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:
    - Created a custom RC controller using a PS4 remote, interfaced with ROS wirelessly
    - Working lead for sensor interfacing, data retrieval and initial radio communications
    - Wrote feedback loops for accurate winch positioning via RC or autonomously
    - Sourced and acquired sponsor funding to allow for research and initial purchases

EXPERIENCE

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

Software Developer, Tigercat Industries
Sept 2016 - Jan 2017

- 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
    - Was responsible for the design of a custom PCB and FDM enclosure
- Software Design:
    - Wrote and implemented an automated manufacturing prep application in C#
    - The application connects remotely to the telematics computers, provisions firmware, sets up SSH access, interacts with REST APIs, and decrypts files from a database
    - Arduino program to interact with power tester circuit, using timer interrupts and low level byte/port manipulation for fast and reliable timing to test and display results

EDUCATION

University of Waterloo, Waterloo, Ontario
Sept 2015-Present

- Candidate for Bachelor of Applied Science in Mechatronics Engineering
- Received the President's Entrance Scholarship for 90-94.9% average