

HOUCHI CHAN

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EXPERIENCE

Software Development Engineer, Microsoft

Jul 2025 — Present

- Architected 48 granular RBAC permissions for Azure MFA via Microsoft Graph API, enforcing least-privilege access across 600M+ monthly authentication events, authoring design docs and passing cross-team code reviews before production rollout.
- Led backend migration of 3 Azure MFA production services to dedicated IP addresses across 24 global regions, strengthening network isolation for 1B+ annual auth requests with zero-downtime cutover via staged CI/CD pipeline rollouts.
- Provisioned isolated cell infrastructure to migrate OpenAI MFA traffic, scaling dedicated capacity to handle 720K+ daily authentication requests while maintaining 99.99% availability during production cutover.
- Migrated 170+ near-expiration SSL/TLS certificates across production services, preventing outages affecting millions of users.

Software Development Engineer Intern, Amazon

Sep 2024 — Nov 2024

- Redesigned internal architecture and optimized AWS Lambda provisioning with Provisioned Concurrency and SnapStart to reduce cold start latency from 3s to 100ms, integrating seamlessly with multiple internal systems to enhance overall performance.
- Built and deployed an end-to-end serverless architecture (API Gateway, Lambda, LLMs) processing millions of compliance records, reducing manual compliance review time by 30% and eliminating 10 hours of weekly manual work.

Software Engineer Intern, Microsoft

May 2024 — Aug 2024

- Implemented testing pipeline encompassing 19 unique scenarios, simulating traffic patterns, ensuring system reliability.
- Diagnosed critical bottlenecks and persistent memory leaks within the system architecture, collaborating with cross-functional teams to design and implement targeted optimizations, resulting in a 200% increase in overall system throughput.

Software Development Engineer Intern, Amazon

Jun 2023 — Sep 2023

- Prototyped an internal administrative application, streamlining data management for over 1.5 million Amazon employees.
- Streamlined data processes, resulting in a reduction of over 40 related tickets monthly and a 23% decrease in resolution time.

Software Development Engineer Intern, Chloris Geospatial

Oct 2022 — Apr 2023

- Leveraged React class components, Plotly.js, and MapboxGL to create interactive visualizations for 500+ GB of geographic data, enabling effective analysis, monitoring, and long-term trend assessment of carbon emissions over multiple decades.
- Optimized internal python parsing algorithms by overhauling the tag filtration system and introducing customizable filtering parameters, resulting in an 18% reduction in processing time while improving flexibility for diverse data processing requirements.

PROJECTS

2D Pixel-Game Engine | Java, OpenGL, OpenAL, GLSL GLFW, Maven

- Engineered a game engine supporting tile-based and 2D physics, capable of saving and loading scenes and handling collisions.
- Employed mathematics and OpenGL to abstract rendering process and GLSL Linking and Compiling processes.

MapReduce & RAFT Consensus Algorithm | Golang

- Recreated a Fault-tolerant distributed system capable of processing hundreds of gigabytes of data and transactions.
- Implemented the RAFT consensus algorithm in Golang verified by MIT 6.824 testing script, emulating real-life scenarios.

Gesture Detection, Semantic-Segmentation, License Plate Recognition | Python, Tensorflow, Numpy, OpenCV

- Utilized Template Matching, Alpha-Beta Filtering and Kalman Filter to detect gestures and track objects, such as Hand and joints.
- Trained and evaluated machine learning models to Segment and Identify car license plate numbers from videos streams.

Custom Programming Language Interpreter | OCaml

- Constructed an interpreter in Ocaml utilizing a lexer, parser, and Abstract Syntax tree that executes the custom language; supporting the features of variables, simple operations, functions, recursive function executions, stacks, and detailed error logging.

SKILLS

Languages: C#, Java, Python, TypeScript, Golang, C++, OCaml, SQL

Cloud & Infrastructure: Azure (MFA, Identity, Graph API), AWS (Lambda, API Gateway), Docker, Linux

Databases: Cosmos DB, DynamoDB, PostgreSQL, MongoDB, SQLite

Tools & Frameworks: Git, CI/CD, Firebase, .NET, React, Node.js, Next.js, OpenGL, TensorFlow, OpenCV

EDUCATION

Bachelor's in Computer Science, Boston University

May 2025

- Coursework: NLP, Computer Graphics, Distributed Systems, Computer Architecture, Data Structure and Algorithm, Software Engineering, Mobile Development, Programming Language, Competitive Programming, Database design