

Michael Yang

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EDUCATION

University of Illinois at Urbana-Champaign

Aug 2023 – May 2027

Bachelor of Science in Computer Engineering

GPA: 3.65/4.0

- **Relevant Coursework:** Data Structures, Algorithms, Operating Systems, Artificial Intelligence, Applied Machine Learning, Data Mining, Database Systems, Computer Networks, Distributed Systems, Computer Architecture

WORK EXPERIENCE

Amazon

May 2026 – August 2026

Software Development Engineering Intern

San Diego, CA

- Created a Amazon Neptune knowledge graph recommendation system with over 750 million entities connecting 10M customers, 4,096 sparse-autoencoder generated behavioral personas, and a four-level Semantic-ID hierarchy
- Built 11 REST endpoints using API Gateway and Lambda with parameterized openCypher queries; achieved 56 ms p50 and 138 ms p95 latency, while adding server-side batching to reduce response times by 82%.
- Designed a weekly blue/green batch rebuild using Cradle, SageMaker Processing, Step Functions, Lambda, and Neptune; implemented the processing pipeline and SigV4 snapshot/reset/bulk-load/validation control plane.
- Made an RQ-VAE's machine-learned product groupings interpretable by supplying purchase-weighted taxonomy data and ASIN details for a Bedrock agent to label behavioral subcategories with 100% coverage.
- Wrapped graph endpoint tools and chained prompt workflows into a MCP server for natural language queries

Amazon

May 2025 – Aug 2025

Software Development Engineering Intern

San Diego, CA

- Built a scalable CI/CD pipeline to automate batch vector embedding generation for 100M-parameter Foundational Behavioral Model training, reducing runtime by 35% and compute costs by 10% while maintaining 99.5% accuracy
- Developed a serverless ML workflow with AWS Lambda, Step Functions, S3, and SageMaker, enabling Applied Scientists to analyze payment fraud and backfill datasets across 150M+ daily customer orders, views, and searches
- Optimized real-time TrafficStream Dataset queries by 15% through distributed customer group hashing in Pyspark
- Helped integrate internal agent using Strands with custom case retrieval and order lookup tools to enhance context-aware reasoning in a fraud investigation assistant prototype while also creating evaluation metrics

Fahnestock Research Group, University of Illinois Urbana-Champaign

Jan 2024 – Present

Undergraduate Research Assistant

Champaign, IL

- Architected a Model Context Protocol (MCP) server integrating a vector database and tool-calling endpoints, enabling AI agents to automate simulation execution, extract seismic data, and retrieve domain protocols
- Engineered an ML inference pipeline integrating external Geolocation REST APIs, XGBoost models, and a randomized greedy optimizer to design multi-objective steel structures, achieving >90% validation accuracy
- Awarded the Illinois Scholars Undergraduate Research Scholarship (1 of 20), selected for the PURE program (1 of 40), and won Best Audience Choice Award at the Undergraduate Research Symposium among 100+ projects

MH3D Inc.

May 2024 – Aug 2024

Software Engineering Intern

Commerce Township, MI

- Developed a .NET C# WinForms application with C++/CLI interop for real-time SPECT detector control
- Deployed a MySQL user database on AWS RDS with IAM authentication for secure and scalable access control

PROJECTS

vault! - iOS Time Capsule App

May 2024 – May 2025

- Architected SwiftUI client using MVVM state management and built a real-time camera capture and filter pipeline with AVFoundation; integrated MapKit-based location tagging and geographic post discovery for time capsules
- Optimized Firestore-backed content retrieval with lazy pagination, batched reads, and client-side caching, reducing network overhead and enabling smooth infinite scrolling in feed and map-based content views

TECHNICAL SKILLS

Programming Languages: C, C#, C++, Python, Java, SQL, JavaScript, TypeScript, Swift, RISC-V Assembly

Frameworks & Libraries: React, Node.js, Flask, .NET Framework, Pandas, NumPy, OpenSeesPy, PySpark

Cloud & Tools: Git, Docker, AWS (S3, EC2, ECS/Fargate, RDS, Lambda, SageMaker, SNS/SQS, Step Functions)

Licenses & Certifications: AWS Certified AI Practitioner, AWS Certified Cloud Practitioner