George Adu

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Phone Email LinkedIn GitHub

Education

Duke University **Aug 2023 – May 2027**
B.S. in Computer Science; Mathematics & Statistics *Durham, NC*

Awards: Silver @ USACO; Finalist @ International Youth Math Challenge; Top 10 @ comma.ai Controls Challenge v2
Coursework: Geometric Algorithms, Theory and Algorithms for Machine Learning, Operating Systems, Analysis(Real & Complex), Abstract Algebra, Data Structures, Probability, Computer Architecture

Experience

Software Engineering Intern — Full-Stack **Jun 2025 – Jul 2025**
Clozure Inc. *Remote*

- Automated CI/CD with GitHub Actions and Docker, integrating lint/test/build stages; reduced deployment time by 50% and eliminated manual SSH steps.
- Built a responsive counseling service site using TailwindCSS, HTML, and vanilla JS; optimized load performance under poor network conditions with asset prefetching and lazy loading.
- Designed modular REST APIs (Node.js/Express) with JWT-based auth, Redis caching, and MongoDB aggregation pipelines; deployed on Railway with containerized builds.

Software Engineering Intern **Jun 2024 – Aug 2024**
Curatle *Remote*

- Built and tuned semantic vector search for ChatGPT-style API endpoints using OpenAI embeddings and Pinecone, cutting median latency by 45%.
- Developed React/TypeScript dashboard components with reusable hooks and server state via TanStack Query; improved Core Web Vitals by 20%.
- Automated ingestion using Python Cloud Functions with Pub/Sub, backpressure control, and schema validation — achieving 3× throughput with stable error rates.

Software Developer **Jan 2024 – Present**
Duke Applied Machine Learning *Durham, NC*

- Shipped production-grade features for ML workflows involving PyTorch training pipelines and React dashboards.
- Worked on cloud deployments (GCP + Docker) for inference endpoints with autoscaling and structured logging.
- Collaborated on model interpretability tooling (SHAP/LIME) and data processing for real-world datasets.

Teaching Assistant **Jan 2024 – May 2024**
Duke Computer Science (CompSci 230) *Durham, NC*

- Authored problem sets and proof-based assignments with Prof. Shao Heng Ko; covered topics in discrete math, combinatorics, and logic.

Software Engineering Intern **Aug 2023 – Present**
Tech Tree Root (501c3 Nonprofit) *Remote*

- Built internal tools for hybrid hackathons (Ivy Plus, Live Ai) — automated judging, registration, and post-event tracking using Python, Flask, and Google Apps Script.
- Implemented multilingual content workflows supporting Python/JS/Swift curricula; optimized static build times via incremental compilation.
- Containerized internal services, added CI hooks, and reduced hosting costs by 30% via scheduled scaling.

Projects

comma.ai Controls Challenge v2 (Top 10) | *Python, MPC, CMA-ES*
Developed a custom feedback controller to minimize lateral acceleration error and jerk on real driving data. Implemented MPC with horizon tuning, cost shaping, and adaptive feedforward. Optimized PID gains with CMA-ES across 20k+ driving segments. Ranked Top 10 globally on the official leaderboard.

LLaMAChess | *JavaScript, Python, FastAPI, llama-cpp-python*
Interactive chess app with local LLaMA-2 for offline board analysis. Backend served FEN queries with FastAPI; frontend built with `chess.js` and `chessboard.js`. Demo Video — GitHub

xFractal-Visualizer | *C++, SDL2*
Real-time Mandelbrot set explorer with smooth zoom and panning. Per-pixel iteration coloring and optimized escape-time loop. GitHub

Single-Cycle-CPU | *Logisim*
16-bit CPU with 8 registers and custom ISA. Separate clock domains for PC, memory, registers, keyboard, and TTY. Supports arithmetic, memory, branching, and `jal` with $r7$ link register. GitHub

Technical Skills

Languages: C++, Java, C, Python, Rust, TypeScript/JavaScript, SQL, Bash, MIPS
Frameworks/DB: React, Next.js, Node.js, Express, FastAPI, Flask, PostgreSQL, Redis, MongoDB
Tools/Platforms: Git, Docker, Kubernetes, AWS, GCP, Vercel, Cloudflare, Grafana, Prometheus