Sukriti Kushwaha

Boston, MA | US Citizen | Clearance: Secret
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EDUCATION

Worcester Polytechnic Institute (WPI), Worcester, MA   Aug. 2021 – May 2025

Bachelor of Science, double major in Robotics Engineering and Computer Science, GPA 3.87/4.0

PROFESSIONAL EXPERIENCE

Summer Research Intern | *MATLAB, Parallel Computing, Simulation & Modeling*   May 2024 – Aug. 2024
MIT Lincoln Laboratory, Lexington, MA

- Analyzed capabilities of **synthetic data generation** tool for remote spaced-based sensors using **MATLAB**
- Presented findings and recommendations in a **technical talk** delivered to group leaders to aid sponsor projects

Systems Engineering Intern | *C++, Python, Sensor Fusion, Web Dev, Raspberry Pi, Arduino*   May 2023 – Jul. 2023
Northrop Grumman, Baltimore MD

- Programmed **sweeping controls** for gimbal mechanism in **C++** powered by Arduino Uno and Raspberry Pi to secure client contract for prototype **ground-based radar** antenna system.
- Created **web server** using **Python flask** and **UDP socket** to control heading and pitch to **one degree** of accuracy.

PROJECTS

Advanced Tour Guide Robot | *Human-Robot Interaction, ROS2, LLM, LiDAR, OCR, Python, C*   *Code*

- Operates elevators using **3d-printed** arm and custom **button detection model,** enabling **multi-floor navigation**
- Engages user via Llama **LLM, ASR** and interactive **React GUI** powered by **Jetson Orin Nano**

Neural Nemesis | *Deep Learning, Computer Vision, CNN, Python*   *Results*

- Depicted over-reliance of **monocular depth estimation CNNs** on non-depth features by training an **adversarial patch** using **VGG-16** to induce incorrect depth estimations
- Printed adversarial patch and physically placed it in target scenarios to showcase practical applications

Dreaming Data | *Deep Learning, Diffusion Model, Python*   *Results*

- Created and trained custom implementation of a **denoising diffusion probabilistic model** capable of synthesizing over **50,000 new images** representative of a given dataset

Trajectory Generation of Robotics Manipulator | *Semantic Segmentation, Trajectory Generation*   *Results*

- Employed **MATLAB** to calculate the **forward and inverse kinematics** of a **4-degree robot arm**, enabling precise mapping of joint movements in the task space to efficiently grasp a ball
- Conducted **image segmentation** and **object recognition** by applying **HSV color masks** to identify colored balls

Escape Room | *MQTT, Sensor Fusion, C++, IMU, ultrasonic rangefinder, IR emitter, IR position finder*

- Programmed set of Romi 32U4 robots to collaboratively escape from grid-based maze using **MQTT protocol**
- Implemented **hysteresis control**, **PID tuning**, and sensor fusion with **Kalman filter** to optimize performance

LEADERSHIP

Engineering Ambassador, Engineering Ambassadors, WPI   Apr. 2023 – Present

- Engaged younger generation of students in STEM through effective communication of technical information
- Designed hands-on **STEM activities** to accompany technical talks and aid understanding of new material

President, Society of Women Engineers, WPI   Jan. 2024 – Dec. 2024

- Promoted inclusivity for women in STEM by organizing **15**+ professional development and networking events
- Supported executive board officers in **creative** and **diverse** event ideation, resolved internal conflicts

AWARDS & RECOGNITION

- **Best Hardware**, SHADE Android App   *Results*
  GoatHacks Hackathon, WPI, 2025
- **Third Place**, *Public Perceptions on Central Bank Digital Currencies*   *Results*
  Undergraduate Poster Competition, SWE National Conference, 2024
- **"Most Futuristic Design"**, *Space Encase: Micrometeoroid and Orbital Debris Mitigation*   *Results*
  Intern Innovative Challenge, MIT Lincoln Laboratory, 2024