

Amikosh Dube

US Citizen | avid@andrew.cmu.edu | 678-833-8700 | linkedin.com/in/amikoshdube | github.com/AviDube | avidube.github.io

EDUCATION

Carnegie Mellon University

Master of Science in Computer and Civil Engineering

Pittsburgh, PA

December 2026

- Fully funded Graduate Research Assistant with the Robotics Institute (Courtesy Student status)
- GPA: 3.8/4.0

Purdue University

Bachelor of Science in Computer Engineering

West Lafayette, IN

May 2025

WORK EXPERIENCE

Autonomy Intern

May 2026 – August 2026

Aurora Flight Sciences

- Architected a modular, plug-and-play controller framework using the strategy design pattern in C++ for real-time embedded firmware, enabling four interchangeable algorithms with runtime hot-swapping and no reflash required.
- Built and deployed a real-time computer-vision inference pipeline optimized with TensorRT for embedded GPU hardware, improving pose-estimate accuracy by 20% and increasing usable feature matches 3x over the prior system.
- Designed a closed-form safety-constraint algorithm for real-time collision avoidance, avoiding iterative solver overhead.
- Led a live technical demonstration of the tuned control system for Boeing and DARPA stakeholders.

AirLabs Graduate Research Assistantship

August 2025 – Present

Carnegie Mellon University

- Extended a distributed multi-agent simulation framework (NVIDIA Isaac Sim) to support concurrent agent coordination.
- Developing a graph-based path-planning algorithm for large-scale spatial navigation problems.
- Built a computer-vision and 3D-mapping pipeline for an enterprise client (Shimizu), accurate to ± 5 cm.

Founder and Technical Lead

May 2022 – August 2026

Codex Labs LLC

- Spearheaded development of a cloud-based simulation platform (SWARMS), acquired by MIT Lincoln Laboratory.
- Led customer outreach, product demonstrations, and strategic development to expand platform adoption.

Machine Learning Software Engineering Intern

May 2023 – August 2025

SAAB Defense

- Engineered a distributed, federated-learning pipeline integrating multi-source sensor data for real-time analytics.
- Trained a computer-vision object-detection model on 10,000 synthetic images, achieving 89% precision on real-world data.
- Developed a real-time, asynchronous C++ inference pipeline in Unreal Engine using NNE and OpenCV.
- Architected an automated data-annotation pipeline that accelerated ML training-data preparation.

Lead Drone SWARMS Researcher

August 2021 – May 2025

Purdue University

- Led research and development of real-time localization and mapping (SLAM) algorithms for autonomous navigation in unstructured environments.
- Implemented semantic-based real-time obstacle avoidance using LiDAR and cameras.
- Presented SLAM and swarm-control research 4 times at Purdue's Undergraduate Research Expo.

PROJECTS

CMU's Largest University-Built Drone

August 2025 – Present

GoAERO Stage 1 and University Innovation Awardee

Graduate Projects

August 2025 – Present

Top 10% in Carnegie Mellon Deep Learning Kaggle Competitions; PPO and SAC on a Franka robotic arm; MPC for Drones

VEX World Quarter Finalist and Mentor

August 2017 – May 2025

Four-time VEX Worlds Qualifier and Top 25 Ranked Team in the world

SKILLS

Programming Languages: C/C++, Python, SQL, Bash

Software Engineering: Design Patterns, Concurrent/Asynchronous Systems, Distributed Systems, Real-Time Embedded Systems

AI & ML Systems: Computer Vision, Transformers, Model Training & Deployment, TensorRT, Sensor Fusion, ML Pipelines

Platform & Tools: Linux, Docker, Git, GitHub, Scrum, JIRA, Confluence, UML Diagrams, NVIDIA Isaac Sim, Unreal Engine