



# Freya Zou


Seattle, WA

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## Work Experience


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### Amazon | Alexa Autonomous Agent (AAA)

May 2025 – Present

Software Engineer

Seattle, WA


- **MCP adapter pattern:** Designed and shipped the integration layer connecting Python-based LLM agents to Java backend services, including data contracts, sandboxed tool invocation, transport API, and prompt testing harness for multi-agent orchestration workflows.
- **Multi-agent pipeline infrastructure:** Built core pipeline for Alexa+ 2 for autonomous task execution at scale across a multi-agent Python/Java framework, including deep research, content planning, and quality validation with scheduling and notification delivery.
- **Agent memory & compliance:** Implemented performance state management with MemoryDB for complex task dependency graphs; designed DSAR compliance workflows for agent memory and enterprise data governance and privacy controls for production AI systems.
- **Observability & testing:** Authored cloud coverage reporting and integration test suite for orchestration workflows; built prompt-testing infrastructure for agentic pipelines.

### Amazon | Alexa Central Analytics & Research Science

June 2024 – May 2025

Software Engineer

Bellevue, WA

- **PDM caching microservice:** Integrated cache-hit/miss routing into the Alexa+ orchestration pipeline, bypassing content sourcing and ranking on hits and reducing backend calls and latency at millions-of-devices scale.
- **SQS batch API:** Redesigned queue processing from individual sends to batched operations, achieving 10× cost reduction and applied across distributed service boundaries with full CI/CD rollout.
- **BanyanLite notification system:** Shipped notification feature for Amazon's new Alexa device (launched Dec 2024) under a hard hardware deadline, collaborating cross-team to coordinate backend and firmware changes.
- **ShareLink microservice:** Built secure one-click data transfer service for 2000+ utterance IDs between internal platforms, eliminating manual workflows and reducing data leakage surface for data scientists.

### Levrum Data Technologies

March 2023 – March 2024

Software Engineer Intern

Corvallis, OR

- Built backend services in C#/.NET and scalable data pipelines using SQL and DynamoDB for stock indicator ingestion and strategy result storage; shipped cloud features end-to-end on AWS with CI/CD.

## Projects

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### Excel Agent Skills | Python, openpyxl, MCP, skills+shell, token efficiency | [GitHub](#)

- Token-efficient agent tooling: **25 ops** as MCP server plus skills+shell path; tool-surface tokens **~2.4k** → **~18** per op for minimal path. Full discovery (MCP) or low-context, sandboxed execution (skills+scripts) for agent and assistant workflows.

### ArXiv Deep Research | Python, MCP, AutoGen, Magentic-UI, OpenTelemetry, Precision@K/MRR | [GitHub](#)

- MCP server for searching and reading arXiv papers; plugs in as a specialist to multi-agent orchestration (AutoGen, Magentic-UI). Built retrieval-quality evals (Precision@K, MRR), synthetic benchmark pipeline (LLM-generated test queries), and OpenTelemetry tracing for observability.

### VoxScribe | Whisper, Web Audio API, Ollama | [GitHub](#)

- Privacy-first local voice dictation: real-time speech-to-text (Whisper, Web Audio API), LLM edit (Ollama), global text injection; Tauri-ready.

## Technical Skills

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

**AI/ML:** PyTorch, Transformers, LangChain, OpenAI API, Claude SDK, RAG, Vector Databases, Embeddings, Whisper

**Agentic Dev:** OpenCode, Claude Code, Prompting, Context Engineering, MCP

**Cloud & Infra:** AWS (Lambda, DynamoDB, S3, CloudWatch, Athena, Bedrock, EKS, SQS), CDK, Docker, Kubernetes, CI/CD

**Frameworks:** React.js, .NET/ASP.NET, Vue.js, Node.js, Next.js, Spring Boot, Cypress, Jest

## Education

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### Oregon State University

Sept 2021 – May 2024

B.S. in Computer Science, GPA 3.95/4.0

Corvallis, OR