Seamus Johnston
Mechatronics Engineering

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SKILLS

Qualities : Canadian/US Citizen, Self-Starter, Personable Leader, Adaptable, Robot Whisperer
Languages | OS : C++, Arduino, ROBOTC, Python, XML, Bash, C#, MySQL | Windows, OS X, Linux
Design | VC | Electrical : AutoCAD, SolidWorks, Adobe Creative Suite 6 | Git | Soldering, PCBs
Mechanical | Hardware: 3D Printing, Laser Cutting, Machining | Arduino, Raspberry Pi, Kinect
ROS: Gazebo, RVIZ, Navigation Stack, Kinect IAI, RTabMap, Gmapping, FindObject

PROJECTS

Co-Founder - UWaterloo Autonomous Sailboat Team
May 2016 - Present

- Goal: Create an autonomous sailboat to compete in the International Robot Sailing Regatta
- Software/Electronics Lead:
  - Designed the preliminary architecture and headed stress testing with Raspberry Pi
  - Working lead for sensor interfacing, data retrieval and initial radio communcations
  - Sourced and on-boarded sponsor funding to allow for research and initial purchases
  - Achieved certification for 33rd official Student Design Team, and led info sessions

EXPERIENCE

Software Developer, Tigercat Industries
Sept 2016 - Dec 2016

- Goal: Develop software and PCBs for use in the deployment of a telematics system
- Electrical Design:
  - Designed an automated power module tester for checking circuitry defects
  - Responsible for the design of a custom PCB and FDM enclosure
- Software Design:
  - Wrote and implemented an automated manufacturing prep application in C#
  - The prep application interacts with the factory telematics computers and configures satellite messages, wireless settings, serial ports and provision firmware
  - Arduino program to interact with power tester circuit, using timer interrupts and low level byte/port manipulation, for fast and reliable timing

Robotics Research Assistant, University of Waterloo
Jan 2016 - Apr 2016

- Goal: Create an intelligent walker that helps the elderly by planning paths around obstacles and uses intent based goal planning
- Mechanical and Manufacturing:
  - Designed preliminary model in SolidWorks, machined handles and handle supports
- Software Design:
  - Wrote a package with components for visualization and manual/auto wheel control
  - Customized path planning algorithms in ROS to allow for Ackermann drivetrains
  - Utilized SLAM algorithms to create real time maps and set goals with RTabMap
  - Wrote Arduino Code to control ROS simulations with an iOS app and the handles

EDUCATION

University of Waterloo, Waterloo, Ontario
2015-Present

- Candidate for Bachelor of Applied Science in Mechatronics Engineering