# Rohan Waghmare

rwaghmare@binghamton.edu | 6072456001 | rohanwaghmare.com | /in/rohanwaghmare | /ron103

## Education

**Binghamton University, State University of New York**, Master of Science in Computer Science — Aug 2023 – Dec 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, Blockchain Tech, 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, CloudWatch, IAM), Docker, Jenkins, CI/CD

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

**Tools & Skills:** Git/GitHub, Linux/Unix, REST APIs, GraphQL, pytest, Selenium, JIRA, Agile/SCRUM

## 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 in a **Java-based API**, restoring client access within 24 hours and preventing disruption to over **6,000** clinical test results; collaborated via **Git** and deployed fixes using **Jenkins** pipelines.
- Took ownership of a **FHIR**-based referral pipeline across 6+ healthcare orgs during a staff shortage.

**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**, with a strong focus on data security and privacy for student users.
- Designed and implemented key trust and safety features including university email verification, secure real-time messaging, and a user complaint system to ensure platform integrity.
- Led peer code reviews, enforced **Git-based workflows**, and maintained CI/CD standards to ensure high code quality.

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

- Optimized data ingestion for an AI-driven sales assistant by designing ML-informed smart filters, increasing lead targeting relevance by **53%** and enhancing downstream model accuracy.
- Built scalable data pipelines using **Django** and **PostgreSQL** to integrate enriched company profiles from **Crunchbase**, **PitchBook**, and **LinkedIn** for AI feature generation.
- Refactored legacy backend systems using **Docker** to support modular ML service deployments, contributing to a **SCRUM** workflow.

## 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.

**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