

Alexander Theis

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EDUCATION

The Ohio State University

GPA - 3.71

Bachelor of Science in Computer Science & Engineering, Mathematics Minor

August 2022 – December 2026

Relevant Coursework: Operating Systems, Data Structures & Algorithms, Web Dev, Networking, Databases, AI/ML

EXPERIENCE

The Ohio State University

September 2024 - Present

ML Research Assistant

Columbus, OH

- Built a PyTorch package for group-invariant embeddings, reducing geometric distortion and improving stability of downstream ML models.
- **97%** classification accuracy achieved on benchmark datasets with very limited training data by training ML models to learn template vectors that optimized max filter embeddings.
- **600%** accuracy improvement over CNN baselines on texture classification tasks, while matching CNN performance on ECG tasks with significantly lower data requirements.
- Integrated symmetry-aware representations with scikit-learn and PCA, accelerating dimensionality reduction and reducing training memory usage (LDA infeasible without PCA).
- Scaled pipelines to handle symmetry-influenced data (permutations, rotations), enabling more efficient orbit recovery and graph learning.

Nike

May 2024 - August 2024

Cloud Security Intern

Atlanta, GA

- Boosted operational efficiency by **21%** utilizing policy automation (c7n) to streamline operations and improve AWS service workflows across all TechOps departments.
- Enhanced responsiveness of vulnerabilities reports by **16%** across AWS resources through collaboration with multiple Tech Ops teams.
- Developed Python Matplotlib scripts to create visual analytics on vulnerability reports of resources in AWS, allowing for immediate analysis on cloud security
- Developed **RESTful** APIs in Python for vulnerability report management, improving response time by **10%**

The Ohio State University

May 2023 – July 2023

SWE Research Assistant

Columbus, OH

- Co-developed an inventory management system for Columbus' Go Lunch! program, supporting 200,000+ schoolchildren.
- Collaborated with vendors, site managers, and administrators to design intuitive dashboards that improved program oversight.
- Built a full-stack application using TypeScript, React, Next.js (front-end) and Express.js (back-end) to deliver a seamless user experience.

PROJECTS

Economic Mobility Indicator — Code for Good | *React, TypeScript, FastAPI, SQLite*

November 2025

- Built a full-stack web platform visualizing economic mobility across 10 Atlanta counties using several metrics.
- Implemented an economic mobility indicator with comparative insights to identify county-level areas for targeted improvement.
- Developed interactive visualizations and automated trend analysis to support data-driven decision-making for CareerRise.
- Collaborated with a 7-member team and JPMorgan Chase mentors to design system architecture, integrate backend pipelines, and deliver a functional prototype in 24 hours.

TECHNICAL SKILLS

Languages: Java, Python, C, Ruby, JavaScript, SQL, Assembly, MATLAB, Kotlin, TypeScript, R, HTML/CSS, Verilog

Frameworks & Libraries: Bootstrap, Express.js, Flask, Ruby on Rails, Next.js, FastAPI, JUnit, Unittest

Development Tools: AWS (EC2, S3), Linux, Git, Jupyter, Docker, Kubernetes, WireShark, Cursor, Copilot

ML Tools: PyTorch (CUDA), Scikit-Learn, Numerical Methods, Dimensionality Reduction