Catalina Murray

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Highly organized and creative electrical and computer engineering master's student interested in machine learning and computer vision applications.

SPECIAL SKILLS

Computer Skills: Proficient in Python, MATLAB, Fusion 360, Tensorflow, Pytorch, Sci-kit Learn, Creo, Java, ROS, Linux, Git, Arduino, Excel, Visio, LabView, InDesign, Adobe Photoshop, Femap, NX Nastran, Solid Works, and Latex.

Certifications: AED, CPR, Lifeguard, Radio Operator, and Credentialed Bareboat Skipper.

EDUCATION

University of Florida: Master's in Electrical and Computer Engineering, May 2024 GPA: 3.8
Wake Forest University: Bachelor of Science in Engineering, May 2022 GPA: 3.7

RESEARCH EXPERIENCE

Robo Pi Lab, The University of Florida, August - December 2022

- Underwater Data Center Project, collaborated with the hardware security department to research whether acoustic signals attack HDD's underwater in the same way they do in the air.
- Investigated Turtlebot 3 applications including autonomous mapping, wall-following, and person-following.

WORK EXPERIENCE

Machine Learning and Electromechanical Controls Intern, The Aerospace Corporation, June - August 2023

- Worked with the Data Science department on a natural language processing project that utilized clustering algorithms like BERTopic to perform topic modeling on issue tickets.
- Performed hardware verification testing for GPS User equipment, including signal integrity, continuity and crosstalk testing.

Electromechanical Controls Intern, The Aerospace Corporation, June - August 2022

- Replicated the accelerometer portion of an IMU sensor to mimic what is seen on launch vehicles, and characterized the hardware by performing scale factor, bias, temperature, and vibration testing. Utilized Texas Instruments analog-to-digital converter and Lab View software to test.
- Supported a simulated launch by analyzing real-time data for an (IMU) Inertial Measurement Unit.

Vehicle Shock Vibration Intern, The Aerospace Corporation, June - August 2021

- Used spectral analysis techniques and knowledge of dynamic environments to perform analysis for various parts of the vehicle including the engine.
- Performed in-house hardware testing using a Data Acquisition System and Modal Shaker to create a Finite Element Model to simulate how various types of fasteners on a Payload Attach Fitting affect its dynamic response.
- Utilized Femap, MATLAB, Python, and NX Nastran to further refine the model.

MAJOR PROJECTS

Pattern Recognition Project, University of Florida, Jan - April 2023

- Utilized deep learning frameworks and convolutional neural networks to detect fabric content with images. Utilized various computer vision techniques including processing the images and extracting texture from them

Math Symbols Classification Project, University of Florida, October - December 2022

- Implemented an algorithm to classify handwritten mathematical symbols. We first created a python script to find the bounding box of each symbol, and then we utilized the algorithm YOLOv5 to train our model to classify the math symbols.

Promoting Electric Propulsion Thesis Project, Wake Forest University, Aug 2021 - May 2022

- Member of a four-person team that built an electric-powered watercraft to compete in a 5-mile race against other college teams. https://www.navalengineers.org/Education/Promoting-Electric-Propulsion-PEP

VOLUNTEER EXPERIENCE

- Alpha Phi Omega Service Fraternity, Chi Omega Zeta Lambda Sorority, National Society of Leadership and Success. Campus Garden Connect and Cultivate leader. Volunteered at LEAD of Winston-Salem, North Carolina.

HOBBIES AND INTERESTS

- Surfing, Sailing, Diving, Marathon Running, 3D printing