Charles Asiama

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Personal Statement

Software Engineer (MS, Carnegie Mellon) specializing in Full Stack systems and cloud architecture (Go, TypeScript, AWS). Leverages a background in QA automation to build scalable, reliable, and production-ready software

Education

Carnegie Mellon University – MS in Mobile and IoT Engineering — September 2021 - May 2024
University of Wisconsin-Madison – Capstone Certificate in Computer Science — June 2019 - August 2021
Western Illinois University – BA in Economics — January 2006 - August 2010

Skills

Languages: Go, TypeScript, Java, Python, C, SQL
Frontend: React, Tailwind CSS, HTML, PixiJS, GSAP
Backend & APIs: Node.js, Express.js, gRPC, REST
Cloud & Infrastructure: AWS (Lambda, EC2, EKS), GCP (GCE, Load Balancing, Storage), Docker, Kubernetes
DevOps & Automation: Terraform, Ansible, Jenkins, GitHub Actions, CI/CD
Testing & QA: Unit testing, Integration testing, Regression testing, SQL-based test scripting
Databases & Storage: MySQL, MongoDB, Timestream
Certifications: Google Cloud Associate Cloud Engineer

Experience

Software Engineer, AlgoWorkbench (algoworkbench.com) – Remote — February 2025 - Present

- Architected a custom TypeScript interpreter using the Visitor Pattern and Generator Functions to manage Abstract Syntax Tree (AST) traversal, enabling granular debugging and state preservation
- Engineered a non-blocking execution engine using Web Workers and Object Pooling to recycle graphic nodes, achieving 60fps stability during large-scale array mutations (1,000+ elements)
- Developed a statistical profiling engine using Least Squares Regression to mathematically verify Big O complexity (O(n) vs $O(n^2)$) via real-time runtime analysis

Software Engineer (Capstone), SLAC National Accelerator Laboratory – Pittsburgh, PA — September 2023 - December 2023

- Architected a serverless, event-driven infrastructure on AWS using Lambda and Timestream to process real-time energy grid analytics, ensuring 99.9% system availability and scalable data ingestion
- Built a custom hot-reload mechanism for AWS Lambda in Python to accelerate the development loop, integrating automated CloudWatch logging to reduce debug cycle time by 40%

Cert Workforce Development Intern, Software Engineering Institute – Pittsburgh, PA — May 2022 - December 2022

- Built a React-Node web app with Express.js and MySQL, applying modular design and RESTful principles to automate cybersecurity workflows, accelerating training delivery and reducing manual processing time by 60%
- Implemented Infrastructure as Code (IaC) pipelines using Terraform to automate environment provisioning on Proxmox, enabling reproducible deployments and reducing infrastructure setup time from hours to minutes

Software Quality Engineer I-II, CDW – Chicago, IL — September 2011 - May 2019

- Engineered a data-driven automation framework using SQL and UFT to validate complex backend logic, reducing regression cycle time by 30% and increasing defect detection rate by 25% across 1,200+ test cases
- Orchestrated a continuous testing pipeline by integrating ALM automation, reducing manual execution overhead by 40% and enabling earlier defect discovery to improve overall platform resilience
- Developed automated quality dashboards to visualize platform health metrics and regression trends, reducing risk response time by providing stakeholders with real-time visibility into system stability

Projects

Raft | Golang, Multithreading, RPCs, TCP/IP

- Crafted a distributed consensus library implementing the Raft protocol in Go, designing a custom RPC layer over TCP to guarantee strong consistency and log replication across nodes despite simulated network partitions
- Orchestrated high-concurrency node communication using Goroutines and Channels to manage non-blocking state machine updates, ensuring thread-safe synchronization and rapid recovery from leader failures

E-commerce Web-Service | Golang, Docker, AWS (CloudFormation, EC2, EKS, MongoDB, MySQL)

- Designed a microservices-based e-commerce backend in Go, implementing RESTful APIs with JWT authentication and containerizing services with Docker to ensure consistent deployment environments
- Implemented fault-tolerance patterns including circuit breakers and bulkheads within a Kubernetes cluster to prevent cascading failures between dependent services

Cloud Infrastructure & K8 Automation | Ansible, Jenkins, GCP, Kubernetes, Python, Terraform

- Achieved Infrastructure as Code (IaC) pipelines using Terraform and Ansible to provision fully automated, VPC native Kubernetes clusters on GCP, ensuring reproducible environments and reducing manual configuration drift
- Designed a secure CI/CD automation pipeline in Jenkins, utilizing Python scripts for dynamic SSH key management and automated backups, enabling one click cluster provisioning and disaster recovery readiness