# Elliot Trilling

Arlington, MA | LinkedIn | GitHub | Personal Site

## EDUCATION

**Worcester Polytechnic Institute (WPI)**

- Master of Applied Mathematics, GPA: 4.00 05/2025
- Bachelor of Computer Science and Mathematics, Minor in Physics, GPA: 4.00 05/2025

## SKILLS

**Programming Languages:** Python, C, C++, MATLAB, Bash (Scripting), Java, SQL, R, Go, Assembly, JavaScript
**Tools:** Git and GitHub, Linux, Embedded Linux (Xilinx PetaLinux), AWS, Node JS
**Machine Learning Libraries:** PyTorch, HuggingFace, Tensorflow, NumPy, Pandas, Scikit-learn, OpenCV, Matplotlib

## TECHNICAL EXPERIENCE

**MIT Lincoln Laboratory - Summer Research Program Intern**, Lexington MA 05/2024 - 08/2024

- Developed software for prototype systems in the Optical & Quantum Communications Technology group
- Communicated frequently with staff to meet desired specifications and presented work in various formats
- Wrote multithreaded PetaLinux application to interface with Ultrascale FPGA and broadcast telemetry data
- Created C++ wrappers to operate various hardware devices for use in new modem
- Performed tests to characterize and evaluate space division multiplexer for use in lasercom goundstation

**MIT Lincoln Laboratory - Summer Research Program Intern**, Lexington MA 05/2023 - 08/2023

- Built C++ Linux application to visualize and log real-time telemetry data for prototype lasercom modem
- Wrote Python tool to automate operation of Xena packet tester for network performance characterization
- Ported NASA CubeSat Verilog codebase to run on Xilinx UltraScale FPGA and utilize CFP2

## PROJECTS

**Autonomous Robotic Vehicle** (personal project) 01/2025

- Fused multiple sensors inputs (encoders, camera, ultrasonic, IR, accelerometer/gyroscope) on an ESP32 to provide closed loop control and perform various tests
- Implemented off-board image processing with WiFi communication to enable object tracking tasks
- Designed, tested, and refined 3D printed chassis using CAD (Autodesk Fusion)

**Image Processing and Transfer Learning for Record Digitization** (project at WPI) 10/2023 - 04/2024

- Worked on a team of six to develop a Python machine learning pipeline to convert handwritten data records from the Natick Army Lab into an analyzable digital format
- Generated synthetic datasets to fine-tune HuggingFace transformer models using PyTorch
- Utilized image processing techniques in OpenCV to remove distortions from low quality record scans

**Chess Engine** (personal project) 02/2021

- Built a simple program capable of playing chess via command line interactions
- Implemented minimax algorithm with alpha/beta pruning to generate moves efficiently

**Semantic Image Segmentation for Detection of Lung Cancer** (project at Harvard Extension) 04/2019

- Worked on a team of four to test various deep CNN (Convolutional Neural Network) architectures to identify lung cancer in CT scans using semantic image segmentation

## ADDITIONAL EXPERIENCE

**Worcester Polytechnic Institute - Academic Resource Center Tutor**, Worcester MA 08/2022 - Present

- Worked with students, both individually and in groups, to improve academic performance in STEM classes
- Used a variety of teaching mediums and approaches to accommodate different learning styles
- Modeled and encouraged good problem solving techniques