Mateo Guaman Castro

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mateoguaman.github.io

Education

Tufts University, Medford, MA
Bachelor of Science in Electrical Engineering, expected May 2020
Minor in Computer Science
Overall GPA: 3.75, Major GPA: 4.00

Unidad Educativa Julio Verne, Quito, Ecuador, June 2016
Valedictorian

Skills

Programming Languages: C++, Python, MATLAB, HTML, LabVIEW
Products and Software Tools: ROS, Raspberry Pi, Arduino, VHDL, SPICE
Software: Adobe Illustrator, Lightroom, Premiere Pro, InDesign, Microsoft Office
Language: Spanish (native)

Experience

CRISP Lab, Tufts University, Research Assistant, June-August 2017

- Designed and built a land robot from scratch to be used on research in obstacle avoidance with computer vision, control systems of the robot and real time communication with a drone.
- Controlled from a Raspberry Pi that communicates through ROS to an Arduino that controls the sensors and movement of the robot.
- Communicated data from ultrasonic sensors, IMU, infrared sensors, and servo and DC motors.
- Programmed in C++

Center for Engineering Education and Outreach, Tufts University, Summer Intern, June-August 2017

- Built a local network of IoT devices, including an Arduino-based IoT sign for Prof. Ethan Danahy's Lab, to develop and showcase the IoT educational capabilities of the LEGO MINDSTORMS EV3.
- Developed examples of a Raspberry Pi controlling the above-mentioned sign and Philips Hue lightbulbs over the internet.
- Developed a public Python package to handle IoT HTTP requests
- Mentored a workshop for 38 Japanese High School students on client based product development.

Projects

Smart Bike Lights, 2018

- Reverse engineered a set of existing bike lights to interface it with a Raspberry Pi in order to build automated turning lights and braking lights
- Communicated IMU data to the Raspberry Pi using ROS for data analysis
- Led team of five at MakeHarvard 2018

Word indexer and finder similar to GNU grep, 2017

- Indexed 2459 files in 10948 directories taken from Project Gutenberg in under a minute for final Data Structures project.
- Programmed in C++ implementing tries, vectors, and sets.

Awards

- Recipient of MakeHarvard 2018 Reverse Engineering and Documentation Award
- Dean's List, 3 semesters
- Recipient of *Leslie and Bruce Male University Scholars Fund* Scholarship

Relevant Courses

Data Structures, Introduction to Computer Science (C++), Introduction to Computing in Engineering (MATLAB), Introduction to Machine Learning (MOOC, Stanford), Intelligent Autonomous Robots, Electronics 1, Introduction to Electrical Systems, Introduction to Digital Logic Circuits, Linear Algebra, Differential Equations, Calculus 1 - 3, Discrete Math, General Physics 1, General Physics 2, Engineering Leadership, Applications in Engineering: Simple Robotics