

Evan Smith

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Education

Worcester Polytechnic Institute, Worcester, MA

Master of Science, Electrical and Computer Engineering, May 2026, GPA: 4.00/4.00

Bachelor of Science, Computer Science & Electrical and Computer Engineering, May 2026, GPA: 4.00/4.00

Skills

Machine Learning / AI: PyTorch, Transformers, Scikit-learn, NumPy, Pandas, SciPy,

Hardware / Embedded Systems: FPGA, Altium, LTSpice, Cadence, Genus, Innovus

Programming / Scripting: Python, Java, C, SystemVerilog, SQL, Bash, Slurm

Visualization: PyQt5, Manim, Matplotlib, Seaborn, Plotly

Other Tools / Software: LaTeX, Git, AWS

Publications

Peer-Reviewed / Submitted Manuscripts

- Beck, C., et al. "The CHASM-SWPC Dataset for Coronal Hole Detection & Analysis." *Astronomy & Astrophysics*, in preparation. (joint first author)

Technical Reports

- Smith, E., et al. "Uncovering the Bar Island Trail: Visitor Data Analysis and Recommendations." IQP Technical Report, WPI, 2024. Online
- Smith, E., Davidson, K. "GAN-KAN: Kolmogorov Arnold Networks for Preventing Mode Collapse in GANs." Graduate Project Report, WPI, 2025. Online

Research Experience

Novel Token Pruning Techniques for Multimodal LLMs | BASHLab, WPI

August 2025 – Present

- Developed and evaluated token pruning techniques using QUaRT block of RAVEN architecture.
- Benchmarking custom architecture against standard post-training pruning methods for unimodal and multimodal tasks.

StoMPP: Stochastic Masked Partial Progressive Binarization

May 2025 – Present

- Developing a novel quantization technique for binary weight neural networks without surrogate gradients, aiming for large inference speedups on edge hardware.
- Achieved 70.19% top-1 accuracy on CIFAR-100 with ResNet18, a less than 2 percentage point drop from full precision, using no extra regularization tricks.

Semantic Segmentation on FPGA with Spiking Neural Networks | WPI

August 2025 – Present

- Designing U-Net-based SNNs with additional architectural modifications tailored for real-time FPGA semantic segmentation.
- Optimizing networks for energy efficiency and low-latency on autonomous vehicle platforms.

Cyber Research Intern | Peraton Labs, Bedford, NH

June 2025 – August 2025

- Built a custom ML pipeline for hydrophone audio classification using embeddings and few-shot learning, reducing manual annotation time by 95%.
- Packaged as a Python package, with CLI tool (GUAM: General Underwater Audio Model), full documentation, and testing suite.
- Integrated analysis pipeline into a real-time PyQt5 GUI for spectrogram visualization and classification.
- Designed a custom YAML-based audio format with dynamic shards to handle memory constraints, including a simple load/save API.

Coronal Hole Classification | Independent Study, WPI

October 2024 – May 2025

- Built publicly available dataset (1,400+ days) using custom annotation pipeline based on the segment anything model.
- Used dataset on progressively growing U-Net model for pixelwise coronal hole classification improved IoU by 15%.

GAN Mode Collapse with Kolmogorov Arnold Networks | Generative AI, WPI

March 2025 – April 2025

- Formulated theoretically backed argument for KANs to improve mode collapse.
- Investigated KANs to mitigate GAN mode collapse on MNIST and CIFAR-10; conducted systematic experiments with vanilla and Wasserstein GANs.

Undergraduate Research Assistant | Jacob Whitehill Research Group, WPI May 2024 – June 2024

- Developed particle simulation in Java and Python analysis tools to optimize obstacle placement.
- Evaluated Bayesian Optimization against grid search across kernels, establishing feasibility for basis for further study.

Selected Projects

Talking LLaMa | On Device Deep Learning, WPI Febrary 2025 – May 2025

Real-time image-to-poetry model on Raspberry Pi using pruned and quantized LLaMA, pruned vision transformers, and pruned transformer based text to speech.

Bananagrams Solver November 2023 – January 2024

Heuristic solver in Java using modified A*; optimized for speed and efficiency. [Online]

Teaching Experience

Electrical Engineering Teaching Assistant March 2024 – December 2024

Mentored 100+ students in introductory circuits, assisting with lab work understanding, lab grading, and troubleshooting circuit design. Delivered lecture to class on phasor theory.

Honors & Awards

Honorable Mention, Computer Science Major Qualifying Project Provost Award, 2025
Outstanding Chapter Award, Upsilon Pi Epsilon, 2024 & 2025 (awarded to top-performing chapters nationally)
Charles O. Thompson Award for Academic Excellence, WPI, 2023

Leadership & Service

President, Upsilon Pi Epsilon January 2025 – Present

Led chapter operations, mentoring students for career development through resume builders, mock interviews, workshops, and student run career fairs.

Electrical Lead, Autonomous Underwater Vehicle Club January 2025 – Present

Designing PCBs and electrical systems for an autonomous underwater vehicle; mentored 15 members on electrical design, component selection, and place and route. Designing electrical system across 3 PCBs to handle telemetry, vehicle autonomy, robust safety mechanisms, and high current thruster control.

Student Advisory Board, ECE Department August 2025 – Present

Representing student perspectives in departmental decisions, helping inform decisions such as mural design for department building, ways to increase interest in Electrical and Computer Engineering, and cultivating student success in their classes.

Treasurer, Eta Kappa Nu Gamma Delta Chapter May 2024 – Present

Managed finances and fundraising for Eta Kappa Nu, helped organize community events for Eta Kappa Nu and the wider ECE community.

Electrical Design Team, High Powered Rocketry Club October 2023 – Present

Designed schematics and routing for PCB to control telemetry systems for a high-powered rocket, focusing on STM32 microcontroller and XBee radio.

Web Secretary, Upsilon Pi Epsilon December 2023 – January 2024

Managing UPE website for events, member activity, and induction requirements, managed slides and activities for internal events, including elevator pitch workshops and destress events.