Rohan Waghmare

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Education

Binghamton University, State University of New York, Master of Science in Computer Science — Aug 2023 – May 2025

- **Coursework:** Design and Analysis of Algorithm, Operating System, Computer Networks, Design Patterns, Computer Security, Systems Programming, Data Mining, Social Media Data Science Pipeline, Programming Languages

School of Engineering, MIT ADT University, Bachelor of Technology in Computer Science — Aug 2019 – May 2023

- **Coursework:** Computer Architecture, Database Management Systems, Operations Research, Data Structures, Machine Learning, Deep Learning, Big Data Analytics, Web Development, Information Security, Software Engineering & Project Management

Skills

Languages: Python, C, C++, JavaScript, Swift, SQL, HTML, CSS

Frameworks: Django, React.js, Flask, Node.js, Express.js, SwiftUI, Streamlit, Material UI (MUI)

Databases: PostgreSQL, MongoDB, MySQL, Firebase

Cloud & DevOps: AWS (EC2, S3, Lambda, API Gateway, SQS, SNS, RDS, DynamoDB, Cognito, CloudWatch, IAM), Docker, CI/CD

AI ML: Scikit-learn, TensorFlow, PyTorch, Keras, OpenCV, LangChain, RAG, Pinecone, NLTK, SpaCy, YOLOv5, Pandas, NumPy

Work Experience

Software Engineering Apprentice, Michigan Health Information Network — Lansing, MI — Mar 2025 – Present

- Built a secure, HIPAA-compliant serverless **Inbox Messaging Platform** using **AWS Lambda (Python)**, **API Gateway (Cognito)**, **S3**, and **RDS (PostgreSQL)** for healthcare communications.
- Integrated **CloudWatch Alarms**, **Timestream**, and **Grafana** to monitor SQS and auth flows, reducing undetected failures and saving 4.2% ($35K) in monthly operational costs.
- Automated NPI data extraction using **Python** and **Selenium**, cutting manual effort by **60%** and improving team productivity.
- Resolved a JWT validation bug, restoring API access within 24 hours and preventing disruption to over **6,000** clinical test results.
- Took ownership of a **FHIR**-based referral pipeline across 6+ healthcare orgs during a staff shortage, reducing backlog and stabilizing workflows.

Software Engineer, Binghamton Tech Collective – Binghamton, NY — Aug 2024 – Mar 2025

- Built and launched a campus-exclusive marketplace web app using **React.js** and **Firebase**.
- Designed and implemented key trust and safety features, including university email verification, real-time messaging, and a flexible user complaint system.
- Led peer code reviews and enforced CI/CD standards to maintain code quality.

Backend Engineer Intern, Flow – Wilmington, DE — Jul 2024 – Aug 2024

- Optimized data ingestion for an AI sales assistant by designing smart filters improving lead targeting relevance by **53%**.
- Built scalable pipelines using **Django** and **PostgreSQL** to integrate company profiles from **Crunchbase**, **PitchBook**, and **LinkedIn**.
- Refactored legacy backend systems with **Docker** for streamlined deployments, contributing to an agile **SCRUM** development cycle.

Projects

Industry-Specific Layoff Tracker | *Python, Flask, MongoDB, Faktory, NLTK, REST APIs*

- Built a scalable data pipeline using **Python**, **Faktory**, and **MongoDB** to ingest and process over **208,000 Reddit and 4chan posts/month** for real-time and historical trend analysis.
- Developed **Flask APIs** with **NLTK**-based sentiment and toxicity scoring (**98% accuracy**), and deployed interactive **Plotly** dashboards for keyword tracking and social discourse visualization.

Clockin - A Time Tracking Tool | *Swift, SwiftUI, WatchKit*

- Developed a cross-platform time tracking app for **iOS** and **watchOS** using **SwiftUI**, **WatchKit**, and **MVVM**, enabling users to clock in/out, monitor break time, and view daily work summaries with earnings based on customizable hourly rates and time goals.

Detection of Tuberculosis using Transfer Learning | *TensorFlow, Transfer Learning, Python*

- Designed a TB detection pipeline using **ResNet-50** with **CLAHE** and image augmentation, achieving **92% accuracy** on the **TBX11K** dataset; validated decisions using **Grad-CAM** and standard evaluation metrics (F1, AUC).
- Reviewed 60+ research papers, developed a scoring framework to shortlist 15 viable studies, and co-authored an **IEEE-published** paper contributing to reproducible, infrastructure-aware medical AI research.

Certification & Publication

- **AWS** Certified Cloud Practitioner
- **IEEE** A Comparative Study of Detection of Tuberculosis using Machine Learning and Deep Learning