

# LINDSEY H. WOO

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<https://lindsey-woo.github.io/>

## EDUCATION

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Cornell University, Ithaca, NY

May 2021

*Master of Engineering in **Mechanical Engineering**, Concentration in **Dynamics, Controls, and Robotics***

**Related Courses:** Model-Based Estimation, Autonomous Mobile Robots, Multivariable Control Theory, Dynamics

**GPA: 3.81 / 4.00**

Northeastern University, Boston, MA

May 2019

*Bachelor of Science in **Electrical Engineering***

**Related Course:** Classical Control Systems, Noise and Stochastic Processes, Algorithms

**GPA: 3.79 / 4.00**

## SKILLS

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Hardware: Oscilloscope, Function Generator, Dynamic Signal Analyzer, Logic Analyzer, Network Analyzer, Digital

Multimeter, Power Supply, Soldering, Cable making, Wire crimping/cutting, Arduino, MSP430, Raspberry Pi

Software: C/C++, MATLAB/Simulink, ROS, Gazebo, RViz, Python, Linux, Altium, LTSpice, Git, I2C, UART, SolidWorks,

AutoCAD, Verilog, MIPS Assembly, HTML, CSS, VBA

## WORK EXPERIENCE

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**Raytheon Space and Airborne Systems**, El Segundo, CA

July 2019 – July 2020

*Electrical Engineer I*

- Integrated controller loop firmware and hardware into flight-ready system and fine-tuned parameters for optical and thermal loops, power levels, laser optics, and SpaceWire communication through LabView
- Analyzed schematics to calculate desired parameters for thermoelectric cooler feedback controller loops and used dynamic signal analyzers to obtain Bode plots to troubleshoot and achieve phase and gain margin system requirements
- Conducted efficiency tests on motor controller boards, collected and compiled data, revised test procedures, and investigated and located errors to increase power efficiency by 9%
- Evaluated and calculated Beginning of Life and End of Life parts variability tolerances for worst case circuit analysis

**Accion Systems**, Boston, MA

July 2018 – December 2018

*Electrical Engineering Co-op*

- Designed and developed constant current source PCB to simulate load current to test current sensors, prototyped various circuit designs, conducted simulations in LTSpice, captured schematic layout in Altium Designer, and documented trade studies and testing procedures
- Performed load testing of high voltage power processing unit sweeping from negative to positive 1300 volts
- Revised schematics and updated library database components

**Piaggio Fast Forward**, Boston, MA

July 2017 – December 2017

*Embedded Software Co-op*

- Developed firmware in C for capacitive sense board using I2C and interrupt functions from the MSP430 to control LED driver, haptic feedback, Adafruit Neopixels, and capacitive touch buttons
- Constructed wiring harnesses, installed power components, and performed electrical verification tests for electrical assembly and troubleshooting of autonomous cargo-carrying robot

## RESEARCH EXPERIENCE

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**Localization on a Jackal Robot**, Cornell University

Fall 2020

*Autonomous Systems Lab, Research Assistant*

- Implemented and compared accuracy of RTAB-Map and GMapping SLAM methods on Clearpath Robotics' Jackal UGV robot
- Wrote ROS launch files to take LIDAR, ZED stereo camera, wheel encoders, and IMU as inputs and output real-time mapping using SLAM algorithms and an Extended Kalman Filter for sensor fusion and localization
- Integrating high precision GPS and IMU module for trajectory-based comparison

**Capstone Design Project**, Northeastern University

Spring 2019

*Autonomous Visual Navigation and Mapping Search and Rescue Drone*

- Built a drone system that autonomously navigates a forest trail to locate a person of interest with 3 group members using NVIDIA's RedTail neural networks, IMU mapping with MATLAB, and LoRa communication protocol
- Implemented estimation filters and attitude and heading reference system to integrate sensor data and compute position