

# Ankur Desai

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## EDUCATION

### Michigan State University

B.S. in Computer Science

- GPA: 3.74 / 4.0
- Vice President of Claude Builders Club @ MSU
- Relevant Coursework: Linear Algebra, Discrete Mathematics, Object-Oriented Software Design, Computer Organization and Architecture, Data Structures & Algorithms

Expected, May 2028

*East Lansing, MI*

## EXPERIENCE

### Michigan State Unmanned Systems Team

August 2025 – Present

Software Engineer | *PyTorch, YOLOv11, OpenCV, MAVLink, Pandas, TensorFlow*

*East Lansing, MI*

- Architected autonomous drone software on Nvidia Jetson implementing real-time sensor fusion (GPS, IMU), integrating YOLOv11 object detection for autonomous navigation with obstacle avoidance.
- Engineered end-to-end machine learning pipeline: curated 5,000+ aerial image dataset, applied data augmentation techniques, and optimized YOLOv11 inference using TensorRT on embedded hardware.
- Integrated computer vision system with Cube Orange+ flight controller via MAVLink protocol, enabling vision-based position hold and autonomous payload delivery within 10-foot precision from 70+ feet altitude.

### Web Development Intern

June 2025 – August 2025

WFS Consulting Group | *HTML5, CSS3, JavaScript*

*Plymouth, MI*

- Designed and developed a responsive website using HTML5, CSS3, and JavaScript, ensuring consistent performance across Chrome, Firefox, Safari, and Edge.
- Reached 95+ Google Lighthouse scores boosting engagement through contact forms and Google Analytics.
- Deployed production website to Linux servers with Apache and SSL certificates, maintaining 99.9% uptime.

## PROJECTS

### ThinkStack — Relationship Powered Note Taking Application

September 2025 – Present

Project Lead | *React, Tailwind CSS, FastAPI, Neo4j, PostgreSQL*

*East Lansing, MI*

- Architected a full-stack React web application with component-based design, enabling real-time CRUD operations, integrating authentication and role-based access using FastAPI, SQLAlchemy, and PostgreSQL.
- Integrated Neo4j database to support dynamic relationship queries for advanced data models.
- Led 6 engineers through Agile/SCRUM, automating CI/CD pipelines with Jest and Pytest.

### Mira — AI Personal Assistant

May 2025 – September 2025

Full-Stack Development | *Python, FastAPI, SQL, Electron, React*

*GitHub Link*

- Engineered audio processing pipeline with noise reduction using spectral gating, improving OpenAI Whisper speech recognition from 78% to 95% accuracy in noisy environments ( $\text{SNR} < 10\text{dB}$ ).
- Developed natural language processing pipeline integrating Whisper for transcription, DBSCAN for speaker diarization, and Sentence Transformers for intent classification with 92% accuracy.
- Implemented intelligent client selection algorithm using RSSI proximity estimation and FFT ambient noise analysis for dynamic command routing with 89% selection accuracy.

### WizViz — Multiplayer AR Wizard Game

February 2025

SpartaHack X | *Python, OpenCV, MediaPipe, PyGame*

*Devpost Link*

- Developed real-time multiplayer AR wizard-duel game using OpenCV and PyGame, winning the Interactive Media track among 100+ projects and 350+ participants at SpartaHack X
- Built a custom physics game engine with collision detection for gesture-based controls and interactions.
- Used MediaPipe Pose for skeletal tracking of 2 players on 33 landmarks with sub-30ms at 60 FPS.

## TECHNICAL SKILLS

**Languages** ..... Python, Java, C/C++, JavaScript/TypeScript, HTML5, CSS3, SQL, Bash

**Libraries** ..... TensorFlow, PyTorch, OpenCV, MediaPipe, YOLOv11, NumPy, Sentence Transformers

**Databases** ..... PostgreSQL, Neo4j, AWS RDS

**Frameworks** ..... React, Vite, Node.js, Electron, FastAPI, SQLAlchemy, Tailwind

**Cloud & DevOps** ..... Docker, Git, CI/CD, AWS (Lambda, EC2, ECS), Google Cloud Platform