

Ankur Desai

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EDUCATION

Michigan State University

B.S. in Computer Science

- GPA: 3.74 / 4.0
- 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

Software Engineer — Autonomous Systems

November 2025 – Present

East Lansing, MI

- Developed autonomous drone software on Nvidia Jetson using MAVLink and Orange+ Flight controller.
- Engineered autonomous payload delivery system capable of releasing packages from 70+ feet altitude with a precision of ± 7 feet.
- Built a machine learning pipeline: curated a 5,000+ aerial image dataset and optimized YOLOv11 inference using TensorRT on embedded CUDA hardware, achieving 79% detection accuracy at 30 FPS.
- Researched and implemented advanced path-planning; compared A* and Dijkstra's algorithms, developing a custom A* based solution for efficient multi-waypoint autonomous navigation.

ThinkStack — Relationship Powered Note Taking Tool

September 2025 – November 2025

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

East Lansing, MI

- Led agile SCRUM team of 6 software engineers, coordinating sprints and communicating goals with client.
- Streamlined collaboration with CI/CD pipelines, boosting unit test code coverage to 87%.
- Built a modular React web app with Vite and Tailwind CSS for rapid and responsive styling, component-based architecture, efficient batching algorithms using the marked library, and OAuth2.0 authentication.
- Designed and implemented containerized RESTful API with secure JWT-based authentication and CORS middleware, integrating PostgreSQL and Neo4j in a cohesive dual-database architecture.

PROJECTS

Mira — AI Personal Assistant

May 2025 – Present

Full-Stack Development | *Python, FastAPI, NLP, PostgreSQL, OAuth, WebSocket, Next.js*

- Deployed a containerized FastAPI backend on AWS Lambda and AWS RDS, integrating Gemini API and optimizing with asynchronous processing, lazy loading, and dependency injection.
- Developed Retrieval-Augmented Generation (RAG) pipelines, utilized sentiment analysis and Named Entity Recognition to disambiguate user commands by augmenting context with relevant prior information.
- Increased Whisper model accuracy by 63% through spectral gating, denoising, and dynamic gain control.
- Built a cross-platform Electron and Next.js desktop client for real-time voice command processing, integrating RTC-based Voice Activity Detection (VAD) for low-latency audio processing.
- Implemented OAuth2 authentication with CORS middleware, integrated OS keychain for secure credential storage, empowering cloud-based infrastructure for real-time synchronization and WebSocket updates.

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

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| Languages | Python, Java, C/C++, JavaScript/TypeScript, HTML5, CSS3, SQL, Bash |
| Frameworks | React, Vite, Node.js, Electron, FastAPI, SQLAlchemy, REST APIs, Tailwind |
| Databases | PostgreSQL, Neo4j, AWS RDS, Redis |
| Cloud & DevOps | Docker, Git, CI/CD, AWS (Lambda, EC2, ECS), Google Cloud |