

Nathan Chung

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EDUCATION

Texas A&M University

Bachelor of Science in Computer Science - GPA: 3.64/4.0

College Station, TX

Expected May 2028

EXPERIENCE

AMD (Advanced Micro Devices, Inc.)

Jan 2026 – Aug 2026

Software Engineer Intern

Austin, TX

- Architected an AI agent generating DOE configurations from firmware specs across 10+ CPU power features, and built the scoring layer for closed-loop Bayesian hardware optimization.
- Engineered multi-IOD and dual-socket support from scratch for EPYC validation infrastructure, redesigning register access and hardware abstractions to enable automated regression testing across multi-socket Linux systems.
- Built a Python/Grafana performance regression tracker for ROCm nightly builds, automatically flagging 3%+ regressions in CI and reducing manual triage by 12 hours/week.

Arkane Digital

Jun 2025 – Aug 2025

Software Engineer Intern

Remote

- Fine-tuned NLP and deep learning models for a design-to-code generation system, improving developer throughput by 40% through structured defect tracking and debugging.
- Built multi-component generation logic with a custom data-preprocessing pipeline supporting 20+ UI configurations, improving front-end scalability by 35%.

PROJECTS

Financial Transaction Engine | Go, PostgreSQL, Docker, Prometheus/Grafana

- Built an immutable double-entry ledger in Go/PostgreSQL with concurrency-safe, exactly-once idempotent transfers via ordered row locking; sustained 5,630 transfers/s (11× target) with 0 errors across 170K+ requests.
- Engineered a bug-hunt suite reproducing 5 concurrency/idempotency hazards (deadlocks, overspend, non-atomic writes) with before/after tests proving each fix; validated crash safety via SIGKILL chaos testing.

DocAgent | Python, FastAPI, async Postgres, pgvector, Docker, GitHub Actions

- Built and shipped a full-stack RAG system (async FastAPI + Postgres/pgvector, SSE streaming) to a public Hugging Face Spaces demo — sub-500ms first-token latency, 239 tests against real Postgres in CI.
- Wired a 50-question eval suite as a GitHub Actions quality gate to validate architecture changes with measured deltas (cross-encoder reranking: +21 points retrieval rank, 93% answer correctness).

Apache Arrow Contribution | C++, Open Source

16k+ Stars

- Refactored Parquet C++'s hand-built JSON serialization (8 type implementations) to use Arrow's structured JsonWriter API, fixing a latent invalid-JSON escaping bug.
- Extended JsonWriter with a new GetPrettyString() method after maintainer review widened the fix's scope; resolved a merge conflict from a concurrently-fixed duplicate bug.

TelemetryBench | Python, FastAPI, Streamlit, SQLAlchemy, SQLite, pandas, scikit-learn, Docker

- Built a Python telemetry analysis tool with 8 REST endpoints and a normalized 3-table schema, ingesting raw CSVs from hardware parameter sweeps for comparison and time-series queries.
- Added ML-based run-quality scoring (scikit-learn Isolation Forest) surfaced as a sortable dashboard column, catching drift cases normal average but high variance that static thresholds miss.

SKILLS

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

Frameworks/Libraries: FastAPI, Streamlit, SQLAlchemy, Pydantic, Plotly, React, Node.js, Next.js, TailwindCSS

Developer Tools: Git, Docker, GitHub Actions, pytest, ruff, MongoDB, REST APIs, WebSocket

AI/ML: pandas, scikit-learn, Claude API, OpenAI API, ChromaDB, Bayesian optimization

LEADERSHIP & INVOLVEMENT

Texas A&M University Asian American InterVarsity (AAIV)

May 2025 – Present

Vision Team & Freshmen Small Group Leader

College Station

- Co-managed \$10K budget and cross-functional logistics for an 80-member org, leading recruitment (30 new members) and coordinating game-day operations and external speaker outreach.