

# Andrew Omar Loutfi

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## IMPETUS

A research-oriented Architecture First Software Engineer with deep specialization in data-intensive Kubernetes microservices written in python.

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## SKILLS

**Languages:** Python(3.11), SQL, JavaScript, Bash

**Platforms and Services:** Kubernetes, AWS-(EC2, ECS, CloudFormation, Lambda, CodeArtifact), GCP-(GKE, Cloud Functions, Cloud Run, App Engine, Vertex), Netlify, Heroku, Auth0, ChatGPT, Raspberry Pi

**Tools and Infrastructure:** GitHub Actions, Terraform, Helm, ArgoCD, Telepresence, buildx, Kafka, Docker, pre-commit, Ansible

**Frameworks:** FastAPI, Flask, Django, Pydantic, Pandas, Pytest, Coverage, SQLAlchemy, Node.js

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## EXPERIENCE

### Senior Software Engineer

Torqata

February 2022 - Present, Charlotte, NC

- Architected & implemented GKE-based Kubernetes microservices for scalable, inbound & outbound ETL pipelines.
- Introduced provenance sub-service to monitor pipeline health, reducing data loss triage time by 62%.
- Conceptualized, evangelized, and executed org-wide OKR to migrate from Flask to FastAPI for REST-based microservices. Reduced churn by 48%.
- Mentored engineers and managers of all skill levels in XP, SDLC, and agile paradigms.

### Software Engineer

OneOme

February 2020 - February 2022, Minneapolis, Minnesota

- Involved in various projects involving engineering, implementation, and improvement of internal and patient/provider-facing systems
- Acted as an intermediary and translator between the software development team and diverse project stakeholders during outbound integration projects.
- Migrated codebase from Bitbucket to Github.
- Supported process improvement and R&D initiatives that yielded increased productivity across the development team.
- Acted as point-of-contact during the onboarding of a completely new team.

### Software Engineer

Minnesota Traffic Observatory

March 2016 - February 2020, Minneapolis, MN

- Administered over various critical remote Raspberry Pi based data collection and on-premise lab systems.
- Actively contributed to the publication of 2 academic research papers.
- Conceptualized and built a novel Smart Work Zone management system.
- Managed and mentored a team of Computer Science Undergrad students.

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## EDUCATION

### Master's of Science: Software Engineering

University of Minnesota • Minneapolis, MN

### Bachelor of Arts: Computer Science

Luther College • Decorah, IA

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## PROJECTS (ABR.)

### Integrations implementation and management

Torqata & OneOme

- Collaborated with various teams to enable integration between in-house data and external systems
- Engineered and implemented bespoke integrations between OneOme and various healthcare institutions.
- Sustained 99.9% uptime for integrations that handle 41% of total order volume between internal systems and external customers.

## **Cloud Infrastructure implementation and maintenance**

Torqata & OneOme

- Developed and deployed container and task based web and data driven applications to GCP, AWS and Heroku from scratch.
- Maintained, patched, and improved existing cloud-native applications.
- Discovered, vetted, and evangelized new technologies for use by development teams across both organizations.

## **PGx Score**

OneOme

- Collaborated with OneOme's data science team to build a cloud-native patient population scoring and stratification ETL Pipeline.
- Optimized system by translating prototype from R to Python, resulting in 238% speed increase.
- Authored comprehensive Software Requirements Specification document for system.

## **Linux based sensor data collection**

MTO

- Developed software to gather and transmit video, radar, and induction-loop based data based on a user defined schedule.
- Deployed and maintained raspbian and debian based systems utilizing this software.
- Ensured uptime during Minnesota Winters.

## **Publications**

- Structural Pattern Matching (talk): [https://github.com/aloutfi/pmatch\\_pymntos](https://github.com/aloutfi/pmatch_pymntos).
  - Stop Lines Effectiveness and Impact (paper): <https://conservancy.umn.edu/handle/11299/216514>.
  - Statewide Work Zone Information System (paper): <https://conservancy.umn.edu/handle/11299/208582>.
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