

Robert L. Whitney

rw429@cornell.edu || [Portfolio](#)

Education:

Cornell University

Ithaca, NY

Master of Engineering in Mechanical & Aerospace Engineering - GPA : 3.98

2020

Bachelor of Science in Mechanical & Aerospace Engineering - GPA : 3.37

2016-2020

Skills:

Matlab · Simulink · Arduino · [Analysis and Design of RC Quadcopters](#) · Multirotor Piloting ·
Mechatronics Motors, Sensors, and Actuators · XFLR5 · Fusion 360 · Autodesk · Java · Machine Shop
Training (Lathe, Milling, GD&T) · Python · C/C++ · Data Structures · ROS · Github · Pixhawk

Specialized Courses:

Fast Robots · Intelligent Sensor Planning and Control · Design Failure Mode Analysis · Autonomous
Mobile Robots · Multivariable Control Theory · Feedback & Control Systems · Automotive
Engineering · Experimental Applications of Mechanical Structures · Intermediate Dynamics ·
Mechatronics

Engineering Experience:

Cornell University: SIOS Laboratory

Ithaca, NY

CCAT-p Research Team: Controls Subteam Engineer

Summer 2019-2020

- Implemented mechatronics hardware and software for a high precision metrology robot
- Programmed in Arduino, Python, and Matlab for localizing, actuating, and wireless communication
- Worked with microcontrollers, Raspberry Pi, motors, sensors, ADCs, TCP/IP, I2C, SPI
- Collaborated with 3 other subteams (16 engineers total) to develop the chassis and meet performance specifications

Independent Senior Design Project

Ithaca, NY

[Simulation, Analysis, and Design of an RC Aircraft Autopilot](#)

Spring 2020-Present

- Designed and modeled an airframe in Fusion 360
- Performed an airfoil and control surface simulation in XFLR5 fluid simulation
- Developed a 6DoF simulation of the aircraft and PID/LQR feedback control systems in Matlab and Simulink
- Implementing the autopilot system in hardware with Arduino for navigation and control using microcontrollers, interrupts, motors, servos, GPS/GNC, and IMUs.

MAE 5180 : Autonomous Mobile Robots

Ithaca, NY

Spring 2020

- A graduate course on autonomous localization, mapping, SLAM, path planning, and navigation
- Programmed Extended Kalman filters, particle filters, Dijkstra's algorithm, A*, and RRT in Matlab
- Tested algorithms in simulation, then on hardware with iRobot Roombas

Accomplishments:

Cornell Division I Cross Country/Winter/Spring Track · B.S.A. Eagle Scout