Vishal Sundaram

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Education

The University of Texas at Austin — Austin, TX
B.S. Computer Science, B.S. Mathematics — *Expected Grad. - May 2028, GPA: 4.0*

- Turing Scholar(CS Honors), Undergraduate Computational Finance (Texas UCF), IM Volleyball Captain
- Coursework (H - Honors, G - Graduate): Generative Models (G), Continuous Algos (G), Operating Systems (H), Comp Arch (H), Speech & Audio Processing (G), Data Structures (H), Discrete Math (H), Probability (H)

Experience

Machine Learning Engineering Intern — April 2026 – Present
USAA — *Plano, TX*

- Incoming Engineer to a team working on high-volume APIs, internal tool development, and deploying ML models

Student Researcher — September 2025 – Present
UT Austin - ***Learning Directed Operating Systems Lab*** — *Austin, TX*

- Developed a system for generating formally verifiable LLM-generated policies for cache pre-fetching algorithms
- Developed a novel deep learning architecture inspired by AlphaFold to solve the Macro Placement problem, outperforming traditional algorithmic models, submitted to the **HRT x prtcl Macro Placement Challenge**
- Created a diffusion model to generate synthetic data for operating systems using a system state encoding model

Quantitative Analyst — January 2026 – Present
Texas Undergraduate Computational Finance — *Austin, TX*

- Present weekly Market Watches, analyzing the market and pitching a stock to our current members and alum
- Led pitch on a quantitative trading strategy for total score spreads on NBA games on various prediction markets
- Led a pitch on developing a **quant-trading networking system** based on Jane Street's white paper on networking

Software Engineering Intern — June 2025 – August 2025
Akomi AI — *Houston, TX*

- Built AI agents to automate clinic prior-auth workflows in collaboration with backend and product engineers
- Extended proprietary UI automation tooling to integrate directly with Aetna system and payer workflows
- Integrated a legacy EMR into an existing middleware layer using Python to support clinical data exchange

Projects

GPU Emulator | *Rust, C++, PTX, CUDA* | **Link** — April 2026 – Present

- Developed an Open Source GPU Emulator for debugging CUDA programs and understanding GPU internals
- Based on NVIDIA's Hopper architecture, implemented the SOTA warp scheduler and the PTX instruction set
- Rendered several 4K images of fractals and ran whisper LLM inference on the Emulator for evaluation

Undergraduate Computational Finance Exchange | *Rust* | **Link** — Feb 2026 – March 2026

- Developed a low-latency Exchange for use in large-scale online Trading Competitions, built in Rust
- Implemented an Order Handler, Matching Engine, Orderbook Database, and Market Data Notifier Channel
- Used official FIX protocol over TCP for user-to-exchange synchronization, simulated random packet drops

Honors / Technical Skills

USACO: Computer Science Olympiad Gold Division, **Top 5% of Competitive Programmers Nationally**
USNCO: 2x Chemistry Olympiad Honors, **Top 150 Nationally for 2 consecutive years**
Languages: Python, C/C++, Rust, Java, x86-64 Assembly, Verilog, HTML/CSS, torch library, jax library
Domain Knowledge: Machine Learning, Competitive Programming, Probability
Hackathons: Hook 'Em Hacks 2nd Place - Medical Track, DataHack - 1st Place Song Prediction Track, Congressional App Challenge - 1st Place in TX 22 District
IMC Prosperity 4: **Tied 1st** in Phase 1 Manual Challenge, Qualified for Phase 2