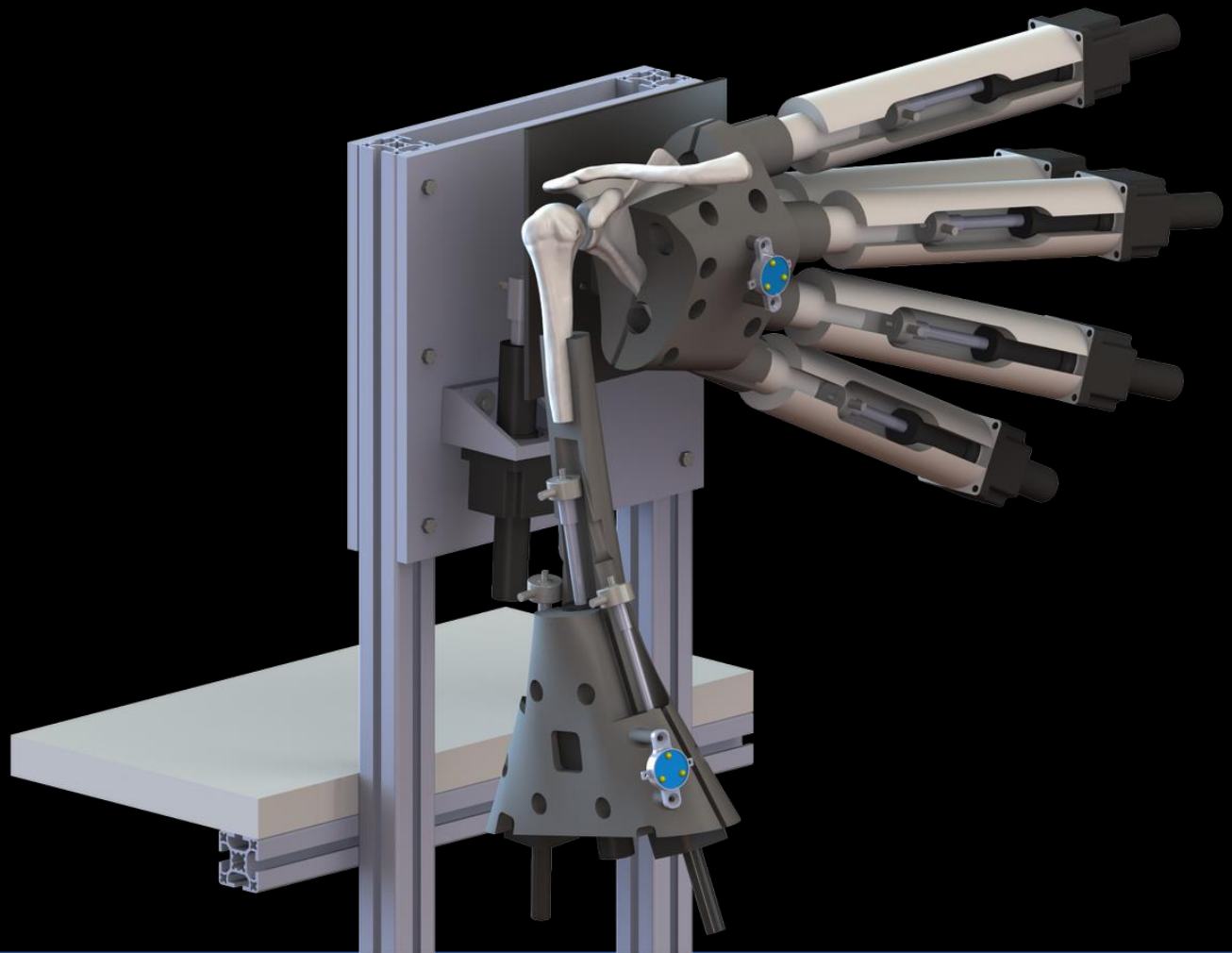
MACQUARIE University
SYDNEY·AUSTRALIA

Visiting Scholar Engineering Intern

- Mechanical design of specimen-specific, parametric shoulder simulator
- Control system design and implementation with kinematic and force feedback
- Developed software and user-interfaces for conducting biomechanics experiments
- Conducted cadaver biomechanics pilot experiments
- Shoulder Simulator Video
- Shoulder Simulator Article

MACQUARIE University
SYDNEY·AUSTRALIA

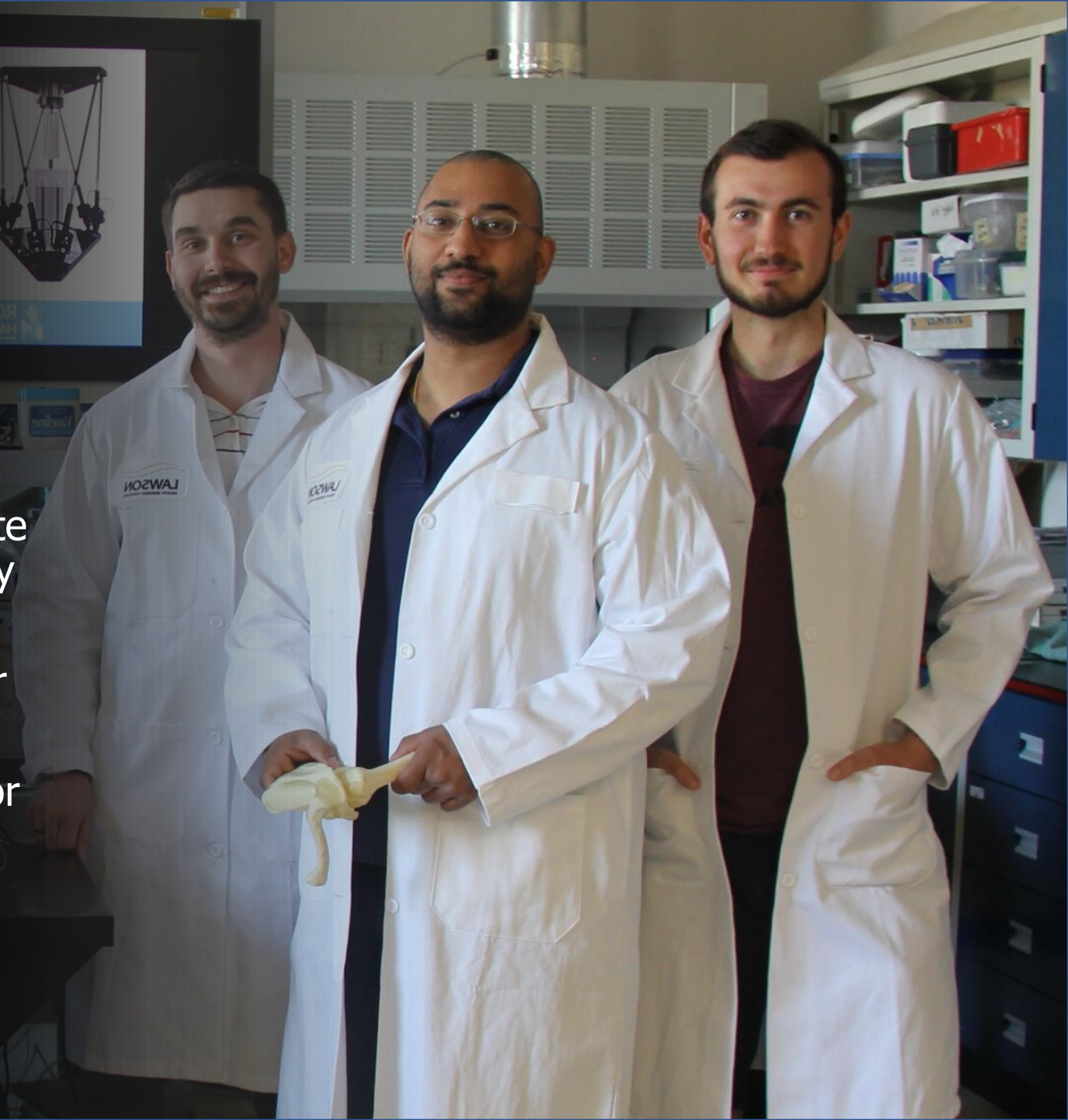
- [Hexapod Shoulder Simulator Animation]



ROTH | McFARLANE
HAND & UPPER LIMB CENTRE
ST. JOSEPH'S HEALTH CARE LONDON

Research Assistant

- Conducted cadaver studies with surgical fellows
- Performed statistical analyses to compute repeated measures ANOVA and reliability measures
- 3D scanned patients to reverse engineer splints for chronic conditions
- 3D printed and post-processed splints for patients
- Interactive splint render



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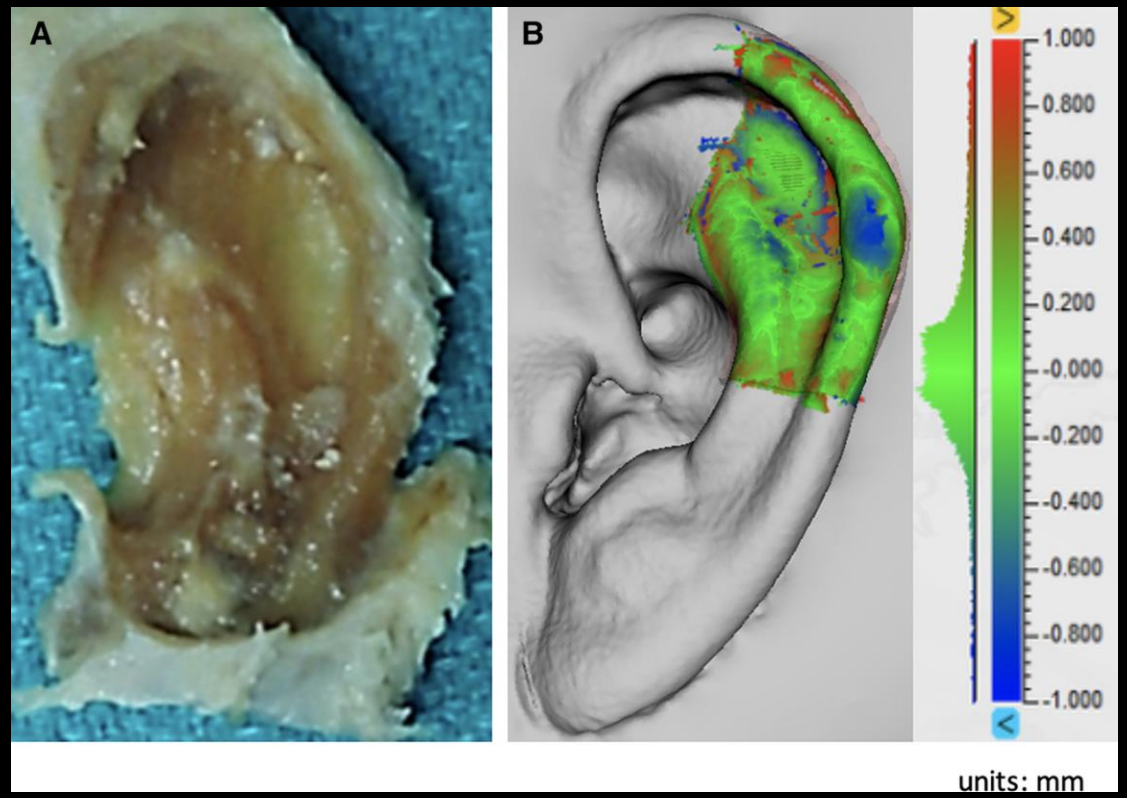
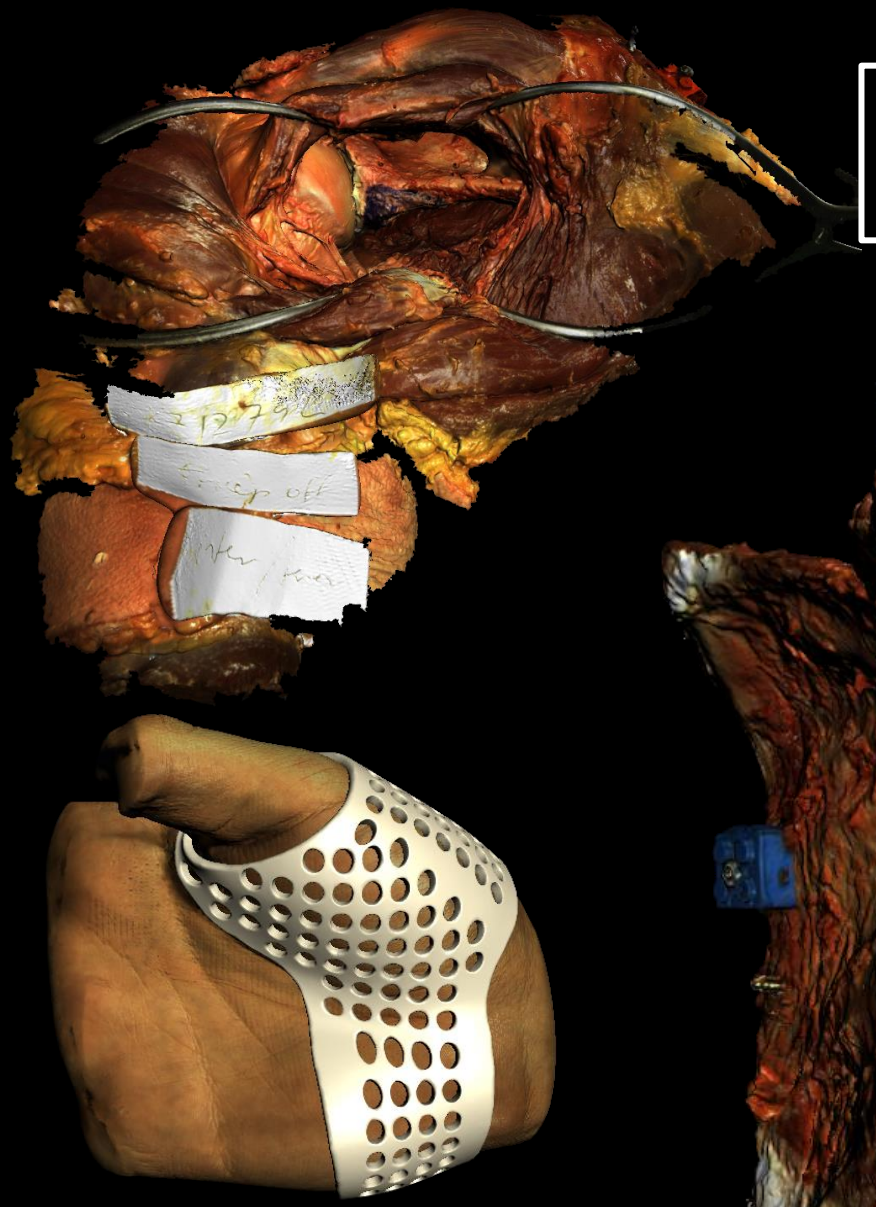


Robot Contouring for Ear Reconstruction



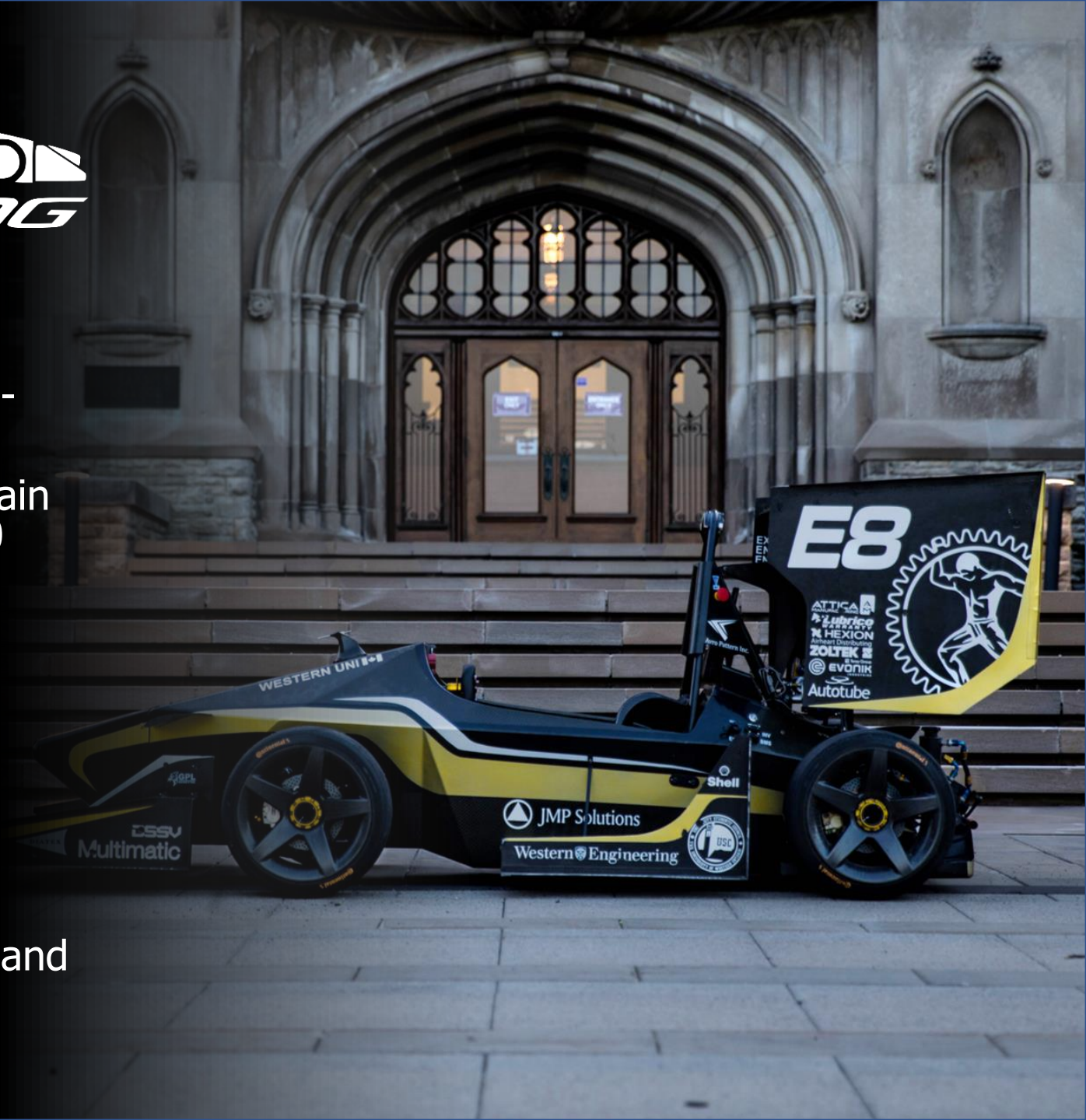
3D Printed Splint

Specimen 3D Models

Western FORMULA RACING

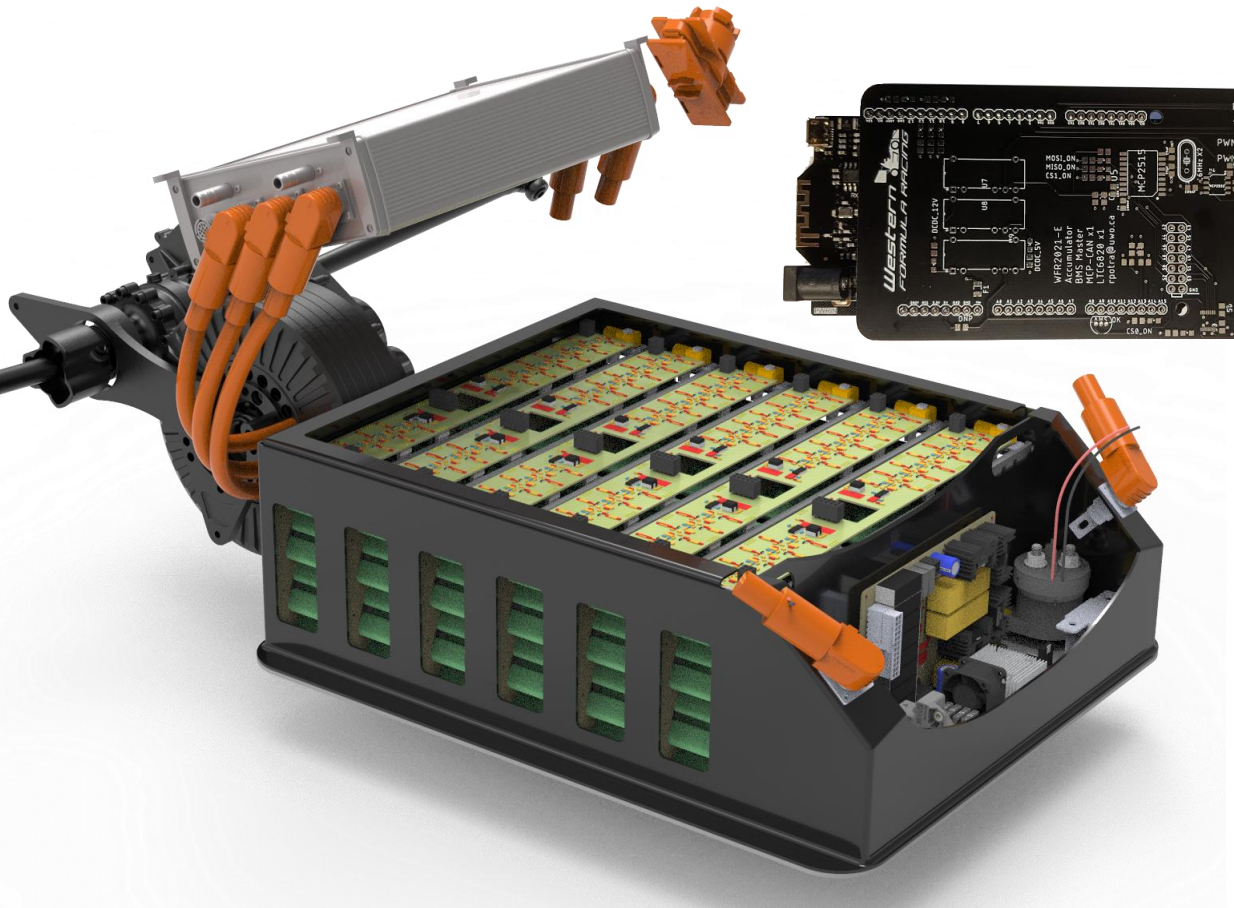
Low Voltage Lead

- Designed low voltage systems for 2018-2019 and 2020-2021 seasons
- Final year project of electrified powertrain using an Emrax 228 motor, DTI HV-500 inverter, and 500 V Lithium-ion battery pack with custom battery management system
- Designed and manufactured wire harnesses with improvements in modularity, reliability, and design documentation
- Mentored junior team members
- Integrated sensors using CAN protocol and MoTeC M150 engine control unit

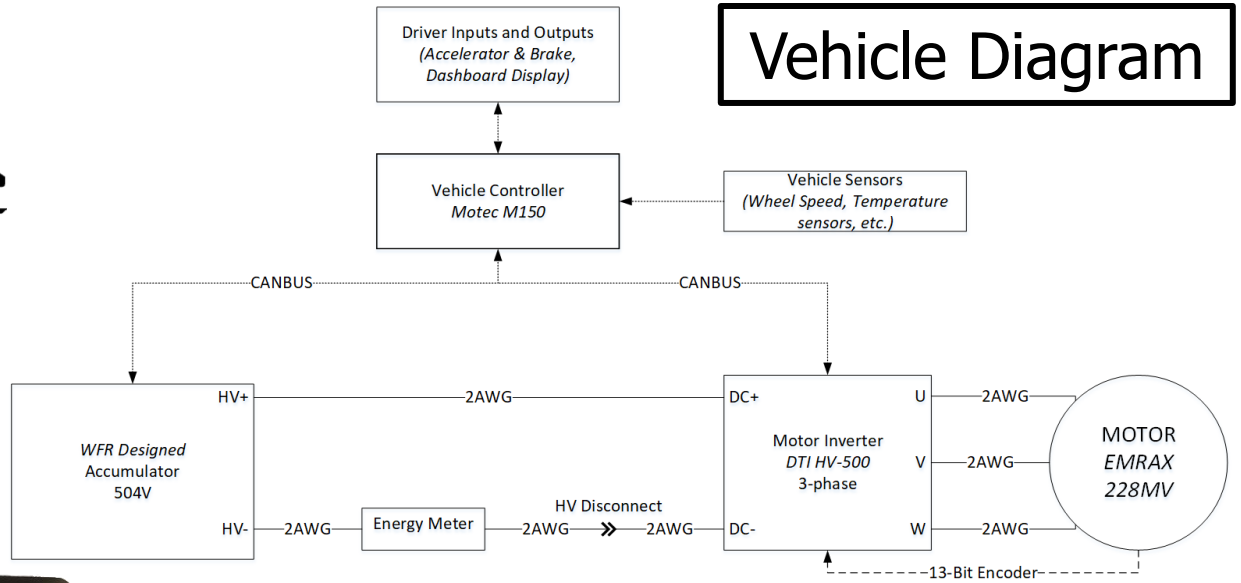


Western FORMULA RACING

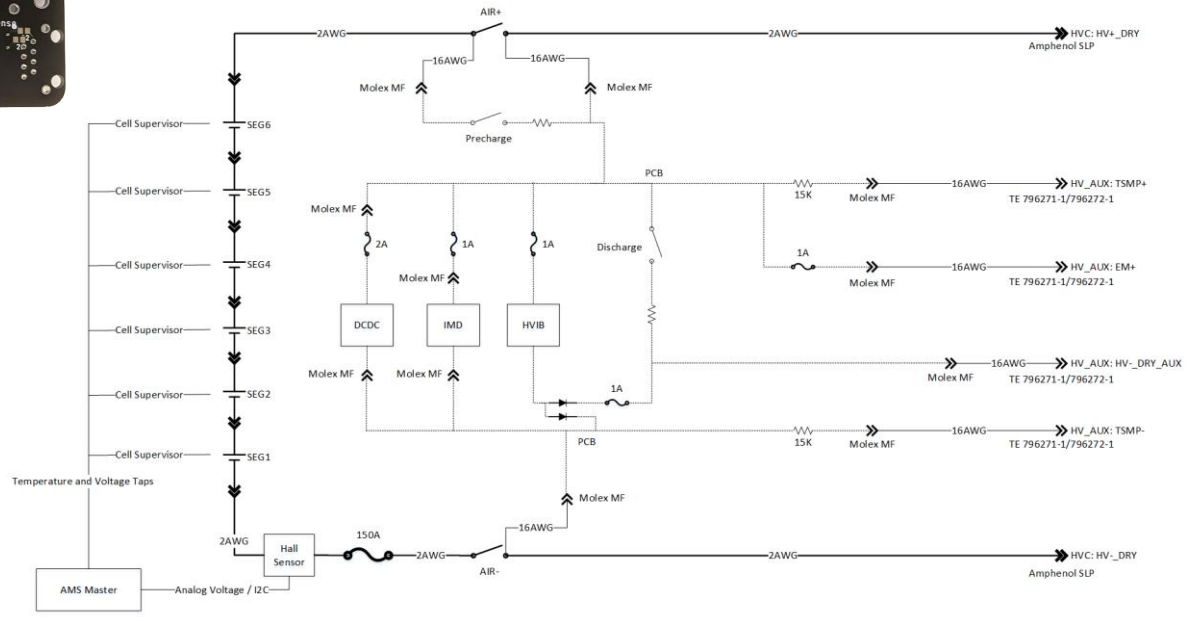
Interactive Vehicle Render

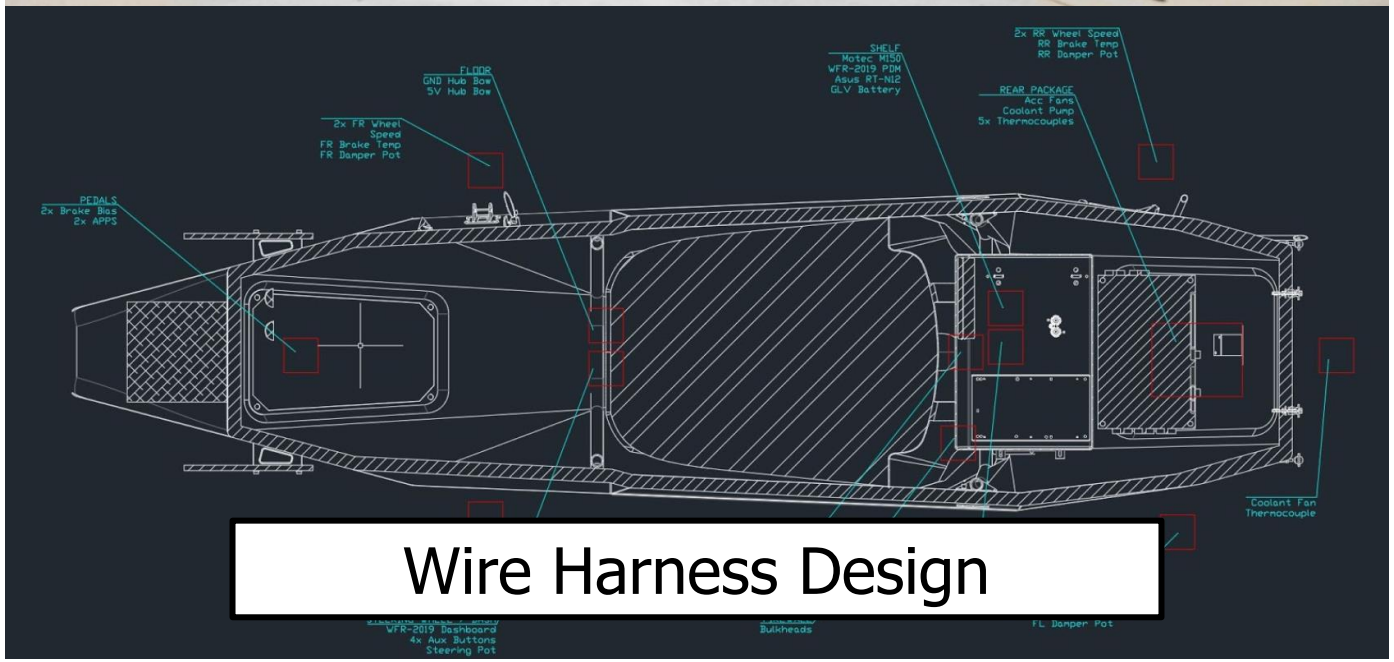


Vehicle Diagram

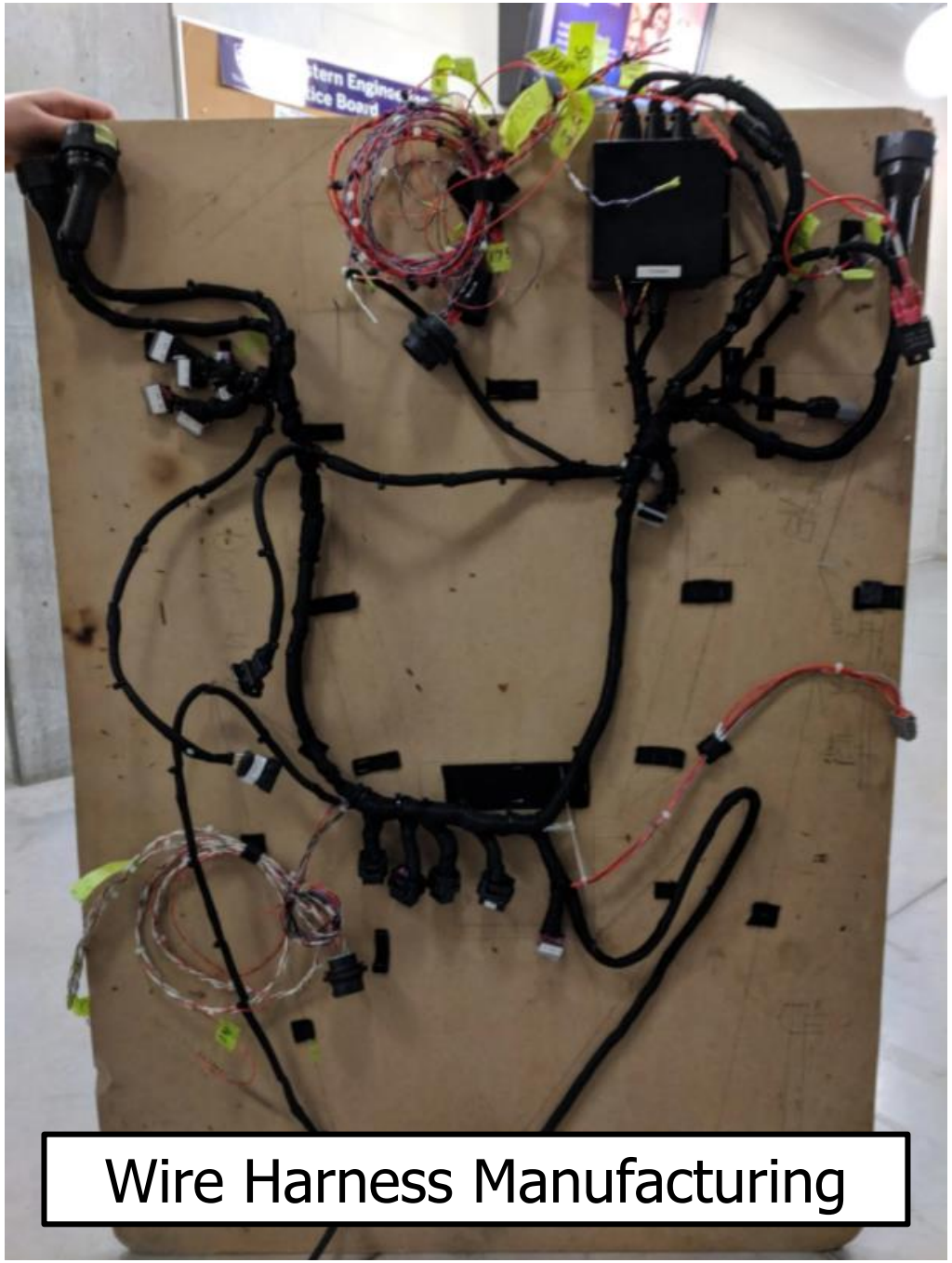


Accumulator Diagram





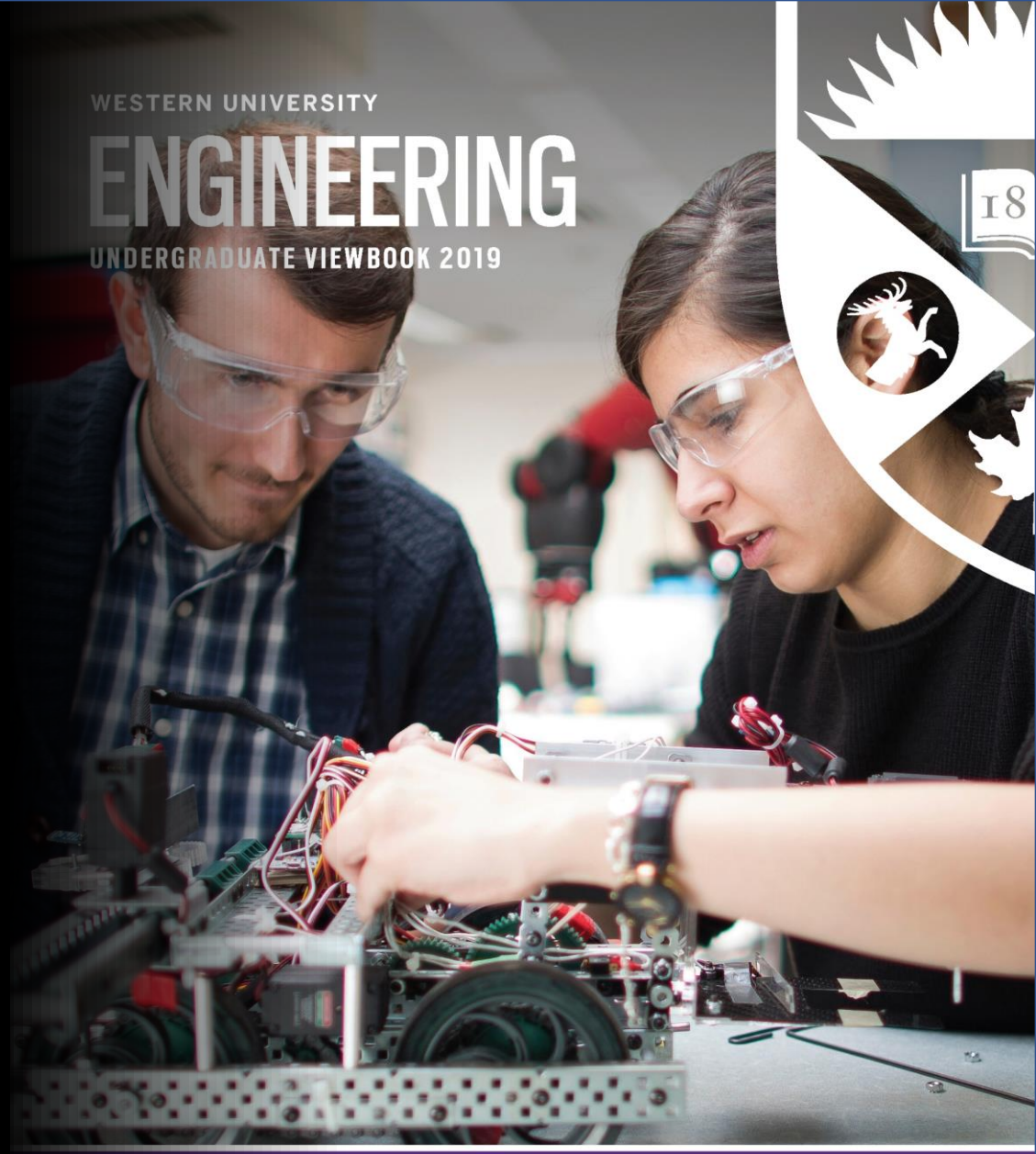
Wire Harness Design



Wire Harness Manufacturing

Western
UNIVERSITY · CANADA

- BESc. Mechatronic Systems
- Dean's Honour Roll
- Certificate of Leadership and Innovation



Western
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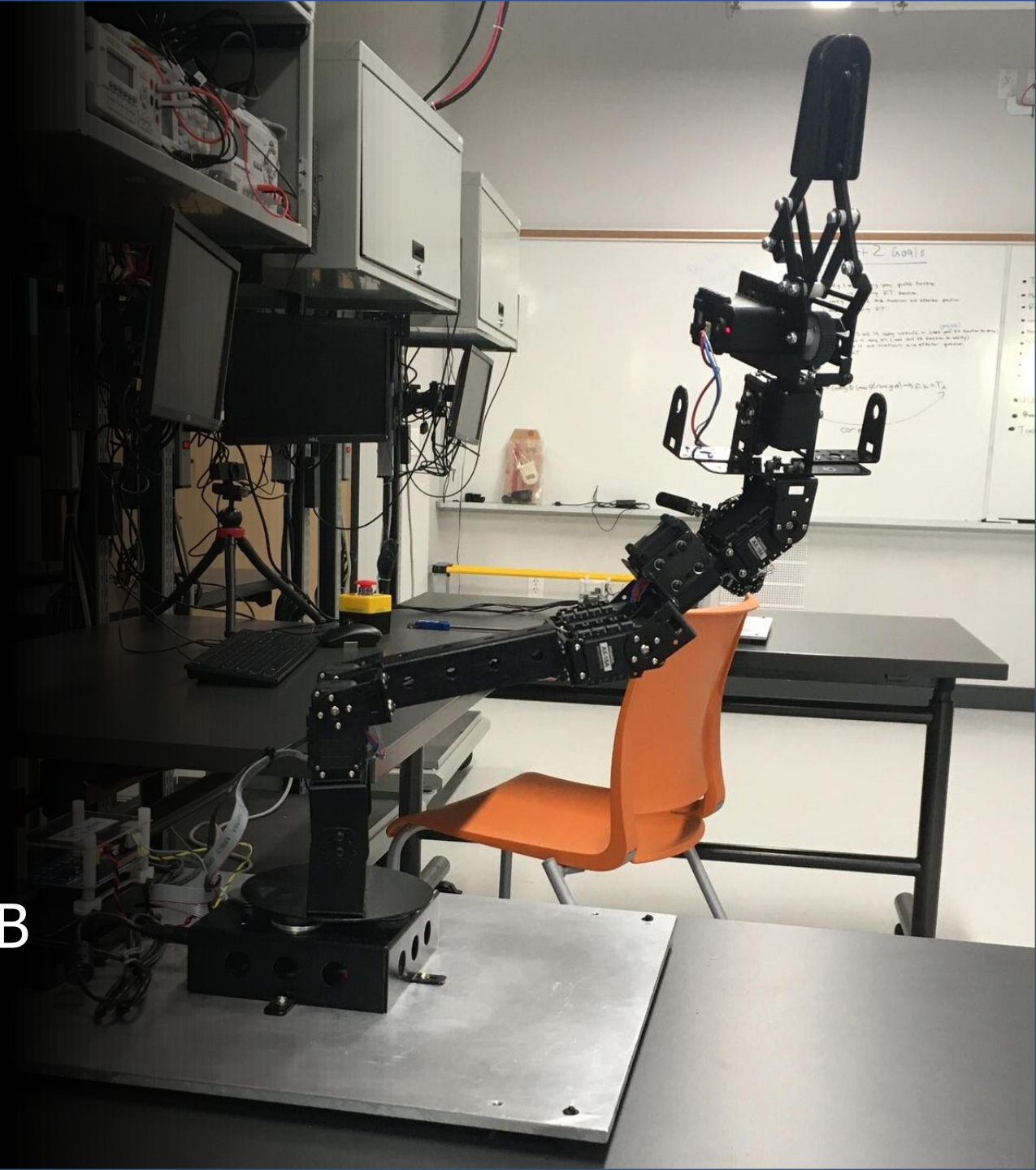
Robotic Manipulators

- Serial manipulator kinematics and dynamics
- Path planning with via points, attractive fields, and repulsive fields
- Implemented gradient descent algorithm and control in MATLAB



Technical Skills

Computer-Aided Design

- SolidWorks
- Artec Studio
- Geomagic Wrap
- Autodesk EAGLE

Programming

- MATLAB
- LabVIEW
- Python
- Simulink

Prototyping

- Arduino
- Soldering
- 3D Printing
- 3D Scanning
- Wire Harness Construction

Biomechanics and Medical Imaging

- Materialise Mimics
- Optotrak Certus
- The MotionMonitor

Creative Design

- Microsoft Office
- Photoshop
- PhotoView 360
- Keyshot
- LaTeX

MATLAB® & SIMULINK®

SOLIDWORKS

Artec 3D

AUTODESK® EAGLE

Excel

Materialise Mimics

Personal Projects
LED Cube

- Serial Peripheral Interface (SPI)
- Daisy-chained 74HC595 shift registers to control 8x8x8 cube of LEDs
- YouTube Video