

# Mateo Guaman Castro

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mateoguaman.github.io

<b>Education</b>	<b>Tufts University</b> , Medford, MA Bachelor of Science in Electrical Engineering, expected May 2020 Minor in Computer Science GPA: 3.69
<b>Skills</b>	<b>Programming Languages:</b> Python, C++, C, MATLAB, Assembly, HTML, CSS, LabVIEW <b>Products and Software Tools:</b> ROS (Robot Operating System), Tensorflow, OpenCV, NumPy, Matplotlib, PDDL, Google Cloud Vision, Gazebo, VHDL, SPICE, Raspberry Pi, Arduino, Keil MDK <b>Language:</b> Spanish (native)
<b>Research Experience</b>	<b>AIR Lab, Tufts University</b> , Undergraduate Research Assistant, June-Present 2018 <ul style="list-style-type: none"><li>Developed simulation environment for research in discovery of action primitives for intelligent agents</li><li>Developed action sequences for Baxter robot to be called by a PDDL planner.</li><li>Implemented computer vision methods for the agent to analyze the state of its environment</li></ul> <b>CRISP Lab, Tufts University</b> , Undergraduate Research Assistant, June-August 2017 <ul style="list-style-type: none"><li>Designed and built a land robot from scratch to be used on research in obstacle avoidance with computer vision.</li><li>Controlled from a Raspberry Pi that communicated through ROS to an Arduino that controls the sensors (IMU, ultrasonic, infrared) and movement of the robot.</li></ul>
<b>Work Experience</b>	<b>SharkNinja Operating LLC, Needham MA</b> , Electrical Engineering Intern, June-August 2018 <ul style="list-style-type: none"><li>Designed and assembled a testbed for ARM Cortex-M0 microcontrollers to decrease future production costs for Ninja kitchen products and Shark cleaning products</li><li>Developed and prototyped new motor and vacuuming functionalities for Ninja kitchen products to improve user experience</li></ul> <b>Center for Engineering Education and Outreach, Tufts University</b> , Summer Intern, June-August 2017 <ul style="list-style-type: none"><li>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.</li><li>Developed Raspberry Pi circuits to control the IoT devices over the internet.</li></ul> <b>Teaching Assistant, Introduction to Electrical Systems</b> , 2018
<b>Projects</b>	<b>Semantic autonomous mapping</b> , 2018 <ul style="list-style-type: none"><li>Developed an autonomous robot that detects signs inside a building and performs optical character recognition in real time to create a semantic representation of the building.</li><li>Detected signs from a real time video stream using a combination of color thresholding, contour detection and other filtering techniques with OpenCV.</li><li>Designed a map navigation algorithm for a Turtlebot robot running ROS.</li></ul> <b>Smart Bike Lights</b> , 2018 <ul style="list-style-type: none"><li>Implemented Kalman filter to get accurate estimates of roll, pitch and yaw of a bike</li><li>Lead team of five at MakeHarvard 2018 that reverse engineered a set of existing bike lights to interface with a Raspberry Pi in order to build automated turning lights and braking lights</li></ul>
<b>Activities</b>	<b>Member of Electrical Engineering student board</b> , 2018 <ul style="list-style-type: none"><li>Appointed by department chair to provide student feedback about the department to a board of Electrical and Computer Engineering professors.</li></ul> <b>IEEE Club Class of 2020 Representative</b> , 2018 <ul style="list-style-type: none"><li>Organize events relevant to the EECS community at Tufts and outreach</li></ul>
<b>Awards</b>	<ul style="list-style-type: none"><li>Recipient of MakeHarvard 2018 Reverse Engineering and Documentation Award</li><li>Dean's List, 4 semesters</li></ul>
<b>Relevant Courses</b>	Reinforcement Learning, Introduction to Machine Learning (MOOC, Stanford), DeepLearning.ai Specialization (MOOC, Andrew Ng), Intelligent Autonomous Robots, Algorithms, Data Structures, Linear Systems, Linear Algebra, Differential Equations, Calculus 1 - 3, Discrete Math, General Physics 1-2