

Michael L. Welles

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Overview

Principal software engineer with 15+ years building scalable SaaS platforms and data-intensive systems. Proven technical leader who designs robust architectures, mentors engineering teams, and delivers high-quality software in regulated environments including healthcare and insurance. Deep expertise in Python, cloud platforms (AWS/Azure), Kubernetes, and AI-driven systems. Track record of accelerating team velocity (2.5× at MediData) while maintaining code quality through pragmatic CI/CD and observability practices.

Core Technologies

Languages & Frameworks: Python, Go, Rust, TypeScript, Swift, Kotlin, Java **Data & Databases:** PostgreSQL, DynamoDB, Elasticsearch, Databricks, Spark **Cloud & Infrastructure:** AWS (SQS/SNS, S3, IAM, VPC, SageMaker), Azure, Kubernetes, Docker, Terraform **Reliability & Observability:** CI/CD, distributed tracing, metrics/logging, SLOs/alerting, incident response **Security & Compliance:** HITRUST, SOC 2, DoD compliance, zero-trust architecture, cryptographic verification

Experience

Consulting Principal Engineer, CubeNexus.ai

Aug 2025 - Present · Remote

Technical leader for geospatial intelligence SaaS platform with AI-powered querying and 3D visualization. Provide architectural guidance and hands-on development for scalable AI-first services.

- Rebuilt ingestion pipeline to handle multi-terabyte datasets using Python (PySpark, Pandas) with event-driven architecture for real-time telemetry streaming
- Hardened API backend (Python/FastAPI) for production workloads and established CI/CD across repositories
- Architected scalable distributed systems with containerization and cloud infrastructure (AWS)

Principal Engineer, Istari Digital

Feb 2024 - Jul 2025 · New York, NY

Technical leader for zero-trust SaaS platform enabling secure collaboration for cyber-physical systems. Led architectural decisions and mentored engineering team building compliance-focused solutions.

- Designed and implemented secure backend registry service using Python, FastAPI, SQLAlchemy, and PostgreSQL. Architected database schema for complex asset relationships, tuned queries for lineage traversal, and managed zero-downtime migrations
- Led team development efforts, conducted code reviews, and mentored engineers to ensure high-quality, maintainable code across the platform
- Ensured security and compliance with industry standards (DoD requirements, zero-trust architecture) through cryptographic verification and comprehensive audit trails
- Built CI/CD pipeline that validated all compliance requirements on each release, publishing results for ATO submission—enabling deployment on secure and classified networks
- Delivered all major milestones on time and successfully relaunched product for commercial and government clients

Director of Software Development, Raytheon Technologies

Sep 2021 - Nov 2023 · New York, NY

Technical lead for next-generation data platform serving aerospace applications. Designed scalable architectures and led team of 14 developers across multiple agile projects.

- Built streaming data platform (Databricks, Spark, Python) processing thousands of real-time engine sensors through fault detection and anomaly detection models, triggering severity-based automated alerts
- Designed ML model training and orchestration pipeline with comprehensive audit trails for compliance, tracing every output to specific code revisions or model versions
- Implemented parallel model evaluation using asynchronous patterns and concurrent processing to eliminate latency impact
- Supervised platform adoption for 40+ teams, creating SDKs for data parsing, quickstart kits, and synthetic data generators

- Drove architectural decisions ensuring platform scalability, reliability, and maintainability for safety-critical aerospace applications

Head of Technology, Dayforward

Jan 2020 - Sep 2021 · New York, NY

Technical leader and head of development for life-insurance SaaS startup. Designed scalable architecture and led team building algorithmic underwriting and policy-management platform in highly regulated insurance environment.

- Built platform with Go microservices on Kubernetes, federated GraphQL API, and Vue.js frontend
- Ensured compliance with insurance industry regulations and security standards for handling sensitive health and financial data
- Delivered complete platform development in under ten months, launching same day as regulatory approval
- Led technical decisions on architecture, tooling, and development practices for early-stage startup

Director of Software Engineering, UTC Aerospace Systems

Feb 2019 - Jan 2020 · Brooklyn, NY

Managed team of 17 engineers delivering multiple SaaS products. Established engineering standards and best practices across organization.

- Oversaw project teams building IoT sensors, mobile apps for industrial refrigeration, and developer tools
- Normalized engineering processes, documented standards, and evangelized best practices across teams

Lead Engineer / Chief Technologist, Riverdrop

Jan 2018 - Feb 2019 · New York, NY

Chief technologist for early-stage startup. Led team of three senior engineers building specialized product search engine.

- Designed ML-driven ETL pipeline using Python, spaCy, NLTK, and scikit-learn for product identification and NLP entity extraction
- Built image recognition and classification models on AWS SageMaker with OpenCV and scikit-image
- Architected event-driven data flow using AWS SQS/SNS with DynamoDB, implementing retry logic, dead-letter queues, and idempotency for reliable processing
- Developed search API in Go against Elasticsearch indexes and React.js/TypeScript frontend
- Deployed microservices as Docker containers via CI/CD to Kubernetes (managed with Terraform)

Director of Engineering (Mobile), MediData

Feb 2017 - Jan 2018 · New York, NY

Led engineering teams for Patient Cloud platform, a SaaS solution collecting clinical trial data from patients and clinicians in regulated healthcare environment.

- Managed products including ePRO, Patient Cloud, AppConnect SDK, Sensor Link wearables platform, and supporting backend services
- Ensured HIPAA compliance and security standards for sensitive patient health data
- Instituted organizational and process improvements that increased average team velocity by 2.5×
- Launched two major mobile initiatives and migrated all native development to Swift and Kotlin

Principal Architect / Director of Mobile, Huge

May 2013 - Feb 2017 · Brooklyn, NY

- Led cross-functional team of 20+ iOS, Android, and backend engineers, QA analysts, designers, and product managers
- Evangelized agile best practices, continuous integration, and continuous delivery
- Instituted engineering guild system for knowledge sharing and R&D. One guild initiative generated new product proposal securing \$5M development contract
- Championed innovation through technology investigations, engineering blog, meetups, and open-source contributions

Manager of Mobile Technology, Consumer Reports

Jul 2011 - May 2013 · Yonkers, NY

Founded mobile applications group and built in-house team for iOS/Android development. Launched flagship ratings application and managed external vendors.

Senior Software Engineer – iTunes Store Video Workflow Group, Apple

Mar 2008 - May 2011 · Cupertino, CA

Senior engineer responsible for encoding and assembling all iTunes video media. Owned encoding toolchain for processing cluster, specified deliverable formats, developed validation suites, and created reference media for hardware compliance testing. Led two major workflow rewrites for HDTV launch and international video expansion.

Education

Bachelor of Arts in History, The University of Chicago

Chicago, IL