

ALEX LI

Bellevue, Washington | alexxuanqili@gmail.com | (703) 981-4596 | linkedin.com/in/alex-li12 | AlexXLi12.github.io

RELEVANT SKILLS

- **Programming Languages:** Python, C/C++, SQL, Java, JavaScript, SystemVerilog, HTML/CSS
- **Frameworks/Libraries:** Flask, Spring Boot, Express, React, Next, PyTorch, NumPy, pandas
- **Tools & Platforms:** Linux, Git, Make, PostgreSQL, Terraform, Docker, FPGAs, ModelSim, AWS, gprof, gRPC

EDUCATION

University of Washington, Seattle, WA
B.S., Computer Science

Expected June 2027
GPA: 3.7

Relevant Coursework: Discrete Mathematics, Linear Algebra, Data Structures and Parallelism, Hardware/Software Interface, Systems Programming, Digital Circuit Design, Mathematical Methods for Quantitative Finance, Machine Learning, Distributed Systems, Data Management

Awards: Best Use of AI + Best Finance/Data Analytics Project (HackTech 2025), 1st Place DubHacks 2023 (Synergy Track), Futureforce Selectee (Salesforce Data Cloud), Dean's List (2023–25)

RELEVANT EXPERIENCE

Chewy, Inc. | Spring Boot, Terraform, AWS, Mockito, Guice
Software Engineering Intern

June 2025 – August 2025

- Owned the architecture and deployment of a report scheduler to replace Kevel (3rd party) for Chewy Ads to enable in-house scheduling, authorization, and report delivery via S3 using AWS Lambda, SQS, and DynamoDB.
- Led design reviews with senior engineers, incorporating **fault-tolerant patterns** such as exponential backoff, DLQs, and deduplication through SHA-256 hashing.
- Owned back-end infrastructure and API development to support **scalable, idempotent reporting workflows** with consistency guarantees across retries and failures.

UW Sensor Systems Lab | FPGAs, Verilog, GTKWave, Python, Serial Interfaces
Undergraduate Research Assistant

December 2024 – Present

- Built low-level drivers for FPGA-controlled acoustic levitation arrays; Optimized the UART protocol from scratch to replace I²C and boost throughput on the **primary signal pipeline**.
- Programmed transducer synchronization code to serialize phase-angle control across **100+ actuators** in real-time object manipulation experiments.

PROJECTS

Othello Game Engine | C++23, Multithreading, Profiling, gRPC, Docker

[GitHub](#)

- Built a parallel iterative-deepening α - β engine with principal variation search (PVS) and a cache-friendly transposition table (TT) using Zobrist hashing; avg throughput: **18.50M nodes/s @ d10** (149.8 ms/pos), **8.93M @ d13** (7.87 s/pos).
- Optimized search with PVS and **bitboard-native move ordering** (corners \rightarrow edges, TT seeding), cutting per-position latency by **90%**.
- Profiled and accelerated the search hot path by **sharding the TT per thread** ($2\times$ deep-ply throughput) and **rewriting move gen to eliminate STL overhead**; improved d13 latency **8.7s \rightarrow 7.8s**.
- Exposed engine over **gRPC** (protobuf APIs) to support real-time remote play and future game-room orchestration.
- Containerized the engine with **Docker** for consistent benchmarking, local development, and future deployment in a microservice architecture.

Distributed Key-Value Store (Multi-Paxos, Sharded) | Java, Multi-Paxos, Sharding

- Implemented a fault-tolerant, linearizable **sharded key-value store** using Multi-Paxos for log consensus and dynamic shard rebalancing.
- Wrote node logic for **leader election**, shard replication, and consensus-driven reconfiguration. Verified correctness with an adversarial distributed test suite.
- Authored a detailed specification covering architecture, consensus, and failure semantics under partitioned networks and crash faults.

Renaissance Research | LLMs, Pydantic, BeautifulSoup, Next.js

[Live Demo](#)

- Designed an AI-driven research assistant to scrape, summarize, and evaluate **200+** academic papers for contemporary relevance.
- Built a structured prompting system using Pydantic schemas and LLM self-reflection to enforce consistent, structured output.
- Won **Best Use of AI** and **Best Finance/Data Analytics Project** at HackTech 2025 (Caltech).