

DHANUSH KRISHNA

Computer Science Graduate | Machine Learning & Systems

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PROFILE

Computer Science graduate of BITS Pilani Dubai focused on machine learning in Python and systems software. Built numerical engines for neural-network training, causal inference, and Bayesian inference, alongside Rust and WebGPU projects for browsers. Experience includes LLM applications and cybersecurity. Open to software, machine learning, and data roles.

EXPERIENCE

Cybersecurity Intern — exida Jan 2026 – Jul 2026

- Performed cybersecurity work and developed a locally hosted LLM RAG pipeline to read and interpret P&ID (piping and instrumentation diagram) engineering drawings.

Tech Intern — Züblin / Strabag SE Jul 2025 – Aug 2025

- Worked with virtual machines and computer networks, supporting the company's IT infrastructure.

Intern — Standard Global Quality Services Jun 2024 – Aug 2024

- Handled data entry, organization, and reporting in Microsoft Excel to support quality-service operations.

PROJECTS

Forge — Python Deep-Learning Framework and WebGPU Compiler

- Built a Python deep-learning framework with reverse-mode autodiff, graph optimisations, and a compiler that generates WebGPU shaders; runs in-browser via Pyodide, with PyTorch reference checks and separate NumPy/WebGPU validation.

Meridian — Causal Inference Lab in Python

- Implemented PC-stable and linear NOTEARS graph discovery, structural-model fitting, interventions, and counterfactuals; built a Pyodide browser lab that exposes model assumptions and competing causal explanations, with independent reference checks.

Mycelium — Neural Cellular Automata in Python

- Trained five neural cellular automata models in PyTorch and built a matching NumPy/Pyodide runtime for interactive growth and damage experiments; measured growth, persistence, and repair separately.

Posterior — Bayesian Inference Engine in Python

- Implemented HMC, original slice-based NUTS, and mean-field variational inference with reverse-mode autodiff; built a multi-chain browser workbench with convergence diagnostics and checkpointing, and checked inference against exact and independent references.

Loom — LLM Inference Engine in Rust and WebAssembly

- Built a browser LLM engine from scratch in Rust/WebAssembly, including GGUF parsing, quantised matrix multiplication, attention, and tokenisation; measured 18 tokens/second and checked layer outputs against PyTorch.

Escapement — Raft Consensus Under Deterministic Simulation

- Implemented Raft in Rust under a deterministic simulator that controls clocks, networking, and randomness; added linearizability checking, fuzzing, and failure minimisation so discovered bugs can be reproduced from recorded seeds.

Orrery — SQL Query Engine in Rust and WebAssembly

- Built a Rust/WebAssembly SQL engine with no engine dependencies, a cost-based optimizer, vectorized execution, and a Parquet reader; runs over 7.4M rows in-browser and outperformed sql.js on 13 of 15 measured queries.

Lucida — Physically-Based Path Tracer in WebGPU

- Implemented a WebGPU path tracer with WGSL compute shaders, a binned-SAH BVH, GGX materials, and multiple importance sampling; validated rendering against an independent Rust CPU tracer and measured convergence using sixteen independent renders.

Also built

- Nexus: a self-hosted AI workbench with specialist-model routing, document RAG, and P&ID drawing analysis, built during my cybersecurity internship at exida.
- VoiceGuide AI: a Python/Streamlit travel planner with Azure speech and language models, supporting 15+ languages and PDF itinerary export.
- A FastAPI URL shortener with live click analytics, a Streamlit market dashboard on yfinance, a scheduled price watcher, and a PDF summarizer on the OpenAI API.

SKILLS

Programming: Python, Rust, TypeScript, Java, C, SQL, JavaScript, HTML/CSS, Bash

Scientific Computing: NumPy, SciPy, PyTorch, Pydide, Pandas, Plotly, MATLAB

Machine Learning: Autodiff, causal inference, Bayesian inference, neural cellular automata, RAG

AI Platforms: Ollama, ChromaDB, open-weight LLMs, OpenAI API, Azure OpenAI, Azure Cognitive Services

Frameworks & Tools: WebAssembly, WebGPU / WGSL, Streamlit, FastAPI, Open WebUI, SQLite, BeautifulSoup, Linux, Git / GitHub, Microsoft Office, Canva

EDUCATION

B.E. Computer Science — BITS Pilani, Dubai Campus 2022 – 2026

St. Antony's Public School 2020 – 2022

Abu Dhabi Indian School 2014 – 2020

CERTIFICATIONS

Eight certifications in AI, 2026. Microsoft — Transform your business with AI · Scale AI in your organization · Embrace responsible AI principles and practices · Create business value with AI · Leverage AI tools and resources for your business · AWS — Planning a Generative AI Project · Introduction to Generative AI: Art of the Possible · Google Cloud — Introduction to Generative AI

LANGUAGES

English (Native/Fluent) • Malayalam (Native/Fluent) • Hindi (Limited Working proficiency)

ACHIEVEMENTS

Repeat school topper in IBT, IOF Olympiad, ASSET, and Shastra Pratibha • Marrs Spelling Bee Finalist