

SAMUEL JOO

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WORK EXPERIENCE

Freddie Mac

McLean, VA

Software Development Associate II (Promoted from Associate I)

Jan 2024 - Present

Product Health Dashboard (PHD) - Division-wide platform, backed by a suite of 8 Spring Boot microservices, that gives engineering leads across all 10 Single Family Business Technology Operation teams real-time visibility into application health, compliance, and cost metrics.

- Built the Angular frontend from scratch, delivering an interactive dashboard adopted in production by leads across all 10 teams.
- Enhanced and extended Java / Spring Boot services across the 8-microservice suite, shipping new REST API endpoints and improving existing ones to support evolving dashboard and scoring requirements.
- Authored new scheduled batch jobs and improved the algorithms behind existing ones to aggregate, process, and score product metrics from internal systems against company compliance and engineering standards.
- Diagnosed and remediated data-integrity bugs in the metric ingestion pipeline against PostgreSQL-backed services, implementing scalable fixes that improved cross-service consistency and eliminated downstream scoring inaccuracies.

Stella - AI-Powered Internal Chatbot (RAG) - Led end-to-end design and independent development of a Retrieval-Augmented Generation chatbot that guides users through the Product Health Dashboard and Starter Kit, answering natural-language questions and surfacing live health metrics on demand.

- Built a Python / FastAPI backend microservice and an Angular conversational UI; the implementation is now the internal reference architecture for future chatbot projects across both frontend and backend.
- Partnered cross-functionally with internal UX designers to align the chatbot with company design standards and accessibility requirements.

IDP Agent - Intelligent Document Processing - Built a system that ingests mortgage lending documents from loan processors, using AWS Textract with AI integration to automatically parse borrower data points across a wide range of structured document types.

- Built a Textract-based pipeline that extracts text, tables, and form fields from diverse structured documents, with an AI layer that parses borrower / loan data points across varying layouts into clean, structured data.
- Integrated an LLM to streamline document classification, automatically identifying document type on ingest so each file routes to the right extraction and parsing logic.

Kiro Governance - AI IDE Steering & Hooks - Authored steering documents and automated validation hooks for Freddie Mac's rollout of the Kiro AI IDE, distributed to developers across the Single Family Portfolio & Servicing division.

- Encoded company coding standards, security policies, and architectural conventions as enforceable steering inside the IDE, and built code-safety and linting hooks that validate AI-generated changes before they ship.

Starter Kit - Company-Wide Code Generation Tool - Contributed to a platform used by engineering teams across Freddie Mac to generate customizable, deployment-ready microservice code, accelerating new-project onboarding and standardizing best practices.

- Re-engineered database connectivity in the generated service template, achieving a ~300% increase in connection performance and request throughput for every team that consumes the kit.

CI/CD Pipeline - Modern Delivery Toolchain - Automated validation infrastructure across the organization's deployment platform.

- Implemented automated validation checks for duplicate gateway and ingress configurations, preventing misconfigured repositories from generating multiple gateways and improving deployment reliability across the org.

EDUCATION

James Madison University

Harrisonburg, VA

Bachelor of Science in Computer Science

December 2023

SKILLS

Languages: Java, Python, JavaScript, TypeScript, SQL

Backend: Spring Boot, REST APIs, Microservices, FastAPI, Uvicorn

Data & AI: PostgreSQL, RAG / Vector Search, LLMs, AWS Textract

Cloud & DevOps: AWS, CI/CD, Jenkins

Frontend & Tools: Angular, HTML, CSS, Git, Atlassian (Jira / Confluence)

Certifications: AWS Certified Cloud Practitioner