Adam Patterson

1952 McIntyre Street, Ann Arbor, MI, 48105
mailto:adpatter2000@gmail.com tel:734-418-0705
https://github.com/adpatter
https://www.linkedin.com/in/adamjpatterson/

INTRODUCTION

Data Architect and Full-Stack Engineer with **10+ years** of experience delivering solutions across health sciences, education, mechanical systems, telephony, and agentic AI. Holds a **Master's degree** in Applied Data Science from the University of Michigan.

EDUCATION

Master of Applied Data Science
University of Michigan – Ann Arbor (4.0/4.0)

Bachelor of Science
University of Michigan – Ann Arbor (3.6/4.0)

Certificate in C++ Programming
Washtenaw Community College (4.0/4.0)

SKILLS

Programming Languages
C++, Java, **JavaScript**, **Node.js**, **Python,** PL/SQL, R, SQL, **TypeScript**

Cloud Computing
AWS ECS Fargate, **CloudFormation**, API Gateway, S3, AWS Lambda, IAM

Network Programming
HTTP, REST, RPC, and **WebSocket APIs**; TCP/IP; and secure networking protocols (SSL/TLS)

Geographic Information Systems
ArcGIS Pro (Python scripting)

Data Science
Model fitting, evaluation, and imputation (Scikit-learn, PyTorch, etc.), visualization (ggplot2, Altair, Matplotlib, Plotly, etc.), data manipulation and big data processing (Pandas, Tidyverse, Spark, and MapReduce), and **LLMs** and **Agentic AI** (Transformers, Llama, OpenAI, Claude) and VoIP (Telnyx, Twilio, Deepgram, Cartesia, 11Labs)

AWARDS
United States President's Volunteer Service Award

PUBLICATIONS
Coauthored 4 published articles in the health sciences domain.
ORCID: https://orcid.org/0000-0003-3893-8670

EMPLOYMENT

University of Michigan September 2017 to Present
Michigan Medicine – Ann Arbor, MI
Data Architect (current role)

- Led our data engineering team and provided guidance on data curation topics to a diverse community of researchers. I was appointed as a departmental liaison with Information Assurance in order to ensure alignment with UM information security standards.
- Engineered a data integration system (Python/Pandas) using object-oriented design patterns that cleaned, transformed, and integrated institution wide data sources (SQL databases, HTTP APIs, and flat files) for the production of analysis datasets for scientific research.
- Applied data science (Pandas, Numpy, Scikit-learn, etc.), statistical methods, and advanced visualization methods (Plotly, Altair, D3) in order to further the research goals of the Laboratory.
- Ensured compliance with institutional HIPAA regulatory requirements.

School of Information - Ann Arbor, MI
Software Engineer (previous role)

- Developed full stack web applications (Python backend and JavaScript/TypeScript frontend), which were deployed to the Coursera open learning environment, in order to improve learning outcomes.
- Deployed scalable infrastructure using CloudFormation (e.g., JuptyerHub using AWS ECS Fargate) in order to support research studies.
- Engineered flawless full stack telemetry implementations that collected terabytes of data for scientific research (Python, TypeScript).
- Implemented innovative cloud storage solutions that significantly reduced data transfer and storage costs for the Laboratory.
- Developed software that automated database migrations.
- Ensured compliance with FERPA regulations.

Washtenaw Community College January 2015 to September 2017
Energy Services - Ann Arbor, MI
Systems Analyst

- Developed multiple full stack web applications (Java, JavaScript) including a key request system and an energy dashboard that integrated the college's 19 EIG Shark and Nexus Meters (Modbus API) for monitoring energy usage.
- Developed SQL queries and visualizations in order to monitor and improve work performance and inventory audits.
- Performed security audits on Division's Windows and Linux servers and devices and identified improvements to Division's IT security infrastructure.

GITHUB PROJECTS
Developed several production-grade open source projects including the **Dialog** VoIP-Agent framework, the **Socketnaut** server scaling framework, the **Streams** Logger, and the **Network-Services** type-safe RPC facility.

GitHub Profile: https://github.com/adpatter