

# AARUSHI LAKHI

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## EDUCATION

The University of Texas at Austin

Bachelor of Science | *Computer Science*  
Certificate | *Design Strategies, Minor* | *Entrepreneurship*

May 2027

## SKILLS

**Languages:** Java, Python, C/C++, C#, JavaScript, TypeScript, SQL

**Frameworks & Libraries:** PyTorch, NumPy, TensorFlow, OpenCV, LangChain, ROS, React, Node.js, Express.js, Next.js, Django, Flask, .NET Core

**Tools & Platforms:** AWS, GCP, Firebase, Supabase, PostgreSQL, MySQL, Oracle SQL, MongoDB, ChromaDB, Airflow, dbt, Git, Linux, Postman

**Relevant UT Coursework:** Machine Learning, Computer Vision, Data Warehousing, AI Playground, Design for AI, Research Methodologies, Operating Systems, Computer Architecture, Data Structures, Algorithms, Probability & Statistics, Linear Algebra, Discrete Math

## EXPERIENCE

**Sentry.io** (*Series E Startup*) – *Software Engineer Intern*; San Francisco, CA

May 2026 – August 2026

• *Incoming Intern on Infrastructure Team*

**NSF Expeditions: LDOS** (*Learning Directed Operating System*) – *Undergraduate Researcher*; Austin, TX

October 2025 – Present

- Engineer lightweight **C++ heuristics** for **prefetching & cache eviction**, distilling black-box NNs into transparent rules for hardware realizability
- Architect an **evolutionary optimization framework** inspired by **AlphaEvolve** to enable LLMs to diagnose simulation failure (timeliness, accuracy)
- Co-evolve prefetching & eviction policies via **compositional coordination** to mitigate cache pollution, validating IPC gains over industry standards

**FrontRow** (*Startup*) – *Founding Software Engineer*; Austin, TX

April 2025 – Present

- Develop class notes app (**React, Node.js, Supabase**) to enhance content legibility for low-vision students (used by **20+** classrooms in pilot testing)
- Architect a bidirectional streaming service (**WebRTC** and **WebSockets**) to achieve **sub-200ms** latency to enable real-time classroom interaction
- Lead development of autonomous **PTZ** camera system with **>95% accuracy** using a **YOLOv8** model and **relevance algorithm** to frame content
- Engineer a multi-process backend to process video at **15 FPS** using **OpenCV** and frame skipping to optimize the **Python** vision pipeline
- Deploy an **OpenAI** chatbot to provide real-time Q&A and practice problems across **54 subjects** using concept embeddings and **cosine similarity**

**Dell Technologies** – *Software Engineer Intern*; Round Rock, TX

June 2025 – August 2025

- Deployed a Credit Dashboard (**React, .NET Core, Oracle ODS**) cutting analysts' time-to-insight by **44%** through in-memory caching
- Architected a **Python** time-series anomaly detection microservice and **C#** Controllers for identifying critical credit deviations with **>90% precision**
- Designed an AI agent (**LangChain, Gemma**) for text-to-visualization via fuzzy string matching and monitored MLOps with **Langfuse**
- Automated goal progress monitoring with **Apache Airflow** reducing analyst response time to KPI drift by **~30%** through proactive notifications

## KEY PROJECTS

**Free-Space Optical (FSO) Network Simulator** – *Network Systems & DSP*

November 2025 – Present

- Develop a custom **GNU Radio OOT module** implementing **Gamma-Gamma** fading to simulate atmospheric FSO signal degradation and variance
- Architect a cross-layer simulation bridging **ns-3** and **PyTorch** (via ns3-gym) to train adaptive **Deep Reinforcement Learning** agents
- Engineer proactive routing logic to autonomously reroute mesh traffic upon detecting physical-layer signal variance to minimize packet loss
- Optimize network **energy efficiency** by preempting link failures, eliminating redundant packet retransmissions during high-turbulence conditions

**Subtle-T: The Social Anchor** – *Wearable Technology & Edge AI*

October 2025 – Present

- Develop a discreet haptic bracelet as a wearable **biofeedback system** designed to mitigate social anxiety through rhythmic entrainment
- Engineer a **TensorFlow.js** model to analyze accelerometer motion data on edge devices, distinguishing between anxiety and physical exertion
- Build a **React** dashboard interfacing with custom hardware (Seeed Studio XIAO) via **Web Bluetooth API** to visualize live HRV/BPM streams
- Implement a custom motion-pattern fail-safe using accelerometer data to trigger automated emergency logic trigger without manual interaction

**PintOS** – *Operating System Components*

February 2025 – May 2025

- Implemented a user program execution environment, developing **syscall handlers** for process lifecycle, args passing, and user-kernel interaction
- Engineered a **virtual memory system** with demand paging, dynamic stack growth, and efficient page frame allocation to extend physical memory
- Designed and built a hierarchical, inode-based **file system** with file / directory operations and indexed data block allocation for extendable files

## LEADERSHIP EXPERIENCE AND ACTIVITIES

**Texas Product and Engineering Organization** – *Projects Director & Engineering Fellow*

September 2023 – Present

- Selected as **1 of 7** engineering fellows (**out of 150+** applicants) in UT's premier tech organization to build software products for Austin non-profits
- Lead project scoping and feasibility analysis for nonprofit partners evaluating pain points and architectural needs to align software solutions
- Oversee **9** cross-functional student teams, guiding end-to-end software development (**SDLC**) and resolving blockers to ensure successful delivery
- Engineered Seedling portal (**React, Express, AWS EC2**) for 500+ mentors to cut data entry by **80%** and verification by **30%**, saving staff **20+ hrs/mo**

**ABC Jewelers** – *Founder & Lead Software Engineer*

July 2018 – Present

- Architect a platform migration from Wix to custom stack (**Next.js, Typescript**), improving page load speeds by **30%** and annual sales by **80%**
- Engineer a scalable backend (**Express, MongoDB**) supporting **~20K annual visitors** and processing **700+ orders/year** via **Stripe** integration
- Bootstrap a social enterprise donating **\$30,000+** to fund **69 surgeries** and medical relief, scaling from a no-code prototype to a full-stack product

## HONORS

• **Poets&Quants Most Disruptive Startup 2025** | **Forty Acres Founders 1st Place Pitch** | **SXSW Pitch Alternate** – (*FrontRow*)

March 2026

• **Tapia Conference Gen AI Hackathon** – *Overall Winner (RAG DocBot)*

September 2025

• **HackTX | Freetail Hackers** – *Best Overall Design (BioDex)*

November 2024

• **Citadel X Correlation One Terminal** – *Selected Participant in AI Strategy Competition (Tower Defense Bot)*

August 2024

• **Texas Women in CS Hackathon** – *Best FinTech Hack award, Sponsored by Hudson River Trading (OMAR)*

February 2024