

Adil R. Mallick

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EDUCATION

Michigan State University - College of Engineering

East Lansing, MI

Bachelor of Science in Computer Science, Minor in Business

Expected Graduation: May 2027

- Coursework: Data Structures & Algorithms, Low Level Computer Architecture (ARM), Operating Systems, Discrete Math, AI and Machine Learning, Database Systems.

EXPERIENCE

DTE Energy

Detroit, MI

Cloud and Infrastructure Co-op

Sep. 2025 – Present

- Upgraded reusable **Terraform** modules across enterprise isolation zones, including **Cosmos DB**, **Key Vault**, Azure Monitor alerts, and Azure Health visibility to improve cloud reliability and observability.
- Orchestrated secure **Azure Function App** deployment with Python 3.12 runtime, Application Insights, storage reuse, private subnet integration, private endpoints, managed identity context, and app settings for **Cosmos DB**, **Key Vault**, and **Sectigo**.
- Implemented secure cloud infrastructure patterns by restricting network access, parameterizing environments, and supporting repeatable multi-environment deployments.

DTE Energy

Detroit, MI

Cloud and Infrastructure Intern

May 2025 – Aug. 2025

- Delivered a **Microsoft Teams** chatbot for **500+ enterprise users**, using **Terraform**, **ServiceNow APIs**, and reusable **Azure API Management** modules to standardize internal chatbot integrations.
- Provisioned **Azure** resource groups, API infrastructure, and backend services while debugging routing issues, validating **JSON** payloads, supporting **Postman** testing, and improving internal application load times by **27%**.
- Built and tested API workflows connecting **ServiceNow** with enterprise chatbot services, improving request routing reliability and supporting more consistent internal automation experiences.
- Partnered in **Agile** sprints with cloud, infrastructure, and business teams to review requirements, troubleshoot defects, document integration behavior, and strengthen secure **DevOps** delivery workflows.

Half-Full

Lansing, MI

Software Engineer

Sep. 2024 – May 2025

- Automated email list management with **Python**, **smtplib**, and **pandas**, streamlining recurring data processing workflows, reducing manual cleanup effort, and improving accuracy for internal operational users.
- Built task management features with **React**, **Next.js**, and **Electron.js**, improving cross-platform responsiveness, optimizing front-end performance, and increasing **RAM efficiency by 46%**.

PROJECTS

ZenTube | *Next.js, React, Node.js, Tailwind CSS, YouTube Data API v3*

2026

- Engineered dynamic routing and 3 serverless **API endpoints** with **Next.js**, improving user navigation by **30%** and reducing frontend load time by **40%**.

Scalable ETL & Machine Learning Pipeline | *Python, TensorFlow, JSON, Docker, Git*

2026

- Developed a scalable **ETL pipeline** for **JSON** ingestion, feature transformation, validation checks, and **Docker**-based release workflows to support reproducible machine learning prototypes.

Prismatic Ray Tracer | *C++, Low-Level Graphics, Linear Algebra*

2025

- Engineered a physically based ray tracer from scratch in **C++**, implementing **Blinn-Phong shading**, shadows, reflection, refraction, and **BVH acceleration** for efficient 3D scene rendering.

Geospatial Data Processing & API Platform | *Python, JavaScript, React, Node.js, MongoDB*

2025

- Built a geospatial data platform by processing location records, storing coordinates in **MongoDB**, exposing **REST API** endpoints, and delivering **React** dashboards for search, filtering, and visualization.

TECHNICAL SKILLS

Languages: Java, Python, JavaScript, HTML/CSS, C++, Terraform, SQL

Frameworks: React.js, Next.js, Node.js, Flask, TensorFlow, PyTorch, Scikit-learn

Tools: Azure, Azure API Management, CosmosDB, ETL pipelines, Application Insights, Git, Postman, AWS, Pandas

Certifications: CompTIA A+ Cyber Security, Cisco IT Essentials