

# Matthew Tristan Crowell

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## SUMMARY

Senior Software Engineer specializing in **distributed systems** composed of **Kotlin** and **Spring Boot** servers, **Compose Multiplatform** applications for **Android**, **iOS**, **Linux**, **macOS**, and **Windows**, and **Single Page Application Progressive Web App** web portals built with **TypeScript** and **Vue**, and **AI**-powered capabilities, including custom **Agentic AI** solutions with **Spring AI** and **Koog**. Creator of cloud-native platforms on **AWS** using **Pulumi's Infrastructure as Code** (IaC) and **Environment, Secrets, and Configuration** (ESC), **Kubernetes**, and **Helm**, with automated CI/CD pipelines in **TeamCity** integrating **Qodana** for static analysis, **Gradle** for Kotlin builds, and **Vite** for TypeScript builds. Believer in **Test Driven Development** (TDD), **Continuous Delivery** (CD), the **Agile Manifesto**, **Clean Architecture**, **Domain-Driven Design** (DDD), and **Modern Software Engineering** principles for building better software faster.

## CORE SKILLS

Kotlin • Spring Boot • Compose Multiplatform • TypeScript • Vue • Java • C++ • Qt/QML • Swift  
AWS • Kubernetes • Helm • Pulumi IaC • Pulumi ESC • Docker • CI/CD • Distributed systems  
AI Model Customization • Spring AI • Koog • Ollama • ChatGPT • Gemini • DeepSeek • Qwen • Mistral  
Gradle • Vite • Git • TeamCity • Qodana • CMake • Systems design • Cross-platform applications

## EXPERIENCE

### Founder & Lead Engineer — Confederated Technologies (CTI) • 2023–Present

- Delivered **cloud-native distributed systems** across **cloud servers**, **web**, **desktop** and **laptop**, and **mobile** clients.
- Built a **Compose Multiplatform application** for **Linux**, **macOS**, and **Windows** used in legal and medical research.
- Built an **automated patient import system** with strict data integrity, 95% coverage, and CI/CD.
- Architected CTI's **model-agnostic AI framework** using **Spring AI** and **Koog** for hosted, custom, and local inference.
- Delivered **AI-assisted features** including generation, classification, summarization, and decision support.
- Established **secure, testable AI integration patterns** suitable for regulated and cost-sensitive environments.

### Senior Software Engineer — Right On Cue Services • 2022–Present

- Built a **real-time sound effect engine** using C++20 and Qt/QML for 60% more performant DSP and playback.
- Modernized builds from custom scripts to **CMake** with QML modules and improved cross-platform architecture.
- Built a cloud-native platform on **AWS EKS** with full **CI/CD** and **Infrastructure as Code** automation.
- Refactored 37% of unusable **Android** and **iOS** apps and then replaced them with cross-platform **Qt/QML** applications.

### Software Engineer III — Ramsey Solutions • 2021–2022

- Built and maintained Spring Boot services powering Financial Peace University's mobile and web products.
- Contributed cross-platform features with full analytics and feature flagging for Android and iOS.
- Developed serverless ingestion and containerized cloud applications for data ingestion and analysis.
- Administered technical interviews and code reviews and mentored junior engineers.

### Freelance Software Engineer — Independent / Smoothstack • 2009–2022

- Built high-traffic **CPA Lead/ad-network systems**, Facebook apps, paywalls, and content-gating.
- Delivered **C++ utilities**, **Python tools**, and business integrations.
- Built **Java/Kotlin/Spring Boot** microservices with OAuth2, OpenAPI, async messaging, and service discovery.

## TECHNICAL STRENGTHS

Distributed systems • Cloud-native architecture • API design • Event-driven patterns • CI/CD pipelines • Observability (logs/metrics/tracing) and Analytics • Test automation • Cross-platform application development

## EDUCATION

B.A., History — Middle Tennessee State University • Summa Cum Laude (4.0 GPA)