Urvi Haval

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EDUCATION

University of Pennsylvania, School of Engineering and Applied Science **Philadelphia, PA**
Master of Science in Engineering: *Electrical Engineering*, May 2026
Dr.Vishwanath Karad MIT-WPU, School of Engineering and Technology **Pune, India**
Bachelor of Technology: Electronics and Communication Engineering, June 2024
Cumulative GPA: 3.94/4.00

EXPERIENCE

mLab, Student Project, **Nov 2024 – current**

- Developing a vision pipeline for a 1/18th scale F1 car (F18) on Raspberry Pi 5 for real-time image processing and autonomous navigation.

CSIR-National Chemical Laboratory, Research Intern, **July 2023 – February 2024**

- Utilized computer vision and natural language processing algorithms to analyze and extract structured information from a corpus of 450 physical chemistry research papers for generating a database of experiment parameters.
- Implemented 10 image classification, segmentation and object detection models, improving information retrieval efficiency.

Qkrishi, Junior Researcher, **December 2022 – February 2023**

- Researched about the application of quantum decision trees to a finance problem statement.
- Performed exploratory data analysis and pre-processing for quantum machine learning using the Qiskit framework.

COCURRICULAR EXPERIENCE

KaggleX BIPOC Mentorship, Mentee, **November 2022 – June 2023**

- Awarded a career grant for mentorship in data science and machine learning and researched its applications to electrical engineering under the guidance of an industry expert.
- Implemented and showcased a final project related to Indian music genre classification using machine learning.

RESEARCH PROJECTS

Smart Pillow using ATmega328PB **Nov 2024**

- Developed a smart pillow system using flex sensors, RTC, and Bluetooth, programmed in bare-metal C on ATmega328PB, for real-time sleep monitoring, adaptive alarms, and embedded audio playback.

Evaluating Adversarial Attacks in Medical Imaging: PGD Attack and Pixel Deflection Transform **Nov 2024**

- Implemented a CNN and a ViT against adversarial attacks on the CheXpert dataset with Projected Gradient Descent (PGD) perturbations; utilized Pixel Deflection Transform (PDT) as a defense mechanism.

Simulation-based control of a robotic arm using PINNs **May 2024**

- Implemented a Physics-informed neural network capable to predict the joint torques of a robotic arm to reach a particular point given the joint angles and velocities, while adhering to physical constraints.

Presented the project paper at IEEE SPACE 2024 conference.

SKILLS

Software/Programming skills: C, Python, Linux, C++, MATLAB, Assembly, GitHub, AWS, Simulink, TensorFlow**,** HTML
Embedded Systems: RTOS basics, Embedded Linux, Device Drivers, FreeRTOS, Interfaces and Protocols, WiFi, ROS
Hardware: Raspberry Pi, STM32, Jetson Nano, ATmega328PB, Electronic Prototyping, DSP, Communication protocols

CERTIFICATIONS

AWS Cloud Practitioner Certificate

Machine Learning Specialization by Andrew Ng, DeepLearning.ai

Quantum Information and Quantum Technology Summer School 2022, IISER Kolkata

QISKIT Global Summer Schools 2022, 2023, 2024, IBM

LEADERSHIP & VOLUNTEER EXPERIENCE

IEEE MIT-WPU Chapter, Design and Publicity Head, February 2022 – March 2023
Managed the social media handles and organized 4 training workshops for the college chapter.
Robin Hood Army, Teacher, January 2023 - January 2024
Taught middle-school Science and Math to underprivileged high school students on the weekends.
AI Toolbox, Volunteer, August 2024 - October 2024
Designed coursework to teach AI Ethics to West Philadelphia High school students.