

# Michael F Vertuli

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## Relevant Work Experience

### Software Engineer, Spotify, New York NY, 4/2022 - 6/2023

- Led the planning, architecture, prototyping, and delivery of critical data pipelines and entity resolution systems underlying a Music Knowledge Graph built on neo4j along with a series of new data products enriching Spotify's petabyte-scale catalog, including authoring and gaining organization-wide consensus on critical RFCs, data models, shaping product OKRs, and serving as Tech Lead for the year long project.
- Quickly prototyped new data pipelines from scratch, first in SQL on GCP BigQuery with Luigi orchestration in Python, then iteratively productionizing with Scio in functional Scala, GCP Dataflow, GCP Bigtable, etc. to ingest and process variously structured external and internal data from disparate data sources.
- Collaborated closely with ML Research and Data Science teams to develop new models in Tensorflow and PyTorch for generating, ranking, and consolidating graph connections between external datasets and Spotify's internal catalog, as well as final entity resolution.
- Established metrics for data quality in coordination with downstream consumer teams and collected ground truth data from providers and human-in-the-loop annotators for model training and evaluation.
- Built and maintained scalable, highly-available backend services in Java using Apollo, Spring, gRPC, etc. to deliver extracted data products to user-facing teams that powered critical client elements i.e. Songwriter Credits, Spotify4Publishing, etc.
- Contributor and active member of the Machine Learning Guild, Data Engineering Guild, and Music Industry Ontology Working Group, driving ML and Data impact across organization.

### Software Engineer, Premise Data, San Francisco CA, 12/2021 - 3/2022

- Migrated core Scala (Typelevel) backend microservices powering key in-app user features from GCP AppEngine to CloudRun and as part of an Infrastructure as Code push replaced existing complex Artifactory and Jenkins-backed CI/CD pipelines with one using Terraform, GitHub Actions, Docker, Artifact Registry, etc.
- Utilized typed API descriptions with Tapir to define microservices' HTTP endpoint as well as built a CI/CD pipeline and central repository to store exported Swagger/OpenAPI specifications to a central repository and generate API client libraries in Scala, Java, and Python for each microservice.

### Software Engineer, Datasemby, Washington DC, 11/2020 - 10/2021

- Built a large collection of web and mobile scrapers in functional Scala using Typelevel-ecosystem libraries (cats-effect, monix, http4s, etc.) within a monorepo to successfully send requests and asynchronously process responses to a diverse set of public APIs with Kafka, Flink, and Snowflake to extract up-to-date pricing information on millions individual consumer products.
- Improved uptime across the organization by introducing and championing Test Driven Development practices, including new robust unit/integration tests for new and existing scrapers.

### Software Engineer, Factual, Los Angeles CA, 3/2019 - 4/2020

- Built new petabyte-scale batch data pipelines into production using Spark's typesafe dataset API in Scala and developed Airflow DAGs and relevant operators to orchestrate them on our petabyte-scale data saved in a Hadoop cluster, eventually migrating existing Hive pipelines using older orchestration tools to this new pattern.
- Authored data science investigations and prototyped machine learning models using Jupyter, pandas, numpy, scikit-learn, XGBoost, etc., eventually training and productionizing ML models with spark.ml to generate new data products.
- Built internal web applications using Django and Postgres to deliver insights and analytics to sales engineering and product teams as well as real-time alerts to relevant engineering teams.

### Founder, Newton American Education Studio, Shanghai CN, 7/2011 - 3/2016

- Founded and managed the staff of a Shanghai-based educational consultancy that offered STEM tutoring, test preparation, and admissions counseling for students aiming to study abroad in the US.

## Education Experience

- B.S. Physics, Pennsylvania State University, 2008
- Ph.D. (incomplete) in Astrophysics, Colorado State University, 2008