Peter Mitrano

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Summary

I'm looking to work with a small group of equally passionate and talented people!
I'm pursuing work in Computer Science & Robotics Engineering.
I adapt fast to new tasks and work hard to acquire new skills.

Employment

Robot Autonomy and Interactive Learning Lab (Georgia Tech)
Research Intern · Jun 2016 to Aug 2016

I conducted research on applying Learning from Demonstration techniques to the ROS Navigation stack. I developed several plugins for the ROS nav stack, and studied basic machine learning and LfD techniques.

OSRF (Open Source Robotics Foundation)
Software Engineering Intern · May 2015 to May 2016

At OSRF, I worked on FRCSim project. The aim is to allow FIRST Robotics Teams to use the Gazebo robot simulator to simulate their robots and practice programming them without a completed physical robot. This project heavily involves cross-architecture and cross-platform C++/Java development. Over 40,000 high school students and mentors use this software every year. I also lead the ongoing process of getting Gazebo to run on Windows.

Robot Autonomy and Interactive Learning Lab (WPI)
Research Intern · Oct 2014 to May 2014

Developed 3D models and an online interface to allow online crowd-control of our robot. We hope to learn whether online crowd-learning works in unstructured robot domains

Projects

WPILib & FRCSim

Over the last year and a half, I have been one of a small group of students who works on WPILib. WPILib is a set of libraries, toolchains, and development tools that allows students in FRC to program their robots. I have contributed numerous patches and features to the program, mostly through the FRCSim project. The goal is to use the Gazebo multi-robot simulator in FRC so teams can develop and test their robots and robot code more easily and quickly using simulation. WPILib and FRCSim involve heavy Java, C++, Gradle, and CMake use, and all code runs on a test suite on Jenkins and is peer-reviewed. The software we produce is used by 40,000 students on over 3,000 teams around the world. It simply has to work. My FRCSim project adds to this challenge, but is more experimental. We are currently experimenting with a test system solution, and support for windows.

WPI Smartmouse (2015, 2016, 2017)

A project organized by the WPI Collab-Lab to design, fabricate, and program a micro-mouse maze solving robot to compete at Brown University's IEEE Robotic Olympiad. This year, I extended the project to involve a continuous testing platform using the Gazebo robot simulator. Using this system, our maze solving code that runs on the Arduino can also run on a server. For instance, a maze will be randomly generated in gazebo, and the solving algorithm tested with a simulated robot, such that we can be sure that the algorithm is robust and not broken by a recent change.

Alexa Skills & Devices

I've been developing a handful of Alexa controlled devices, and Alexa skills. They range from an alexa controlled electric sit-stand desk, to a cook-book skill

NASA Space Robotics Challenge

I am one of the leading members of WPI's Space Robotics Challenge Team. My expertise in Gazebo and experience with ROS allow med to jump-start the team before the official models or packages were released.

Volunteering

Rho Beta Epsilon · Student mentor — Jan 2016 to Current

Provide help and tutoring to undergraduate Robotics Engineering majors as a part of Rho Beta Epsilon (Robotics Engineering Honor Society)

Team INFINITY · Mentor — Oct 2013 to Mar 2014

Founding mentor for a local FIRST Lego League robotics team, for kids ages 9-14

Education

Worcester Polytechnic Institute
Computer Science & Robotics Engineering
2018

Clubs: Robotics Engineering Honor Society, CollabLab Makerspace, Badminton Club
Courses: Unified Robotics I & II, Intro to AI, Deep Neural Networks, Machine Organization and Assembly Language, Software Engineering, ect...

Hacking

PennApps 2015

Developed a rapid-mockup tool for web development. Allows the user to draw out a basic website layout on paper or a whiteboard, take images of the pages, and then a script on our server processes the images and generates the website mock-up for you to view and continue developing.
http://devpost.com/PeterMitrano

HackRPI

Created an Android App "Here I Am!" that uses GPS to enable classic hide-and-seek on a much larger scale
http://challengepost.com/software/here-i-am

HackBCA

My first hackathon! My friends and I built DefNotes, and Android App which listens to lectures and produces vocabulary study sheets for key terms
http://challengepost.com/software/defnotes

HackUMass II and III

Developed a replacement to the robot controller used a robotics class at school. Previously, the class used an Arduino based controller which talked to other robots over bluetooth. I improved this system by replacing it with an android app. This way, the class isn't limited to one controller--Any student can have their own controller just by using their phone.

Skills

PROGRAMMING EXPERIENCE

- ROS/Gazebo
- Git
- Linux
- C/C++
- Python
- CMake
- Java
- Android
- Javascript

HOBBIES

- Piano
- Fire Spinning (Poi)

ROBOTICS INTERESTS

- CAD & 3D Printing
- HRI
- Internet of Things
- Simulation