Will Thibault

57 Borden Ave N, Kitchener, ON N2H 3J2

519-498-9269 | wcthibault@gmail.com | www.willthibault.com | linkedin.com/in/wcthibault

Education

➢ **MASc, Mechatronics Engineering (Expected Graduation: Aug 2022)**   Sept 2020 to Present

2nd Year, University of Waterloo, 91% Cumulative Average

- Research on whole-body manipulation and loco-manipulation with the REEM-C humanoid robot
- Courses include: Statistical Learning – Classification, Human Movement Neuromechanics, Modelling/Simulation/Optimization in Robotics and Biomechanics, Humanoid Robotics

➢ **BASc, Mechatronics Engineering**   Sept 2015 to April 2020

Degree Honours: With Distinction and Dean's Honours List, 90% Cumulative Average

- Projects include: drone battery swapping station (Capstone), magnetic wall-climbing robot
- Courses include: Robot Manipulators- Kinematics/Dynamics/Control, Autonomous Mobile Robots, Multi-sensor Data Fusion, Digital Control Applications

Research and Publications

➢ **Research Assistant in Humanoid Robotics**   Apr 2020 to Present

UWaterloo HCRMI, www.uwaterloo.ca/cerc-human-centred-robotics-machine-intelligence/

- Designed standing during manipulation and pick and carry testbeds and performance indicators to benchmark humanoid robot whole-body manipulation and loco-manipulation for EUROBENCH project
- Developed whole-body manipulation motions with REEM-C (ROS based) on robot and in simulation using MoveIt!, optimal control and Stack of Tasks techniques
- Analyzed bimanual workspace of REEM-C with hand constraints to inform motion planning
- Performed human motion capture studies of object manipulation motions with Vicon

➢ **Publications**

[1] Will Thibault, Francisco Javier Andrade Chavez, and Katja Mombaur. A standardized benchmark for humanoid whole-body manipulation. In *Under Review*, 2022.

Work Experience

➢ **Hardware and Systems Developer Co-op (RF)**   Jan 2019 to Aug 2019

ON Semiconductor (Medical, Wireless and Signal Processing), www.onsemi.com

- Developed automated RF measurement and reporting system in Python to characterize up to 12 Bluetooth Low Energy (BLE) devices and generate performance reports for device certification
- Measured BLE device and antenna characteristics using equipment including radio communication tester (CMW 500), spectrum analyzer, vector, network analyzer, over-the-air anechoic chamber

➢ **RF Propagation Testing System Developer Co-op**   May 2018 to Aug 2018

UWaterloo EmRG, www.uwaterloo.ca/emerging-radio-systems-group/

- Designed modular antenna positioning system with Onshape 3D CAD software to tilt and rotate a 256-element array in an anechoic chamber for 5G communication radio frequency propagation experiments
- Developed software for the antenna positioning system's stepper motors to calibrate, monitor and control the antenna position via MATLAB using an Arduino microcontroller and a custom C++ library

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- **Control Systems Software Design Co-op (Life Sciences)**   Sept 2017 to Dec 2017
  ATS Automation Tooling Systems Inc, www.atsautomation.com
  - Developed web plug-in for ATS OEE Toolkit to control and monitor product flow using autonomous intelligent vehicles that transport carts of material during assembly stages to increase production rates
  - Created user-friendly interface for web plug-in using AngularJS and Bootstrap to execute operator procedures and display real-time data from SQL Server database with ASP.NET MVC C# server
- **Control Systems Design Co-op**   Jan 2017 to Apr 2017
  Powerhouse Controls Ltd, www.powerhouse.ca
  - Updated over 200 pages of PLC control schematics with new analog and digital I/O cards in AutoCAD for Rockwell PLC retrofit while improving organization and clarity
  - Upgraded PLC and HMI programs with Rockwell Studio5000 and FactoryTalk to double product yield
- **Engineering CAD Systems Co-op**   May 2016 to Aug 2016
  Skyjack Inc, www.skyjack.com
  - Repaired over 9000 SolidWorks assemblies' references while leading 7 coworkers and recording errors
  - Provided training and instructional documents to improve the team's efficiency in repairing references

Awards and Scholarships

- **Engineering Excellence Master's Fellowship (institutional) - $25,000/year**   Sept 2020 to Aug 2022
  Awarded to top MASc students based on academic excellence and research potential
- **Dean's Entrance Award (institutional) - $5,000**   Sept 2020
  Awarded to top graduate students based on academic excellence (85%+ average)
- **President's Scholarship of Distinction (institutional) - $5,000**   Sept 2015
  Awarded to top undergraduate students based on academic excellence (95%+ average)
- **Waterloo Country Entrance Scholarship (institutional) - $4,000**   Sept 2015
  Awarded to top undergraduate students from Waterloo Region based on academic excellence

Extra-curricular Activities

- **Academic Representative**   Sept 2015 to April 2020
  Mechatronics Engineering 8-stream, Class of 2020
  - Communicated with faculty on behalf of class during student faculty meetings
  - Organized class surveys and administered course critiques
- **UW Robotics Project Lead**   May 2017 to Feb 2018
  Mars Rover Mechanical Team, www.uwrobotics.uwaterloo.ca
  - Designed, machined, and assembled 3 axis robotic arm in SolidWorks for manipulation tasks
  - Managed team members for the machining and assembly phase of the arm
- **Engineering Ambassador**   Sept 2016 to Aug 2017
  Engineering Student Ambassador Team, www.uwaterloo.ca/engineering-student-ambassadors/
  - Led groups of up to 20 people on tours of Waterloo engineering buildings
  - Hosted high school students on Mechatronics engineering shadow days