

Aaditya Bhatia

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EDUCATION

Delhi Technological University

Bachelor of Technology in Computer Science Engineering

Delhi, IN

Aug 2023 – May 2027

The Heritage School

High School Diploma in Science and Computer Science

Delhi, IN

April 2019 – April 2023

EXPERIENCE

Summer Technology Analyst Intern

Morgan Stanley

May 2026 – July 2026

Mumbai, IN

- Contributed to the modernization of a legacy internal platform, refactoring core modules onto a modern service-based stack and cutting manual developer workflows by **30%+**.
- Integrated **5+ MCP (Model Context Protocol) servers** and **multiple LLM/model APIs** into an internal AI chatbot, expanding it from a simple Q&A assistant into an agentic system capable of multi-step tool use.
- Built agentic integrations connecting the chatbot to internal tools and data sources, automating retrieval and actioning across **multiple internal systems** and reducing common lookup tasks from minutes to seconds.

Software Head

UAS-DTU

Sept 2023 – Present

Delhi, IN

- Spearheaded the complete lifecycle design, development, and optimization of **3+ advanced computer vision pipelines**—including Semantic Segmentation, ODLC, and Remote Physiological Signature Estimation—utilizing CNNs and autoencoders, improving detection and classification accuracy by **20%+**.
- Architected and deployed a robust full-stack web application leveraging Flask, React, DroneKit (Python), Socket.IO, and Docker for real-time image analytics and telemetry visualization, used across **2 international competitions** and **5+ field deployments**.
- Pioneered research and implementation of state-of-the-art vision architectures, including ViTs, CLIP-based zero-shot models, and advanced CNN backbones, to support rapid medical triage within the **DARPA Triage Challenge (\$210K in prizes won)**. Integrated reinforcement learning-driven decision modules and multi-modal perception pipelines for casualty prioritization, context-aware scene understanding, and remote patient monitoring under real-world operational constraints.

Research Intern in Wirocomm Lab

Indraprastha Institute of Information Technology, Delhi

Jun 2025 – Oct 2025

Delhi, IN

- Developed a Deep Q-Learning agent to optimize traffic signal control using SUMO simulations, reducing average vehicle wait times by **25%+** over fixed-time baselines through deep reinforcement learning.
- Implemented neural networks with Keras integrated with SUMO via TraCI, training agents across **1,000+ simulated episodes** of realistic urban traffic scenarios.

ACHIEVEMENTS

DARPA Triage Challenge (Systems)

2024

- Secured **2nd place in Phase 1** (\$60,000) and **2nd place in Phase 2** (\$150,000) in the DARPA Triage Challenge (Hosted By US DOD)(Non-Funded Category) as a core contributor to UAS-DTU. Outperformed multiple university and industry teams across perception, autonomy, and triage decision-making benchmarks.

International Conference on Unmanned Aerial Systems (ICUAS) 2024

2024

- Achieved **2nd place** in the indoor simulation phase and **3rd place overall** in the ICUAS 2024 competition as part of team UAS-DTU.

Smart India Hackathon

2022

- Winner in the **Drones and Robotics Jr** category, leading Team Falken.

PROJECTS

DARPA Triage Challenge — Real-Time GCS & GUI Platform

Jan 2024 – Present

React, TypeScript, Flask, Socket.IO, Docker, Linux

- Designed and implemented a scalable, real-time Ground Control System (GCS) for autonomous medical triage missions, enabling monitoring and control of **5+ heterogeneous UAV/UGV subsystems** from a single operator station.
- Built a React + TypeScript frontend streaming **10+ concurrent** live telemetry, image, and casualty-state feeds into mission-level decision dashboards.
- Architected a Flask + Socket.IO backend delivering **sub-second** communication between perception pipelines, autonomy modules, and distributed edge devices.
- Containerized the full-stack system using Docker and deployed across high-performance Linux servers and edge platforms including Nvidia Jetson Orin NX.

DARPA Triage Challenge — Reinforcement Learning–Based Triage Decision System

Jan 2024 – Present

Python, PyTorch, Reinforcement Learning, Multi-Modal AI

- Developed reinforcement learning–driven decision modules for autonomous casualty prioritization under uncertain, partially observable disaster environments.
- Integrated **3 modalities** of perception input—vision-based injury detection (CLIP, ViTs, CNNs), physiological signal estimates, and scene context—into RL state representations.
- Designed reward functions to balance survival probability, response time, and limited resource allocation constraints.
- Evaluated policies in simulated and real-world mission scenarios to enable context-aware triage recommendations with minimal human intervention.

ICUAS 2024 — Autonomous Indoor Drone Navigation

Feb 2024 – Sept 2024

Python, ROS 2, Docker, NumPy, PyTorch

- Developed a ROS 2-based autonomous navigation stack for indoor UAVs with real-time perception, localization, and control.
- Implemented object detection and collision avoidance pipelines using NumPy and PyTorch.
- Containerized the complete simulation and development environment using Docker for reproducible builds and rapid deployment.

TECHNICAL SKILLS

Languages: Python, C/C++, SQL (Postgres), Java/TypeScript, HTML/CSS, Bash, Fish, L^AT_EX

Frameworks: React, Node.js, Flask, FastAPI, ROS 2, CUDA, Material-UI, Socket.IO, DroneKit

AI/LLM: MCP (Model Context Protocol), LLM/Model APIs (Anthropic, OpenAI), Agentic Systems, Reinforcement Learning

Developer Tools: Git, Docker, Podman, GitHub Actions, TravisCI, Google Cloud Platform, VS Code, JetPack, Ubuntu/Debian, Arch Linux

Libraries: Pandas, NumPy, Matplotlib, PyTorch, TensorFlow, Keras, OpenCV, SUMO/TraCI

Hardware: NVIDIA Jetson Nano, NVIDIA Jetson Orin, Raspberry Pi, Intel Realsense Tracking Cameras, LiDARs, Pixhawk Cube Orange/Black