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Education

Ph.D. & **M.A.**, Music, Harvard University, 2015

Dissertation: *A computational model of music composition*

Documents low and high-level APIs, techniques and tooling for modeling music notation and symbolic music composition in Python, along with examples of musical works built using these tools.

M.A., Music, Harvard University, 2015

B.Mus., Oberlin Conservatory of Music, 2006

Employment

DevOps Contractor, Phaselaw, 2025-

- Administered SOC2-certified infastructure across multiple regions and multiple EKS clusters in a fast-paced early startup environment.
- Consolidated data from dozens of single-tenant RDS instances into per-region multi-tenant Aurora clusters, and dozens of single-tenant OpenFGA installations into per-region multi-tenant installations.
- Reduced month-over-month AWS spend by tuning Karpenter consolidation parameters and adjusting machine-learning pipeline compute.

Staff Software Engineer, Cortico AI, 2021-

- Reorganized unmanaged legacy AWS infrastructure into Terraform managed infrastructure following best practices such as network and environment separation.
- Implemented "one-click" GitOps deployment pipeline for the entire application stack in GitHub actions with ArgoCD.
- Reorganized legacy monolithic codebase to make service oriented architecture obvious, and dead code elimination possible.
- Architected an internal-facing GraphQL API and external-facing ReST API via a shared business layer to reduce code duplication and guarantee identical business semantics across all access patterns.
- Instituted enforcement of formatting, linting and static type analysis in CI.
- Spearheaded integration of new technologies into existing ecosystem, such as GraphQL, asyncio, and Celery.
- Integrated OpenTelemetry distributed tracing for inter-service monitoring.

Master Software Engineer, Capital One, 2020-2021

- Assisted with migration of core account and transaction processing off of legacy mainframes and into modern cloud-native implementations.
- Maintained over a dozen Cassandra clusters, addressed security vulnerabilities and other enterprise compliance issues, developed in-house tooling for managing Cassandra schema migrations.
- Implemented Docker-Compose- and Kubernetes-based flavors of performance- and integration-testing environments for hybrid containerized/serverless systems, including push-button pipelines for provisioning K8S-based environments.
- On-call for service outages, incidents, and late-night systems maintenance.

Senior Software Engineer, Capital One, 2018-2020

- Implemented local integration testing for hybrid servered/serverless systems using Docker-Compose, LocalStack, Serverless and Terraform.
- Modernized build pipelines for speed and legibility, wrote shared pipeline libraries, and integrated Jenkins with Slack for better build status visibility.
- Developed workflows for packaging and deploying Serverless applications within CapitalOne's ecosystem.
- Triaged security compliance issues.
- Maintained legacy hotel arbitrage monolith service, added extensive testing, and prepared for switchover to next-generation replacement.
- Architected next-gen event-sourced/CQRS system for hotel arbitrage.
- Implemented entity-resolution microservice for matching hotel names and addresses against Priceline's dataset.
- On-call for service outages and incidents.

Developer, Discogs, 2015-2018

- Refactored and extended test coverage on a large legacy Python 2.7 codebase.
- Developed new features to support the buyer and seller experience, including an improved record collection feature and shipping labels.
- Created and deployed containerized applications to Discogs' Kubernetes cluster.
- On-call for Discogs' central authentication service.

Research Technical Assistant, MIT Music and Theater Arts Department, 2013-2014

- Implemented API documentation system.
- Refactored and parallelized musical corpus metadata population and search.
- Optimized musical data structures for rapid lookups by timing information.

Teaching Assistant, Harvard University, 2010-2014

- Taught courses at the graduate and undergraduate level in digital signal processing, interactive software for artists, sound reinforcement, acoustics and music theory.
- Led students in installing massively-multi-channel speaker arrays.

Programmer, Forced Exposure, 2006-2008

- Implemented automated documentation preparation workflows for product catalogs and email campaigns (still in use to this day!).
- Assisted in creation of new B2C mail-order website.

Technical Skills

Languages: Python (since 2009), with additional experience in Golang, Java & Node

Development Tools: Unix command line environment, git, vim, LaTeX, GitHub Actions & Jenkins, Docker & Docker-Compose, Terraform, Vault & AWS, Kubernetes, ArgoCD, Karpenter, Kustomize & Helm, Datadog, Sentry, Metabase, New Relic, Prometheus

Databases: MySQL & PostgreSQL, DynamoDB, Redis, Memcached

Python-specific Tools: aiohttp, boto3, celery, django, flask, mypy, numpy, pytest, sphinx, sqlalchemy, starlette, etc.

References available upon request
Last updated: January 26, 2026