

Electrical/Computer Engineer with interests in control systems and signal processing. Currently working on my master's thesis in an accelerated program at Virginia Tech.

Education

<b>Master of Science in Computer Engineering</b> (Accelerated Master's Program) Virginia Tech – Focusing on Control Systems and Signal Processing <i>Advisers: Dr.Thinh Doan (UT Austin) and Dr.Michael Hsiao (Virginia Tech)</i>	May 2025 Blacksburg, Virginia
<b>Bachelor of Science in Electrical &amp; Computer Engineering</b> (double major) Virginia Tech – Control Systems and Machine Learning	May 2024 Blacksburg, Virginia





Technical Experience

<b>Virginia Tech · Robotics Research</b> <b>Graduate Researcher</b> <ul style="list-style-type: none"><li>Developing a 6-axis robotic manipulator and an accompanying ROS2–Gazebo &amp; MuJoCo simulation using Gymnasium for deploying custom reinforcement learning algorithms.</li><li>Undergraduate and graduate research applying "neuro-symbolic" reinforcement learning algorithms with The Control, Optimization, and Online Learning for Autonomy Lab (C.O.O.L.) at UT Austin.</li></ul>	Aug 2023 – Present Blacksburg, Virginia
<b>Graduate Teaching Assistant</b> <ul style="list-style-type: none"><li>Taught fundamental concepts in linear systems theory and digital signal processing, including Laplace Transforms, Z-Transforms, system stability, and FIR &amp; IIR filter design.</li><li>Assisted with hands-on projects to illustrate and integrate analog and digital filter design and application on breadboards and TI MSP432 development boards.</li></ul>	Aug 2024 – Present Blacksburg, Virginia
<b>Jacobs Space Exploration Group · Mars Ascent Vehicle (MAV)</b> <b>Thrust Vector Control Intern</b> <ul style="list-style-type: none"><li>Developed thrust vector control testing hardware and software for NASA's Active Inertial Load Simulator at the Marshall Space Flight Center.</li><li>Created and ran tests to develop a mathematical model of an electro-mechanical actuator – used Python, MATLAB, and LabView.</li><li>Derived control algorithms for a load-simulating actuator, in Simulink, to simulate external loads placed on the Mars Ascent Vehicle's thrust vector control actuators during flight.</li><li>Designed and integrated a 3<sup>rd</sup> order IIR filter to remove high frequency noise from a load cell and linear variable differential transformer (LVDT).</li></ul>	May 2024 – Aug 2024 Huntsville, Alabama (Merrit Island, Florida)
<b>Grenoble Electrical Engineering Laboratory · Microgrid Inverters</b> <b>Control Systems Research Intern</b> <ul style="list-style-type: none"><li>Researched inverter control systems – designed to be robust to islanding events and avoid future infrastructure problems on the French power grid.</li><li>Simulated neutral point capacitive and balancing topologies using 4-leg inverters in Simulink. Tested PI control, PR control, Clarke and Park Transforms with HIL simulations.</li></ul>	Jun 2023 – Aug 2023 Grenoble, France
<b>Naval Surface Warfare Center (Carderock Division) · Hospital Sea Trains</b> <b>Concept Research Intern</b> <ul style="list-style-type: none"><li>Developed concept hospital sea-train designs at the Center for Innovation in Ship Design and estimated fuel consumption and electrical power loads of the concept sea-trains.</li></ul>	Jun 2022 – Aug 2022 West Bethesda, Maryland

Skills

<b>Software:</b> C/C++, Python, MATLAB, Simulink, GNU/Linux, Git, ROS2, Gazebo, Make, CMake, Labview, Qt, PyTorch, OpenCV, $\LaTeX$ , Verilog, FreeRTOS, Autodesk Inventor (Certified), SolidWorks, Rhino
<b>Hardware:</b> PCB Design and Assembly, Breadboarding, Computer Architecture, Oscilloscope, Multimeter, 3D-Printing

Projects

<b>6-Axis Robotic Arm</b>  <ul style="list-style-type: none"><li>3D printed robot arm, built using stepper motors and pulleys.</li><li>ROS2 Jazzy control and Gazebo Harmonic simulation.</li></ul>	Aug 2024 – Present
<b>Closed Loop Stepper Motor</b>  <ul style="list-style-type: none"><li>Backdrivable stepper motor driver using closed loop control and a magnetic encoder for feedback.</li><li>4-layer PCB mounts to the back of the motor with CAN and power connections.</li></ul>	Dec 2023 – Present
<b>Design Teams   Solar Car &amp; Human Powered Submarine</b>  <ul style="list-style-type: none"><li>Overall E/E architecture of the Solar Car.</li><li>Single board computer and LCD to display relevant data to the submarine pilot.</li></ul>	Oct 2020 – Mar 2023
<b>Optical Charcter Recognition Capstone</b>  <ul style="list-style-type: none"><li>IOS application capable of detecting coins of interest/value.</li><li>Trained OCR and ResNet-50 models on a dataset of real and augmented coin images.</li></ul>	Aug 2023 – May 2024