

# Yash Srivastava

Portfolio: [yash14s.github.io](https://yash14s.github.io) | GitHub: [github.com/yash14s](https://github.com/yash14s) | LinkedIn: [linkedin.com/in/yash14s](https://linkedin.com/in/yash14s)  
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## PROFESSIONAL SUMMARY

Robotics engineer with graduate training from Georgia Tech and hands-on experience in UAV autonomy, multi-robot systems, perception, and embedded sensing. Strong background in translating control, estimation, and perception theory into simulation-validated and hardware-deployed systems using ROS2, PX4, and ArduPilot. Experience spans academic research and industry R&D, with published work and award-winning projects.

## EDUCATION

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|---|---|
| <b>Georgia Institute of Technology - Atlanta, GA</b><br><i>Masters in Robotics (Artificial Intelligence, Control Systems, Perception)</i> | GPA: 3.93<br><i>Aug 2022 – May 2024</i>     |
| <b>Vellore Institute of Technology - Chennai, India</b><br><i>Bachelor of Technology, Electronics and Computer Engineering</i>            | GPA: 9.03/10<br><i>July 2018 – May 2022</i> |

## EXPERIENCE

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|---|-----------------------------|
| <b>Robotics Engineer</b> (GROWTH Program) - Freudenberg NOK Sealing Technologies, <i>Cleveland, GAMar 2025 – Jan 2026</i>   |                             |
| <ul style="list-style-type: none"><li>Designed and deployed an automated conveyor monitoring system using through-beam sensors and pilot LED alerts, reducing idle time and improving throughput by 25%.</li><li>Led development of a Kanban-based inventory monitoring system, owning software development and sensor interfacing, and coordinating hardware integration; delivered \$1.2k in annual labor savings and reduced risk of production stoppages.</li></ul> |                             |
| <b>Robotics AI R&amp;D SWE Intern</b> - United Parcel Service, <i>Atlanta, GA</i>   | <i>Jul 2024 – Mar 2025</i>  |
| <ul style="list-style-type: none"><li>Built an AI-based human parcel counting model leveraging YOLOv8 pose estimation and computer vision feature extraction, processing warehouse-scale video streams in near real-time with &gt;85% accuracy.</li></ul>   |                             |
| <b>Systems Engineer Intern</b> - DroneUp, <i>Virginia Beach, VA</i>   | <i>June 2023 – Aug 2023</i> |
| <ul style="list-style-type: none"><li>Developed and validated a PX4-SITL-based safe navigation proof-of-concept for UAV autonomy using Artificial Potential Fields (APF) and MAVLink-based communication, and led cross-team coordination for LTE antenna deployment.</li></ul>   |                             |
| <b>Graduate Teaching Assistant</b> - Georgia Institute of Technology  | <i>Aug 2023 – May 2024</i>  |
| <ul style="list-style-type: none"><li>Supported 50+ graduate students across robotics disciplines through instruction, grading, and office hours, and maintained a fleet of 45+ TurtleBot3 AMRs, including creating and deploying a standardized OS image for reliable lab operation.</li></ul>   |                             |

## SELECT PROJECTS

### Quadrotarium: Testbed for Remotely Accessible Aerial Swarms

*Advisor: Dr. Sean Wilson (Georgia Institute of Technology)*

- Developed the core software and systems infrastructure for a ROS2-based Crazyflie swarm drone testbed at Georgia Tech.
- Enabled 24×7 autonomous drone operations by implementing a FSM-based scheduled charging system with Barrier Certificates for collision-free trajectories.

### Drone Surveillance System for Poachers and Wildlife

*Advisor: Dr. Hemanth C. (VIT Chennai)*

- Built a drone-based anti-poaching system using a Raspberry Pi-Arduino setup for onboard compute and sensor interfacing, enabling autonomous operation in forested environments.
- Implemented waypoint navigation in ArduPilot GUIDED mode with a robust two-layer collision avoidance algorithm using stereo vision and ultrasonic distance sensing.
- Developed a Dockerized Gazebo simulation to validate the autonomy pipeline prior to hardware integration; simulated a wireless sensor network in MATLAB and implemented deep learning-based poacher and animal detection.

### Multi-UAV Formation Control for Scalable Last-Mile Logistics

*Advisor: Dr. Chaouki T. Abdallah (Georgia Institute of Technology)*

- Implemented distributed control laws for a swarm of UAVs to rendezvous, form desired geometric formations, and collaboratively transport payloads to a target location.
- Built a full simulation environment using the ArduPilot–Gazebo plugin and validated autonomy behaviors via DroneKit-Python and translated theoretical formation control and coordination models into executable onboard control logic for multi-vehicle systems.

### **UWB-Based Indoor Localization and Tracking**

*Advisor: Dr. Ashutosh Dhekne (Georgia Institute of Technology)*

- Developed a low-cost indoor localization system using Ultra-Wide Band (UWB) and embedded system programming (Adafruit M0).
- Added a layer to the Two-Way Ranging protocol to sync 8 UWB beacons, achieving centimeter-level XY localization accuracy.
- Demonstrated reliable real-time tracking with a 94% average packet response rate and an 8 Hz update frequency.

### **Navigation using Computer Vision and Machine Learning for AMRs**

- Designed a Finite State Machine (FSM)-based navigation algorithm for differential-drive AMRs in GPS-denied environments using ROS2, leveraging LiDAR distance data and dead reckoning for collision avoidance.
- Implemented edge-deployed road sign detection using a trained SVM classifier, selected for higher accuracy and real-time performance, achieving 90% accuracy for perception-driven decision making.

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## **RESEARCH & PUBLICATIONS**

- **IEEE Access (2024)** — ”*Unmanned Aerial Surveillance and Tracking System in Forest Areas for Poachers and Wildlife.*”
- **Outstanding Presentation Award** — ”*Autonomous Bot with ML-Based Reactive Navigation*”, Robotics, Intelligent Automation and Control Technologies (RIACT) 2021 (Conference).
- ”*Water Care: Water Surface Cleaning Bot and Water Body Surveillance System*” – presented in RIACT 2021
- ”*Two stage Deep Stacked Autoencoder with Shallow Learning for Network Intrusion Detection System*”

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## **ACHIEVEMENTS**

- **IEEE Photonics Project Expo 2021** — 1<sup>st</sup> Prize for Autonomous UAV Flight.
- 1st place in Sant Longowal Institute of Engineering and Technology’s TechFest’21.
- **Avionics Lead**, Team Aviators International (VIT Chennai) — Led development of the team’s first autonomous drone.
- **SAE Aero Design Challenge 2019** — 3<sup>rd</sup> Prize, Best Innovation Award.

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## **CERTIFICATIONS**

- Robotics: Aerial Robotics – UPenn
- Google Cloud Platform Fundamentals
- Google Kubernetes Engine (Foundations)

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## **SKILLS**

**UAV Systems:** PX4, ArduPilot, MAVLink, SITL, Mission Planning, Waypoint Navigation

**Programming:** Python, C++, MATLAB

**Robotics:** State Estimation, Sensor Fusion, Motion Planning, Controls, Mobile Robots, UAVs, Multi-Agent Systems

**Perception & ML:** Computer Vision, Deep Learning, YOLO, OpenCV, NumPy, PyTorch

**Embedded Systems & IoT:** Raspberry Pi, Arduino, ESP32, Pixhawk

**Systems & Tools:** Docker, Gazebo Sim, Linux, Git, ROS2

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## **SELECTED COURSEWORK**

**Robotics & Control:** Linear Control Systems, Networked Control Systems, Mobile Manipulation, Aerial Robotics

**AI & Perception:** Artificial Intelligence, Computer Vision, Deep Learning, Machine Learning

**Systems & Embedded:** Operating Systems, Embedded System Design, Cyber-Physical Systems, Mobile Computing and IoT

**Data & Computing:** Data Structures and Algorithms, Big Data Analytics, Cloud Computing