Adhik Durga

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Education

Georgia Institute of Technology — Atlanta, GA

Bachelor of Science in Computer Engineering (GPA: 4.00/4.00) — *May 2028*

- Courses: Digital System Design, Object-Oriented Programming, Data Structures & Algorithms

Experience

Undergraduate Research Assistant — August 2025 – Present

Cyber Forensics Lab — *Atlanta, GA*

- Trained a CNN in PyTorch on CIFAR-10 dataset (60K images, 10 classes) with TorchScript, achieving ∼**85% accuracy**
- Built a **200+ line** C++ libtorch inference pipeline with CMake and full debugging symbols for low-level inspection
- Extracted neural network weights from **2GB+ Linux memory dumps** using GDB, LiME, and Volatility 3 developing a custom plugin that automated memory forensic model recovery and cut **manual analysis time by 40%**

Digital Design Member — August 2025 – Present

Silicon Jackets — *Atlanta, GA*

- Designed and simulated a **64-bit calculator (>2K logic gates)** in SystemVerilog integrating 32-bit adder, result buffer, and FSM controller
- Coordinated operand fetches, adder operations, buffer writes, and memory transactions across SRAM banks to **reduce cycle latency by 15%**
- Verified functionality with **10+ simulation testbenches** and waveform analysis ensuring correct memory-mapped I/O

STEM Foundations Intern — June 2024 – August 2024

U.S. Army Educational Outreach Program — *Tampa, FL*

- Processed and visualized **50K+ STEM demographic records** using pandas, NumPy, and matplotlib, identifying key participation trends and improving outreach insights
- Discovered a **12% gender gap** and regional disparities, leading to improved program recommendations

Projects

Orion (CalHacks Winner) — *React, TypesScript, REST API, Python, Fetch.ai, VAPI, Mapbox*

- Built an **AI wildfire operations** dashboard that won Warp (Best Data Visualization) and VAPI (Best AI Voice Agent) 2nd Place, unifying real-time fire, weather, and responder telemetry with **sub-second Supabase Realtime sync**
- Developed **autonomous uAgents** in Python + Fetch.ai to compute fire-spread risk and optimize dispatch routes **35% faster** with geospatial Haversine routing
- Integrated **voice-controlled dispatch** via VAPI SDK for hands-free, context-aware incident queries
- Rendered **3D containment** maps in Mapbox GL JS with Telegram-based alert automation

Vital AI (Hack GT Winner) — *Next.js, TypeScript, Cedar-OS, Supabase, Open AI API*

- Won **3rd place out of 75+ teams** in health track by building an AI-powered patient dashboard using Next.js, Tailwind CSS, and Supabase with a drag-and-drop canvas, real-time risk scoring, and visual grouping for healthcare professionals
- Integrated Cedar-OS, GPT-5, and Mastra to create gesture-based AI interactions including radial spell menus, context-aware patient matching, and automated medication alternative suggestions
- Developed a natural-language patient matching system to analyze research updates and flag affected patients

RFID + Face Verification System — *Python, Raspberry Pi, OpenCV*

- Implemented a Raspberry Pi multi-factor access system with RC522 RFID, USB camera, and OpenCV detection
- Developed Python modules for sensor interfacing and decision logic enabling simultaneous RFID/face verification with **95% face recognition accuracy** and **<2s response time**
- Utilized GPIO control to drive LED/servo actuators simulating a secure door lock

Stock Screener Dashboard — *Python, NumPy, Matplotlib, Streamlit*

- Developed an interactive stock analytics dashboard using Streamlit, integrating **10K+ stock data points** daily via Yahoo Finance API to visualize price trends, technical indicators, and volume metrics
- Created time-frame charting modules using matplotlib, mplfinance, and numpy for dynamic candlestick plots
- Built a scheduled Github Actions CI/CD pipeline to execute Python data collection scripts, archive historical CSV datasets, and push automated updates to the stock website's repository

Technical Skills

Languages: Python, C++, Java, C#, Javascript, SQL (Postgres), Verilog/SystemVerilog, Bash, HTML/CSS
Frameworks: PyTorch, TorchScript, Streamlit, Springboot, Unity, OpenCV, React, Node.js, REST API
Developer Tools: Git, VS Code, GDB, LiME, CMake, IntelliJ, Linux, Vercel, Supabase, Cursor, Docker, AWS
Libraries: pandas, NumPy, Matplotlib, mplfinance, libtorch, Volatility 3