Allen Jue

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Education

University of Texas at Austin — Austin, TX

M.S. in Computer Science; B.S. in Computer Science & Mathematics, Minor in Business — *May 2026*

- **Certifications:** AWS Solutions Architect Associate (SAA-03)
- **Coursework:** Data Structures & Algorithms, Computer Architecture, Operating Systems, Compilers, Neural Networks, Cryptography

Experience

Coinbase — June 2025 – August 2025

Software Engineer Intern — *San Francisco, CA*

- Built a React + Go internal tool to previously unavailable Plaid-linked payment failures and improve triage speed.
- Incorporated LLM-powered APIs to add automatic summarization, reducing manual triage time.
- Included visibility into 95% of the most common frontend and backend-initiated errors.

University of Texas at Austin — May 2024 – September 2024

HCI Research Intern | arXiv — *Remote*

- Contributed papers to the *Computers and Society* and *Social and Information Networks* conferences.
- Analyzed multimodal inputs on LLaVA to study mental illness in YouTube videos.
- Collected 300+ hours of data and applied topic modeling and fine-tuning with BERTopic and ChatGPT.

Capital One — June 2024 – August 2024

Software Engineer Intern — *New York, NY*

- Migrated big data pipelines from AWS EMR to scalable Kubeflow pipelines with $3,000/year cost savings.
- Orchestrated and parallelized pipeline components using PySpark to achieve 20% runtime speedup.

University of Texas at Austin — Aug 2024 – Present

Teaching Assistant — *Austin, TX*

- CS 380I (Implementing Modern Languages): Tentatively rewriting and hardening new compiler assignments.
- CS 378H (Concurrency Honors): Guided 30 students on projects involving C/C++, Go, Rust, CUDA, and MPI.
- CS 311 (Discrete Mathematics): Taught two discussion sections and supported 60 students total.

Capital One — June 2023 – August 2023

Software Engineer Intern — *Plano, TX*

- Created ETL scripts on Snowflake datasets to build a QuickSight dashboard for non-compliant apps.
- Optimized a domain-checking script by parallelizing curl requests, cutting runtime from 10 to 1 hour.
- Volunteered with CODERs teaching web development to a cohort of 20+ middle school students.

Projects

Invertibility Proof of the TEA Cipher | *ACL2* | Presentation | GitHub — May 2025

- Modeled the Tiny Encryption Algorithm (TEA) cipher with ACL2 and formally proved invertibility.
- Proved single-step invertibility and extended inductively to multiple cycles without using `let` statements.
- Balanced proof complexity and performance by verifying up to 16 encryption cycles.

Wasm2c Memory Trace Optimization | *C, WebAssembly* | Presentation | GitHub — November 2024

- Converted WebAssembly binaries to C for memory access tracing and bounds checking using wasm2c.
- Reduced redundant memory checks by analyzing pointer usage across call depths and within functions.
- Static analysis on Dhrystone benchmark revealed 6.54% redundant memory checks.

Technical Skills

Programming Languages: Java, Python, C, C++, Go, Rust, Lisp, TypeScript, SQL (PostgreSQL), HTML/CSS
Cloud & Infrastructure: AWS (S3, Lambda, EMR, QuickSight), Docker, Kubernetes (basic)
Development Tools: Git, Visual Studio Code, IntelliJ IDEA, Vim, JIRA, Linux
Data & APIs: GraphQL, Protobuf, REST APIs