Amikosh Dube

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EDUCATION

Carnegie Mellon University **December 2026**
Master of Science in Computer and Civil Engineering
- Research Funding (Tuition + Stipend) Pittsburgh, PA

Purdue University **May 2025**
Bachelor of Science in Computer Engineering West Lafayette, IN

EXPERIENCE

Autonomy Intern @ Aurora Flight Sciences **May 2026 – August 2026**
- Integrated Boeing's in-house aircraft controllers into PX4 for low-level adaptive rate control
- Demoed applications of the controller to DARPA and Boeing Higher-Ups to showcase the controller's capabilities

AirLabs Researcher @ Carnegie Mellon University **August 2025 – Present**
- Enhancing AirStack, an open-source drone simulation platform built in Isaac Sim
- Building an informative semantic path planning algorithm to navigate large construction sites
- Implemented high-level object recognition and semantic mapping to contextualize 3D excavation surfaces, enabling accurate volumetric differencing and site analysis for a Japanese construction firm, Shimizu

Machine Learning Software Engineering Intern @ SAAB Defense **Summers May 2023 – August 2025**
- Engineering AI that uses federated learning and sensor data fusion to synthesize and convey situational information
- Trained a YOLO model using 10,000 synthetic images, achieving 89% precision against real-world drone datasets
- Engineered a real-time, asynchronous object detection pipeline in Unreal Engine using C++, via NNE and OpenCV
- Devised an automated image pipeline that annotates objects to speed up the YOLO model training process

Founder - Technical Lead @ Codex Labs LLC **May 2022 – Present**
- Spearheaded the development of SWARMS, a cloud drone simulation platform bought by MIT Lincoln Laboratory
- Designed an intuitive API and motion planning library that integrates with PX4
- Led customer outreach, product demonstrations, and strategic development to expand the platform's adoption

Lead Drone SWARMS Researcher @ Purdue University **August 2021 – May 2025**
- Led the research and development of SLAM algorithms for autonomous drone navigation in complex scenarios
- Implemented semantic-based real-time obstacle avoidance using LiDAR and Cameras
- Presented at Purdue's Undergraduate Research Expo annually, advancing knowledge in robotic swarm control

PROJECTS

CMU's Largest University Built Drone (Stage 1 and University Innovation Awardee) **August 2025 – Present**
- Competing in the GoAero competition (Tartan Air Rescue), worked on the electronics and flight control software

Purdue Student Ticket Exchange **January 2025 – May 2026**
- Developed a Discord server with 800+ members, providing a secure market for students to buy/sell student tickets

VEX World Qualifier and Mentor **August 2017 – May 2025**
- Four-time VEX Worlds Qualifier and top-50 ranked team; mentored high school teams to worlds placements

SKILLS

Programming Languages | C/C++, Python, SQL, Bash
AI & Robotics | Physical AI, Transformers, YOLO, SLAM, Path Planning, Sensor Fusion, PID/RSLQR/OBLTR/CBFs
Frameworks & Sim | Docker, ROS2, Gazebo, PX4, Unreal Engine, NVIDIA Isaac Sim, AirSim
Developer Tools | Git, GitHub, VS Code, Visual Studio, Scrum, JIRA, Confluence, Source Control, UML Diagrams