Nikhil Kalidasu

University of Texas at Austin (GPA: 3.6)
BS, Computer Science; BS, Biology; Class of 2026

Portfolio: nik875.github.io **Email:** srikarnikhil.kalidasu@gmail.com **Phone: +1 571-435-9126**

Coursework: Data Structures, Algorithms & Complexity, Software Engineering, Operating Systems, Genetics, Data Science, Cell Biology, Randomized Algorithms, Computer Vision, Statistics & Probability, Cloud Computing.

Skills: Python, R, C/C++, Java, PyTorch, TensorFlow, CNN, GNN, Transformers, LLMs, Linux, Bash, NumPy, SQL, Pandas, Machine Learning (ML), Neural Networks, Reinforcement Learning (RL), Bayesian Statistics, HPC.

Work Experience

Sessions Lab, Cal Tech – *Undergraduate Research Assistant* *(Jun 2025 – Jan 2026)*

- NRIQ: **Bayesian optimization** for predicting kinetic isotope effects in microbial sulfate reduction, TCA cycle.
- Implemented **parallelization** for 28-core HPC, evaluated NRIQ against baselines, developed **user-friendly UI**.

AeroParagon (Counter-Drone Startup) – *AI/ML Engineering Intern (Computer Vision)* *(Jan 2025 – Mar 2025)*

- **Fine-tuned RetinaNet CNN**, optimizing with **Neural Architecture Search (NAS)** for edge deployment.
- Auto-generated labels for **3 GB** videos via motion detection with Mixture of Gaussians **(MOG)** and **Kalman filter.**

De Anda Lab, University of Florida – *Computational Scientist* *(Aug 2024 – Aug 2025)*

- Developed **SeREGen**, machine learning embedding generator for DNA built on **Transformer, CNN, PyTorch**.
  - Used to visualize **40 novel bacterial phyla** and **COVID-19 spike protein** mutations for vaccine resistance.

ECLAIR Robotics – *Project Lead* *(Aug 2023 – Apr 2025)*

- **Led a ~25 person team** to develop an autonomous RC car from scratch, self-driving algorithm runs on **Raspberry Pi**.
  - Evolved autonomous driving agents with **Genetic Algorithm + PPO reinforcement learning** to handle sparse rewards.
- Fine-tuned Huggingface LLM (distilgpt2, **~500M params**) to assign mood tags to songs based on lyrics.
- Leveraged GenAI models (ChatGPT, Google's musicgen) to generate background music for PDFs and webpages.

Emerging Diagnostic and Investigative Technologies (EDIT) Lab – *ML Intern* *(Jun 2021 – Aug 2024)*

- Developed Convolutional **(CNN)** tumor classifier, Graph Neural Network **(GNN)** to remove ink markings from H&E images.
- Performed **spatial domain analysis** on 16GB multimodal H&E + RNAseq data with Graph Convolution **(GCN).**

Baker Lab, UT Austin – *Undergraduate Research Assistant* *(Apr 2024 – Aug 2024)*

- Authored a **$100K** interdisciplinary grant request aiming for three high-impact publications.
- Earned **4800 SU** compute grant for TACC distributed supercomputer with **NVIDIA H200 GPUs**.
- Developed CLI plugin with ChatGPT that **enhanced productivity,** reduced learning curve via natural-language interface.

Publications

Adversarial License Plate Rim *(Aug 2025 – Present)*

- Developed border that degrades license plate reader accuracy by 72% via adversarial ML; **first author**, manuscript in progress.

Blockchain Strategies for Real-World Governance *(May 2025 – Aug 2025)*

- Can proof-of-stake voting from blockchains improve real-world democratic governance? Preprint available, submitted to BER.

Personal Projects

Cryptocurrency Short-Term Price Predictor *(Aug 2024 – Mar 2025)*

- Evolved GPU-optimized technical analysis functions via genetic algorithm, **10% improvement** in predicting future BTC price.