Phanidhar Akula

(513) 886-4720 | phanidharakula@gmail.com | linkedin.com/in/phanidharakula | phanidhar.dev

Education

Miami University Aug. 2024 – Aug. 2026

M.S. Computer Science, GPA: 3.86/4.00

- **Leadership:** President, Graduate Students of Color Association | Elected Graduate Student Representative, University Graduate Council | Program Lead, NAE Grand Challenges Scholars Program

Malla Reddy University Aug. 2020 – May 2024

B.Tech Computer Science

Technical Skills

Python, TypeScript, JavaScript, Java, C++, SQL, ML, GenAI, LLMs, RAG, React, Next.js, Redux, Tailwind, Node.js FastAPI, REST APIs, OAuth, PostgreSQL, MySQL, Supabase, AWS, Docker, CI/CD, Git, Linux, Vercel, iOS, Android

Experience

Computer Science Researcher Aug. 2024 – Jul. 2026

Miami University

- Developed SimForge, an open-source Python framework for benchmarking and comparing multiple urban traffic simulators under identical conditions, with Docker, CI/CD, and 668 automated tests ensuring full reproducibility.
- Optimized a large-scale traffic simulation pipeline on high-performance computing infrastructure using parallel processing and caching in Python, cutting runtime from nearly 6 days to 7 hours, a 20x performance gain.
- Debugged Cityscape, an open-source C++ city simulation, tracing missing geospatial data to a misconfigured filter via root cause analysis; contributed fixes recovering 500K+ buildings, raising real-data coverage from 30% to 94%.
- Designed and executed a 5-city Python modeling and validation study on a supercomputer cluster, systematically testing and tuning model settings to lift the lowest city's commute-time prediction accuracy from 83% to 92%.

Software Engineer Intern Jan. 2024 – May 2024

Smart Pathfinders Overseas Education

- Shipped a private client web portal in React and Redux, giving 180+ enrolled students one centralized place to track applications, upload documents, and message counselors directly instead of emailing staff for status updates.
- Implemented Python/MySQL REST APIs and database models behind role-based access control across 3 user roles, so each student saw only their own records while staff managed the full caseload from one admin dashboard.

Full-Stack Developer May 2023 – Dec. 2023

Freelance – E-Commerce & Fitness Startup Clients

- Delivered production-grade full-stack web applications for 2 clients, building React/Redux interfaces against Python/MySQL REST APIs and deploying to AWS, replacing manual spreadsheet workflows for 300+ daily users.
- Migrated 10K+ records from client Excel workbooks into a MySQL database with a custom Python ETL pipeline, applying data validation against the source so both clients switched over in one pass with no manual data re-entry.

Projects

LumiAI | *AI Tutoring Platform, studywithlumi.com* Oct. 2025 – Present

- Built and shipped a production-grade React/TypeScript platform spanning document-grounded chat, quizzes, flashcards, spaced repetition, and voice tutoring, serving 220+ students and handling 20K+ AI interactions.
- Engineered a secure serverless LLM backend on Vercel with user authentication, response streaming, and prompt caching, blocking 100% of unauthorized requests and serving 87% of input tokens from cache to cut API costs.
- Architected a multi-tenant PostgreSQL data layer with row-level security across all 13 user data tables, Google OAuth login, and private file storage, ensuring full data privacy so no user can ever access another's data.
- Extended the platform into cross-platform iOS and Android apps with Capacitor, reusing 95% of the TypeScript codebase with native authentication and storage, and submitting both to the App Store and Google Play Store.

Publications (Under Review, 2026)

Akula, P., Rao, D. M. *Attributable Cross-Simulator Benchmarking for Urban Traffic Simulation.* IEEE T-ITS.
Akula, P., et al. *CITYSCAPE: A Digital Twin Framework for Commute Dynamics.* Frontiers (Revision submitted).