

BAY WIGGINS

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EXPERIENCE

Capital One Software: Software Engineer II

Sep 2026 - Present

Enterprise B2B SaaS business of Capital One

- Built and deployed a **stateless, multi-tenant Go documentation monitor** on AWS ECS/Fargate and EventBridge, scanning 993 links across 224 public and authenticated pages every eight hours.
- Engineered a **Go SSRF guard for SaaS and self-hosted deployments**, adding connection-time IP validation against DNS rebinding and cloud-metadata access; verified fixes with exploit-driven tests.

Capital One: Software Engineer I

Aug 2025 - Aug 2026

- Contributed to Capital One Card Tech's authorization gateway modernization effort, building services for payment authorization routing, processing, and reversals.
- Co-designed and co-implemented a **multi-tenant Go Authorization Traffic Router (ATR)** handling **80 transactions per second in production**; routed ISO 20022 card authorizations across multi-region backend cells with active health probing and automatic failover.
- Co-delivered a **multi-tenant Java/Spring payment broker on AWS ECS**: co-designed and implemented bidirectional ISO 20022/ISO 8583 translation for authorizations and reversals, built per-tenant network isolation, and integrated and performance-tested the end-to-end ATR/broker/TSYS pipeline.
- Designed and implemented **cancellation-safe timeout recovery** with custom HTTP transport, bounded request tracking, and background goroutines to automatically reverse broker approvals received after the router returned a decline.
- Built **Python validation services and AWS CDK infrastructure** for payment authorization testing, replacing approximately 20 minutes of manual field review per test case with approximately 50 ms of automated checks; increased throughput 10x with async batch validation.
- Architected **test-suite APIs with referential-integrity checks and aggregated results**; built authorization/reversal message generators and maintained shared Python components consumed across five downstream repositories.
- Reduced **AWS Lambda cold-start latency from 4-5 seconds to under one second** on a key validation API path through SnapStart and memory tuning.

Noblis: Software Engineer Intern

Jun 2024 - Aug 2024

- Developed a **Flask backend and REST APIs** for 3D Gaussian splatting with Nerfstudio, building photo-ingestion pipelines with test-driven development; migrated deployment to AWS.

Zonar Systems: Software Development Engineer Intern

Jun 2023 - Aug 2023

- Designed a **Python CVE alerting service with PostgreSQL and Redis**, reducing detection latency from weekly scans to under 15 minutes; automated GCP/Kubernetes deployment with Terraform, Docker, and GitLab CI/CD.

PERSONAL PROJECTS

qIt: Collaborative Music Queue

2026

- Engineered **transactional voting and durable Spotify delivery** with PostgreSQL outbox events and advisory locks; deployed private EC2 behind CloudFront using AWS CDK, with automated builds and releases through CodeBuild/SSM.
- Architected the **Go and Flutter music-voting app** with account-free guest access, optimized to support 100 concurrent guest connections per session.

Ctrl+F for Videos: Multimodal Video Search

2026

- Engineered an **embedding-based video search system** combining OpenCLIP visual representations and Whisper transcripts with hybrid ranking to power natural-language search and timestamped playback.
- Implemented **resumable indexing, content-hash caching, retries, and deletion-safe jobs**.

TECHNICAL SKILLS

Languages: Go, Java, C++, Ruby, Python, SQL, JavaScript/TypeScript, C, Swift

Cloud and Data: AWS (ECS/Fargate, Lambda, DynamoDB, CDK), PostgreSQL, Redis, GCP

Frameworks and Tools: Spring Boot, Flask, Docker, Kubernetes, Terraform, GitLab CI/CD, OpenTelemetry

Certification: AWS Certified Solutions Architect - Associate (Jan 2026 - Jan 2029)

EDUCATION

Georgia Institute of Technology - M.S., Computer Science (Artificial Intelligence)

2026 - Present

University of Virginia - B.A., Computer Science; Echols Scholar

May 2025