Sid Surakanti

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Technical Skills

Languages: Python, JavaScript, TypeScript, C, C++, CUDA, SQL, HTML/CSS

Frameworks & Libraries: PyTorch, React.js, Next.js, Three.js, Pandas, NumPy, TailwindCSS, Framer Motion, PostgreSQL, Matplotlib, FastAPI, Zustand, Zod, OpenCV

Tools: Git, Docker, Linux, Neovim, Firebase, GCP, AWS, REST APIs, Redis, Celery, CMake, PyBind11, Figma

Projects

Deep Learning Framework | *CUDA, C/C++, Python, Deep Learning* Apr – Jul 2025

- Developed a deep learning library from scratch with custom CUDA kernels for matrix multiplication, max-pooling, and convolutions (benchmarked faster than PyTorch in select ops).
- Implemented core components: optimizers, CNN/MLP layers, Attention Blocks (LLMs), training/eval loops, model save/load.
- Integrated Python API bindings via PyBind11, achieving GPU acceleration with efficient memory management.
- Built with 0 external dependencies.

Magin.it (Math, Made Visual.) | *Python, FastAPI, Celery, Redis, Next.js, Docker* Aug – Sep 2025

- Created an end-to-end pipeline that turns math concepts into animated, educated Manim videos (scenes) using chained LLMs.
- Implemented task orchestration with Celery + Redis, streaming results via FastAPI SSE, Lambda, and S3 Buckets to a Next.js frontend for async generating and async rendering workflows.

Finance Tracking & Analytics Platform | *Next.js, PostgreSQL, Typescript, TailwindCSS* Oct – Dec 2024

- Reached 100+ organic signups, 25+ GitHub stars.
- Built a full-stack web app to track student expenses and visualize trends.
- Placed 1st at FBLA States, Finalist at Nationals.

Race Formula 1 | *Three.js,* Jun 2025

- Built a 3D Formula 1 track racing game with custom physics, lap timing, off-track detection, and a live leaderboard.

What Punch? | *Computer Vision, Pose Classification, End-to-end, GCP* Jun 2025

- Built a custom CNN (97%+ accuracy) to detect jabs, hooks, and straights from live pose estimation using a self-collected dataset.
- Collected, labeled, and preprocessed boxing pose data to train and validate the model effectively.
- Engineered a real-time feedback loop via WebSockets for instant model inference to UI pipeline.
- Containerized and deployed to Google Cloud using Docker.

Education

University of South Carolina 2025 – Present
Bachelor of Science in Computer Science (Honors) *Columbia, SC*

University of South Carolina 2023 – 2025
Associate of Arts (Dual Enrollment) *Columbia, SC*

Awards

- Ranked Top 50: 270 wpm (10-word burst); Top 1% Typist: 181 wpm (15s)
- Future Business Leaders of America (Nationals), Finalist in Coding & Programming
- Future Business Leaders of America (States), 1st in Coding & Programming