Mario Sebasco

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Portfolio - https://mariosebasco.github.io

EDUCATION

Northwestern University Evanston, IL

Master of Science in Robotics Engineering, December 2017

GPA 3.86

Relevant Courses: Optimal Control of Nonlinear Systems, Machine Learning, Advanced Mechatronics, Embedded Systems

University of Miami Coral Gables, FL

Bachelor of Science in Mechanical Engineering, May 2016

Minor in Mathematics

GPA 3.86 – Magna Cum Laude

Udacity

Intro to Self-Driving Cars nano-degree program, funded by Lyft scholarship, October 2018

Computer Vision nano-degree program, July 2019

EXPERIENCE

HDT Global, Evanston, Illinois

SW/Controls Engineer January 2018 - Present

- Lead the development of autonomous vehaviors for HDT's Hunter WOLF (load-carrying vehicle) for farming applications in Australia. Work ranged from integration of hardware components and sensors like LiDAR, RADAR, and IMU, to developing software for waypoint navigation, collision avoidance, location surveillance, and more.
- Developed C++ software library and ROS simulation for SOCOM's TALOS exoskeleton project. Algorithms implemented solved the dynamics of the suit to compensate for gravity. Software was integrated with the suit and was used successfully.
- Aided in the development of a harware sensor for DARPA's OFFSET project. The system was designed to be used for drone to drone communication in a swarm. Participation in the project revolved around electrical circuit testing and development, and low level programming of micro-controllers.

HDT Global, Evanston, Illinois

Engineering Intern June 2017 - September 2017

- Aided in the development of a project funded by the National Robotics Initiative (NRI) that looked to use electrosense imaging as a means of manipulating an underwater robotic arm.
- Developed several C/C++ programs aimed at interacting with a microprocessor and PCB. The code ranged from low level applications such as full GPIO, ADC, mux, and PWM control, to higher level algorithms in charge of performing full voltage and current sensing cycles.

NASA Ames Research Center, Mountain View, California

Research Assistant: Multidisciplinary Aeronautics Research Team Initiative program June 2015 – August 2015

- Served as the lead of the CFD team researching urban wind environments and their effect on low flying UAV's.
- Developed an optimization algorithm in Matlab that could numerically calculate the fastest path between two points while taking into account nearby wind velocities obtained from CFD tests.

PROJECTS

Motor Controlled 1 DOF Haptic Simulations

- Incorporated control of a DC motor, CAD and prototyping, and a ROS interface, in order to provide a user with visual and haptic feedback of: springs, dampers, masses, walls, textures, and other possible one-dimensional virtual environments.

Path Tracking Robot

- Built from scratch small autonomous robotic car capable of traversing its way through a given track. Skills involved include microcontrollers and mechatronics, Android programming, computer vision, and CAD.

SKILLS

ROS, C/C++, Linux, Git, Python, autonomy and AI, embedded systems, computer vision, micro-controller programming