Mohammed Alkindi

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EDUCATION

University of California, San Diego | B.S. Computer Science | IDEA Scholar — Sep 2026 – Jun 2030 (Expected)

Current coursework: CSE 11 (accelerated intro to programming, Java), MATH 18 (Linear Algebra). Credit for Calculus I and II.

University of Pennsylvania | Professional Development Program (non-degree) — Sep 2025 – Apr 2026

EXPERIENCE

Open Source Contributor — Aug 2026 – Present

- Merged 203 pull requests into 47 outside projects, including 60 at Microsoft and 22 at NVIDIA, with 82% of decided pull requests accepted. 69 went to LLM and AI agent tooling, including Microsoft hve-core (32) and Agent Package Manager (8), NVIDIA NeMo Automodel (13) and NeMo Agent Toolkit (5), and mcp-use, a Model Context Protocol framework (7).
- Fixed floating point cancellation in simple-statistics linear regression, which returned a slope 69% wrong on timestamp inputs, by centering the sums on the means. Applied the same fix to Jenks variance.
- Fixed a Microsoft onnxscript optimizer rule that ignored Gemm's beta when folding BatchNorm into Gemm, so rewritten ONNX models returned wrong values with no error.
- Fixed distributed LLM training bugs in NVIDIA NeMo Automodel, including validation loss that was never reduced across data parallel ranks and multi node torchrun jobs that failed to rendezvous on SkyPilot.

Shell | Data Analyst Intern — Jun 2026 – Aug 2026

- Automated the daily production report with a Python pipeline (pandas, openpyxl, matplotlib) that detects both source workbook layouts and renders the dashboard in under 5 seconds, replacing roughly 3 hours of manual Excel work per day.
- Wrote 12 validation rules (types, ranges, required fields, duplicates) that block publishing on bad input, and logged a SHA-256 hash of every source file for audit.
- Built an interactive dashboard with asset filters, well search and KPI cards, plus PDF and email outputs.

PROJECTS

ProofX | Python, Numba, Lean 4 | proofx.org — 2024 – Present

- Built a parallel Collatz search kernel in Numba that checks about 24 million integers per second on 2 CPU threads, about 240x faster than plain Python. Saved runs go to a seeded ledger so results can be replayed.
- Converted search ledgers into 500 Lean 4 theorems checked by the Lean kernel, and automated conjecture testing by racing 7 proof tactics and running 3 counterexample searches with a 15 second limit. 430 tests pass in CI.

Ridge | Node.js, Express, Claude API, Vercel | ridge-data.vercel.app — 2026

- Built a spreadsheet analysis app that runs 10 statistical methods (Pearson, Spearman, Welch, chi-square, KS and others) in code before any LLM sees the data. The AI explanation is optional and runs last.
- Reads CSV, Excel and other office files and records the method, sample size and source rows behind every finding. 565 unit and API tests and 85 Playwright browser tests pass in CI, with dependency scanning and rate limiting.

Switchyard | TypeScript, Node.js | npm @switchyardhq/switchyard — 2026

- Built a CLI with 19 commands that runs several AI coding agents in isolated Git worktrees and flags merge conflicts early by simulating the merge in memory with git merge-tree for every agent pair that edits the same file.
- Shipped 5 npm releases. 260 tests, 220 of them against real Git repos, pass in CI on Windows, macOS and Linux.

HONORS AND LEADERSHIP

- **Thiel Fellowship Semifinalist** (2026), from more than 3,000 applicants.
- **MIT Bitcoin Hackathon, Community Prize** (2026) for BridgX, a Bitcoin to EVM bridge prototype built in 36 hours.
- **Oman Government Scholarship** (2025), fully funded by the Ministry of Higher Education.
- **Mathematics Student of the Year** (2025), sole recipient. Top 4 team in a national mathematics competition (2024).
- **Meta Connect 2026**, invited by Meta to attend in Menlo Park and join its AI Developer Roundtable.
- **Penn Chess Club**, VP of Outreach (2025 – 2026). Promoted and helped run club events, and built the club website.

TECHNICAL SKILLS

Languages: Python, TypeScript, JavaScript, Java, SQL, Bash, PowerShell, Lean 4
AI and LLMs: Claude API, OpenAI API, RAG, embeddings, prompt engineering, AI agents, Hugging Face Transformers, MCP
Data and ML: pandas, NumPy, scikit-learn, PyTorch, XGBoost, Numba, statistical inference, K-Means, PCA
Frameworks and Tools: Node.js, Express, FastAPI, React, PostgreSQL, Supabase, Docker, Git, GitHub Actions, pytest, Playwright
Certifications: Machine Learning Specialization (Stanford), CS50x and CS50P (Harvard) | **Spoken:** Arabic, English