

Michael L. Welles

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Overview

Product-minded backend engineer with 8+ years building scalable Python services for high-growth platforms. Proven track record delivering well-scoped features on time while championing best practices in system design, observability, and testing. Experienced collaborating with cross-functional teams (product, design, data) to ship high-quality features that drive creator engagement. I mentor engineers to build strong product engineering culture, compress the build-ship-iterate loop, and balance velocity with maintainability through pragmatic CI/CD and disciplined SDLC practices.

Core Technologies

Backend & Languages: Python (FastAPI, SQLAlchemy), Go, Rust, TypeScript ****Databases & SQL:**** PostgreSQL, DynamoDB, Elasticsearch, complex query optimization ****Infrastructure:**** Kubernetes, Docker, AWS (SQS/SNS, S3, SageMaker), Terraform ****Observability & Testing:**** Distributed tracing, metrics/logging, SLOs/alerting, automated testing ****Architecture Patterns:**** Event-driven systems, message queues, pub/sub, microservices, scalability

Experience

Principal Engineer, Istari Digital

Feb 2024 - Jul 2025 · New York, NY

Led team building secure backend registry service for digital collaboration platform serving creators and engineering teams.

- Built scalable backend service with Python, FastAPI, and SQLAlchemy on PostgreSQL. Designed database schema for complex asset relationships and metadata, tuned SQL queries for efficient lineage traversal, and managed zero-downtime migrations.
- Owned and delivered well-scoped product feature milestones on time. Drove technical design of components that were scalable, well-tested, and maintainable. Advocated for best practices in system design, performance, and observability.
- Collaborated closely with product managers and designers to deliver high-quality features. Mentored engineers on backend patterns, SQL optimization, and testing strategies.
- Established CI/CD pipeline that validated compliance requirements on each release, enabling rapid iteration while maintaining quality.

Consulting Principal Engineer, CubeNexus.ai

Aug 2025 - Present · Remote

Building geospatial intelligence platform backend with Python and event-driven architecture.

- Rebuilt ingestion pipeline to handle multi-terabyte datasets using PySpark and Pandas, processing complex geospatial data at scale.
- Added real-time telemetry streaming with event-driven architecture, implementing pub/sub patterns for high-throughput data processing.
- Hardened API backend with Python and FastAPI, implementing comprehensive testing and observability. Established CI/CD across repositories.

Director of Software Development, Raytheon Technologies

Sep 2021 - Nov 2023 · New York, NY

Technical lead building real-time data platform for aerospace applications with Python, Databricks, and Spark.

- Built streaming data platform processing thousands of sensors through fault detection models, triggering severity-based automated alerts. Designed system for scalability, comprehensive testing, and maintainability.
- Designed ML orchestration pipeline with complete audit trails. Implemented parallel model evaluation using asynchronous patterns and concurrent processing without adding latency.
- Led "inner-source" initiatives creating SDKs, quickstart kits, and synthetic data generators to accelerate team productivity and establish engineering best practices.
- Led team of 14 developers across three agile projects, mentoring engineers and championing product-minded engineering culture.

Head of Technology, Dayforward

Jan 2020 - Sep 2021 · New York, NY

Head of technology for life-insurance startup. Led small team building algorithmic underwriting platform.

- Built platform with Go microservices on Kubernetes, federated GraphQL API, and Vue.js frontend. Delivered initial development in under ten months, launching same day as regulatory approval.
- Championed innovative solutions enhancing usability and engagement. Collaborated with product managers to deliver high-quality features balancing user needs with technical constraints.

Lead Engineer / Chief Technologist, Riverdrop

Jan 2018 - Feb 2019 · New York, NY

Led team of three senior engineers building specialized product search engine.

- Designed ML-driven ETL pipeline with Python (spaCy, NLTK, scikit-learn) for product identification and entity extraction. Built image classification models on AWS SageMaker.
- Built event-driven processing with AWS SQS/SNS and DynamoDB, implementing retry logic, dead-letter queues, and idempotency for reliable processing at scale.
- Developed search API in Go against Elasticsearch indexes. Architected microservices system with discrete transformation steps, packaged as Docker images and deployed via CI/CD to Kubernetes.

Director of Engineering (Mobile), MediData

Feb 2017 - Jan 2018 · New York, NY

Led engineering teams for Patient Cloud platform collecting clinical trial data from mobile devices and wearable sensors.

- Managed products including mobile apps (iOS/Android) and supporting backend services. Launched two major initiatives and migrated all native development to Swift and Kotlin.
- Instituted organizational and process improvements that increased average team velocity by 2.5× through pragmatic CI/CD, testing practices, and cross-functional collaboration.

Principal Architect / Director of Mobile, Hugu

May 2013 - Feb 2017 · Brooklyn, NY

- Led cross-functional team of 20+ 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 product proposal securing \$5M development contract.
- Championed innovation through technology investigations, engineering blog, meetups, and open-source contributions.

Senior Software Engineer – iTunes Store Video Workflow Group, Apple

Mar 2008 - May 2011 · Cupertino, CA

Senior engineer on team responsible for encoding and assembling all iTunes video media. Owned encoding toolchain for processing cluster, specified media formats, developed validation test suites. Led two major workflow rewrites for HDTV launch and international video expansion.

Founder, Partner, Bangstate

Jun 1999 - Mar 2008 · New York, NY

Founded and managed five-person development consultancy. Delivered projects for clients including The Associated Press, American Bar Association, Atlantic Records, Forbes Magazine, and Time Inc.

Education

Bachelor of Arts in History, The University of Chicago

Chicago, IL