Vishal Gupta

vigupta@asu.edu | https://vishalgpt579.github.io | 1216 E Vista Del Cerro Dr, Tempe, AZ | (623) 276-9066

EDUCATION

Arizona State University **Expected May 2024**
Master of Robotics & Autonomous Systems (Electrical Engineering Major) GPA: 4.00/4.00

Indian Institute of Technology Bombay **June 2022**
P.G Part-time, Department of Systems & Control Engineering

University of Mumbai **July 2018**
Bachelor of Engineering (Electronics Engineering Major)
GPA: 7.52/10

PROFESSIONAL EXPERIENCE

Embedded & Real-Time Systems (ERTS) Lab, IIT Bombay **December 2018 - July 2022**
Sr Project Technical Assistant Mumbai, India

- Developed more than eight robotics & RTOS applications under supervision and collaboration with Prof Kavi Arya, CSE Dept, IIT Bombay, to conceptualize 3 different teaching pedagogy.
- Led a team of 6 in design & development of UGV (with UR5 mount) & drones (Quadcopters & Octocopters).
- Coached undergraduate students through designing & managing international robotics competitions, (eYRC) eYantra Robotics Competition. Curated three editions in year 2019, 2020 & 2021 with 3675, 1771 & 897 students respectively.
- Created MOOCs in ROS & AVR microcontrollers, drone simulation models in Gazebo & real applications for teaching & research purposes, with yearly 4000+ participants.
- Mentored 14 interns in various robotics projects in an annual internship program at ERTS Lab.
- Fortified auto-grading Python scripts for efficient analysis and evaluation of 1000+ bag(log) files containing extensive telemetric data for system's performance analysis.
- Developed & facilitated 2-day workshops on topic "Introduction to Embedded Systems". Trained 180+ college faculties from 65+ engineering colleges across India.

WORK EXPERIENCE

Graduate Teaching Assistant, School of Electrical, Computer & Energy Engineering, ASU **January 2024 - May 2024**

- Mentoring 21 undergraduate students in embedded control systems lab experiments for course EEE304: Signals & Systems-II.

Graduate Service Assistant, Secure, Trusted, and Assured Microelectronics Center, ASU **January 2023 - November 2023**

- Trained to implement research methodology on, graphical algorithm accelerators, and geometric-algebra accelerators.

Graduate Student Assistant, School of Manufacturing Systems & Network, ASU **January 2023 - May 2023**

- Upheld utilitarian teaching support for 63 senior students with programming, designing & debugging using 16-bit PIC controller for course- EGR314: Embedded System Design.

TECHNICAL SKILLS

Programming Languages: Python, Embedded C, C, PLC, Bash, Verilog
Hardware architecture: AVR, ARM, PIC, STM32, Cylone V GX FPGA
Software & Frameworks: ROS/ROS2, RTOS, Point-Cloud-Library, OpenCV, STM32Cude IDE, Linux/Unix
Tools & simulators: Ki-CAD, MATLAB, Eagle, Gazebo, GitHub

PROJECTS

Ring Oscillator PUF (Physical Unclonable device) design| ASU- CEN598 **September 2023 - September 2023**

- Built and simulated an Arbiter PUF using RTL techniques, leveraging delay differences in multiplexers to create unique responses for various challenges and devices.

Flash Memory Dev-board| STAM Center **May 2023 – June 2023**

- Designed and prototype a 4-layer PCB for interfacing 256/512/1024MB of flash memory, with Cyclone V FPGA board, fostering hands-on learning with a minimal $102 circuit manufacturing cost.

Agribot | ERTS Lab, IIT Bombay **August 2021 - December 2021**

- Bolstered distant hands-on learning for 40+ students in isolated corners of India, with devised autonomous UGV with UR5 in actual Greenhouse with ROS-multisystem & cloud VPN for low-latency remote access.

Accelerated 3D-Perception | ERTS Lab, IIT Bombay **June 2021 - June 2022**

- Curated a 3D data filter pipeline leveraging Point Cloud Library, concatenated with CNN model for object recognition.
- Alleviated price & energy requirements by implementation on Xilinx's Ultra96 MPSoC using Vivado HLS language.

Data Traffic Monitor System | Bachelors' Thesis, University of Mumbai **August 2017 - March 2018**

- An RTOS system with a 6.5ftx3ft physical board, depiction campus' IT infrastructure & relaying latency information of any node within intra-network with I2C, & Ethernet communication within 200ms, using efficient physical layouts & multithreading.