November 2019

Nick Hetherington

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Robotics Master's student with experience in HRI research and autonomy systems integration with mobile robots. Seeking an internship for summer 2020.

EDUCATION

Master's in Human-Robot Interaction Graduating Dec. 2020

M.A.Sc. in Mechanical Engineering, CARIS Lab, University of British Columbia

- First Class Honours: 87% avg.
- National Research Scholarship: NSERC CGS-M ($17,500)
- Designing-for-People Program Graduate Trainee (HCI/HRI)

Bachelor's in Robotics, Systems, and Control May 2017

B.A.Sc. in Electrical Engineering, Queen's University

- First Class Honours: 87% avg.
- Major Entrance Scholarship: Chancellor's Award ($36,000)
- Service Awards: Science Jacket Award; Sci'44 Memorial Prize; Excellence through Innovation Award

TECHNICAL EXPERIENCE

Communication Cues for Mobile Robots Ongoing

Master's Thesis Project, CARIS Lab, University of British Columbia

- Design and implement visual cues to communicate a mobile robot's forthcoming motion to pedestrians
- Integrate cues with the robot's autonomy stack
- Conduct a user study and analyze data to evaluate the effect of cues on pedestrian motion and comfort
- Presented a poster at ICRA 2019 workshop: Human Movement Science for Physical HRI (1st author)

Pedestrian Following for Autonomous Navigation with Mobile Sidewalk Robot Summer 2018

Master's Research Project, CARIS Lab, University of British Columbia

- Co-designed a group following navigation method for a mobile robot, integrated it with the autonomy stack
- Adapted a learned multi-agent collision avoidance policy for a sidewalk environment
- Presented a poster and paper at ICRA 2019 (2nd author)

Industrial Automation Systems Designer Sept. 2015 – July 2016

Grantek Systems Integration

- Designed and implemented PLC-driven controls and SCADA systems for food and pharmaceutical plants
- Wrote PLC code, built GUI screens, and audited large-scale systems for a variety of clients
- Commissioned systems on the plant floor and led operator training sessions

UAV Indoor Guidance System Sept. 2016 – May 2017

Fourth-Year Project, Queen's University

- Modified a UAV with SONAR sensors and a microcontroller; implemented a wall-following system with ROS
- Placed 3rd at the IEEE Eastern Ontario Student Paper Competition, April 2017

Lead Electrical Designer & Project Manager for Autonomous Sailboat May 2014 – June 2015

Queen's University Mostly Autonomous Sailboat Team

- Co-designed and managed 12 students implementing the electrical system for a 2 m autonomous sailboat
- Integrated: weather and IMU sensors; radio, WiFi, and VHF; DC motors; microcomputers; power
- Placed 2nd at the International Robotic Sailing Regatta, June 2015

TECHNICAL SKILLS

- *Programming:* C++; Python; C#; Git
- *Robotics prototyping*: ROS; Arduino; DIY soldering and wiring
- *ROS:* motion planning and collision avoidance; navigation; people tracking; Gazebo simulation
- *Mixed Reality:* Unity and HoloLens with ROS integration

LEADERSHIP EXPERIENCE

Director of Out-Tripping | Leadership Development Counsellor Summers 2011-2013, 2015, 2017
YMCA Camp Elphinstone & Partner Camps

- Directed overnight canoeing and hiking trips and managed 3 outdoor guides; co-managed 100 staff
- Designed and led two 28-day leadership development and experiential learning programs for teens
- Worked with youth with: invisible disabilities; HIV/AIDS; type-1 diabetes

Speaker & Chief Electoral Officer March 2014 – March 2015
Queen's University Engineering Society

- Chaired bi-weekly meetings of the Engineering Society Council (30 peers)
- Organized Society elections with a team of five; recognized for record-breaking voter turnout

Residence Don Sept. 2014 – May 2015
Queen's University

- Live-in support staff for 30 first-year students in residence: ran educational and team-building events

President, Engineering Class of 2016 March 2013 – March 2014
Queen's University Engineering Society

- Chaired a committee of 15 to organize events for 670 constituents; sat on Engineering Society Council

TEACHING EXPERIENCE

Software Design for Mechanical Engineers Fall 2018
C# | MECH 550C-575A, University of British Columbia

- Facilitated lab. exercises

Introduction to Software Tools for Mechanical Engineers Fall 2018
Arduino, MatLab, SolidWorks | MECH 220S, University of British Columbia

- Facilitated lab. exercises and marked assignments

Introduction to Programming and Mobile Robots Winters 2015 & 2017
RobotC, LEGO Mindstorms robots | APSC 142, Queen's University

- Facilitated lab. exercises; marked assignments and projects

Mechanical Engineering Design Project Winter 2019
MECH 223, University of British Columbia

- Acted as project manager and mentor for two 5-week design projects; marked assignments and tests

Technical Communication for Mechanical Engineers Summer 2019
MECH 227, University of British Columbia

- Mark written assignments and provide guidance for human-robot interaction literature review project