Andrew Omar Loutfi

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PROFESSIONAL EXPERIENCE

American Tire Distributors (ATD), *Charlotte, North Carolina*

Technical Lead *(August 2024 - Present)*
• Led the creation and implementation of an enterprise-wide OKR focused on improving software ecosystem maintainability, health, and cloudspend
• Managed engineers, analysts, and PMs of all skill levels, provided mentorship in implementation, XP, SDLC, and agile paradigms
• Collaborated with senior leadership to align technical strategy with business objectives, resulting in the successful delivery of multiple high-visibility projects
• Led architectural decision-making for critical software projects, driving alignment between engineering and product teams across the enterprise

Senior Software Engineer *(January 2024 - August 2024)*
• Spearheaded SOC2 audit compliance through automation and IaC efforts, reducing manual overhead for access management by 60%
• Led a team of engineers to refactor legacy ETL systems, reducing system downtime by a factor of 3 and monthly compute spend by 20%
• Mentored junior engineers on microservice architecture, helping them transition to using modern Kubernetes and Docker-based deployments

Torqata, *Charlotte, North Carolina*

Senior Software Engineer *(April 2023 - August 2024)*
• Engineered and implemented bespoke Shop Management System integrations between Torqata and 19,000 vehicle service providers
• Developed and evangelized plug-and-play data lineage/provenance system, enabling comprehensive visibility over elastic task-based data processing systems
• Led cross-functional teams to create real-time monitoring solutions for data pipelines, improving failure detection and resolution times by 40%
• Worked closely with product teams to identify and resolve high-impact technical debt, leading to improvement in overall developer efficiency

Software Engineer *(February 2022 - April 2023)*
• Architected and implemented Python-based Kubernetes microservices to create event-driven and large-scale business-critical ETL pipelines
• Conceptualized and spearheaded highly available Big Data as a Service API and message-streaming product

OneOme, *Minneapolis, Minnesota*

Software Engineer II *(September 2021 - February 2022)*
• Collaborated with Data Science, Clinical Development, and Insurance Arbitration teams to build a PGx stratification system to run on policyholder datasets
• Created full-stack HIPAA-compliant web applications to deliver valuable genetic drug interaction information to patients and providers
• Established a completely new development team from hiring to onboarding, including a tech lead and 4 new engineers

Software Engineer *(February 2020 - September 2021)*
• Overhauled medical report generation system to ensure rapid delivery of new genetic data from the clinical team while reducing system cost by 30%
• Acted in an SRE capacity to ensure 99.9 % uptime for Electronic Health Record integrations, responsible for 72% of the company's total order volume

Minnesota Traffic Observatory, *Minneapolis, Minnesota*

Software Engineer *(March 2016 - February 2020)*
• Conceptualized and built a novel Smart Work Zone management system used by Minnesota, Washington, and South Dakota DOTs
• Administered over on-premise server blades and a fleet of ~50 road-side data collection stations, ensuring 99% uptime during Minnesota Winters
• Collaborated with Transportation Researchers to build algorithmic tools and methodologies to handle data collection and analysis at large scale
• Managed a team of transportation study participants to build and curate terabyte-sized datasets used in 14 different MnDOT studies

SKILLS

Languages: Python, Git, Terraform, GraphQL, SQL, Bash, JavaScript
Platforms/Frameworks: Linux, Kubernetes (k8s), Docker, GitHub Actions, Grafana, Prometheus, PostgreSQL, MongoDB, dbt, Apache Kafka & Airflow, Heroku, Auth0, Helm
Python Frameworks: Pytest, Pandas, FastAPI, Flask, Django
Amazon Web Services: EC2, ECS, EKS, RDS, Kinesis, CloudFormation, Lambda, CodeArtifact, S3
Google Cloud Platform: GKE, PubSub, Cloud Functions, Cloud Run, App Engine, Cloud Storage, Cloud Composer
Paradigms: Agile, SRE, SDLC, DevOps, DevSecOps, unit testing, integrations testing, Test Driven Development, Large Language Models, backend development, DevEx, machine learning, cloud infrastructure

PROJECTS

Cloud-Based Platform and Infrastructure Initiatives
• Torqata: Created process and implementation of core Docker Image to aid in zero-touch security vulnerability resolutions
• Torqata: Conducted Kubernetes horizontal auto-scaling profiling and optimization across multiple teams
• OneOme: Migrated Repository, Continuous Integration, and Continuous Deployment functionality from Bitbucket to GitHub
• OneOme: Migrated Infrastructure-as-code implementation from CloudFormation to Terraform

Common Data Platform initiative - ATD
• Architected and developed a reusable template repository to streamline Kubernetes-based project creation and management
• Implemented Kubernetes-based services for data ingestion from SFTP/API sources and data synchronization to Microsoft CRM
• Helped build a GCP Cloud Composer (Apache Airflow) based system to sync data from distribution centers to Apache Snowflake and BigQuery
• Drove adoption of reusable CI/CD GitHub Actions ensuring SOC2 compliance for secure and consistent deployment pipelines

Enterprise Security, CI/CD, and Infrastructure Automation - ATD
• Collaborated on the design and implementation of enterprise-wide Infrastructure as Code via Terraform and GitHub Actions to automate the management and ensure SOC2 compliance of GitHub organizations and GCP projects
• Developed and implemented reusable GitHub Actions to standardize CI/CD processes across the enterprise
• Built and streamlined package-based vulnerability resolution tooling, reducing median time to remediate by 37%
• Served as the primary go-to expert for several critical security incidents, providing swift and effective responses to mitigate risks and restore services

Shop Management System (SMS) ETL Pipeline - Torqata
• Improved resilience and scalability of a Kubernetes ETL pipeline, enabling it to process 17 TB of SMS data in under 5 hours and new data in real-time
• Re-architected and engineered overhaul of pipeline components, including conversion of API call-based handoffs to using a robust message queue
• Enabled team to maintain 99.08% up-time, ensuring a reliable flow of data to all downstream services
• Oversaw and assisted with upgrade of 12 api based microservices from Flask to FastAPI, resulting in a 30% decrease of needed pod replicas under max load

Shop Management System (SMS) Integrations - Torqata
• Implemented a highly extensible and scalable system to pull data from a multitude of integration partners
• Collaborated with integration partners to help them understand how our system uses their data and how it is securely stored
• Overhauled and improved integration pipeline to concurrently pull data from over 1,000 integration partner rooftops with high reliability and fault tolerance

Shop Management System (SMS) data lineage/provenance service - Torqata
• Aggregates and disseminates actionable data health information about daily SMS file drops and their status to internal Torqata teams
• Assisted with rapid adoption of service functionality with Data Analytics, support, and customer-facing teams
• Resulted in automation of data health and loss triaging processes, decreasing time to resolution by a factor of 5
• Won the company's annual Innovation Excellence Award in 2023

Data as a Service (DaaS) API and Streaming service - Torqata
• Created REST API Gateway to enable external businesses to pull data from Torqata's systems securely, currently handles ~400 concurrent requests/min
• Aligned and collaborated with ATD to present market insights data from Torqata through the API Gateway within ATD's public-facing Radius Platform
• Architected and built a streaming router to stream petabyte-scale data to 4 major tire manufacturers via an implementation-agnostic observer pattern
• Established processes around rapidly exposing and serving new data to adapt to what the data integration partners need from Torqata

Pharmacogenomic (PGx) Patient Stratification System ETL Pipeline - OneOme
• Enabled organization to identify patient populations that would benefit from OneOme's PGx test offerings
• Authored Comprehensive Software Requirements Specification Document for the system while collaborating with the Data Science Team
• Rebuilt R-based prototype in Python, resulting in a ~240% speed increase for the system to run over policyholder datasets of over a million records

State-Wide Work Zone Information System (SWIS) - Minnesota Traffic Observatory
• Conceptualized algorithm and implementation of a prototype system to track and monitor roadwork assets
• Enables automated traffic control inspection compliance to aid in determining traffic control inspection compliance
• Developed Python Library to run efficiently on a variety of battery-powered IoT devices
• Facilitated project funding from a variety of state-level, academic, and private sources

EDUCATION

Master's of Science: Software Engineering - University of Minnesota • Minneapolis, MN • 2019-2021
Bachelor of Arts: Computer Science - Luther College • Decorah, IA • 2015-2017

PHILANTHROPY

Volunteer - The Food Bank Market
• Assisted in sorting and organizing food donations for distribution to those in need
• Supported distribution counters, ensuring efficient and respectful service to all clients
• Helped maintain cleanliness and order in high-traffic areas, enhancing the shopping experience for visitors
• Collaborated with a dedicated team of volunteers to prepare and assemble food boxes, including Senior Boxes and Produce Boxes