

MEGAN CODEN

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EDUCATION

University of Michigan, Ann Arbor, MI

April 2023

Bachelor of Science with High Distinction

GPA: 3.99

- Majors: Computer Science; Molecular, Cellular, and Developmental Biology
- Honors Thesis: *Using machine learning to predict Clostridioides difficile infection severity*
- Awards: Phi Beta Kappa, James B. Angell Scholar, William J. Branstrom Prize, AXΣ Outstanding 1st Year
- Relevant coursework: Genomic Biology, Artificial Intelligence, Software Engineering, Web Systems

EXPERIENCE

Senior Associate Engineer—MathWorks

2025 - present

- Developed Digital Twins method for pharma analysis, accounting for nonuniform data collection types.
- Exposed MONAI Label APIs in MATLAB, enabling medical image processing through the command line.
- Resolved complex technical escalations for 50+ clients using MATLAB and other MathWorks products.
- Authored comprehensive technical documentation, capturing root-causes to accelerate future resolutions.

Associate Software Engineer—Optum

2024 - 2025

- Created an internal developer portal to enforce engineering excellence principles and streamline deployment and maintenance across teams. Presented at DevDays (internal conference), driving adoption.
- Refactored API with modular architecture and implemented automated unit testing using Jest.
- Optimized a high-traffic feature by redesigning a database schema and implementing caching, reducing load time by over 90%. Performed data migration to ensure backwards compatibility.
- Certified in AWS Cloud Foundations, with expertise in cloud infrastructure and workflow automation.

Software Engineering Associate—Optum (Technology Development Program)

2023 - 2024

- Built a chatbot UI in TypeScript, integrating with a FastAPI backend for secure OpenAI communication.
- Collaborated with UI/UX team to design and develop a user-friendly email automation website.
- Presented project milestones to senior executives in biweekly leadership demos.
- Created and maintained CI/CD pipelines using GitHub Actions and cron automation, reducing manual testing and deployment efforts.
- Mentored six interns, imparting skills in leadership, networking, and navigating their careers.
- Organized team-building activities, including an office-wide "Survivor" game, fostering community.

Software Engineer—ACI Transport

2023 - 2024

- Dockerized multi-application system with Docker Compose; enabled local testing of individual services.
- Developed features in Angular/.NET app using C# and JavaScript. Conducted xUnit and regression tests.

Bioinformatics Research Assistant—Schloss Research Lab (University of Michigan)

2021 - 2023

- Trained and validated machine learning models using R (mikropml) and Snakemake to predict severity of *C. difficile* infections based on gut microbiome data.
- Analyzed model performance using AUROC and AUPRC curves generated in R.
- Designed and maintained scalable, reproducible pipelines for analysis of genomic and clinical datasets, enhancing automation and adaptability to evolving datasets.
- Presented at research symposiums, earning second place at the Microbiology and Immunology Undergraduate Research Symposium and a travel award at the Undergraduate Research Symposium.

SKILLS

Languages: Python, R, SQL, JavaScript, TypeScript, C++, C#, C, Swift, Bash, HTML, CSS, LaTeX

Frameworks: React, Angular, .NET, FastAPI, Flask, R Markdown, Node.js, Quarto

Tools: GitHub, Docker, AWS, Kubernetes, Terraform, GraphQL, REST, Meilisearch, MongoDB, Conda, SLURM

Bioinformatics & Data Analysis: large-scale dataset analysis, machine learning (mikropml), statistical modeling (R, NumPy), data visualization (ggplot2), bioinformatics workflow development (Snakemake), unit testing