Ankur Desai

(248) 657 – 3805 | ardusa05@gmail.com | ardusa.github.io | linkedin.com/in/ardusa

Education

Michigan State University Expected, May 2028
B.S. in Computer Science *East Lansing, MI*

- GPA: 3.74 / 4.0
- Involvement: VP of Claude Builder Club, Eagle Scout
- Relevant Coursework: Linear Algebra, Discrete Mathematics, Object-Oriented Software Design, Computer Organization and Architecture, Data Structures & Algorithms

Experience

Michigan State Unmanned Systems November 2025 – Present
Software Engineer — Autonomous Systems *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 — Note Taking Tool September 2025 – November 2025
Project Lead *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 | *FastAPI, PostgreSQL, Next.js* May 2025 – Present

- 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 | *MediaPipe, OpenCV, PyGame* February 2025

- 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