Rohan Waghmare

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Education

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

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

Skills

Languages: Python, C, C++, JavaScript, Swift, SQL, HTML, CSS
Frameworks: Django, React.js, Flask, Node.js, Express.js, Streamlit, Material UI (MUI)
Databases: PostgreSQL, MongoDB, MySQL, Firebase
Cloud & DevOps: AWS (EC2, S3, Lambda, API Gateway, SQS, DynamoDB), Docker, CI/CD, Faktory
Tools & Skills: Git/GitHub, Linux/Unix, REST APIs, pytest, Selenium

Work Experience

Research Assistant, Thomas J. Watson College of Engineering & Applied Science – Binghamton, NY Jan 2025 – Present

- Developing **CNN-based** deep learning models for medical image analysis and precision medicine.
- Researching lung cancer using **TCGA (LUSC, LUAD)** datasets, applying **CLIP CNNs** to cell/tissue images of **1000+** patients.
- Improved classification accuracy from **60% to 80%** via histogram equalization, cell segmentation, and unique cell identification with **BiomedParse.**

Software Engineer, Binghamton Tech Collective – Binghamton, NY Aug 2024 – Present

- Improved user engagement by **15%** (based on user surveys) by developing the official club website in **React.js** with real-time updates in **Firebase**, leading to more frequent member interactions.
- Enhanced load times by implementing caching strategies in a **Node.js** mock e-commerce platform, reducing server response bottlenecks.
- Increased accessibility for members by porting key web features into a **Swift**-based iOS app, ensuring cross-platform availability.
- Ensured on-time project milestones by actively contributing in **Agile/SCRUM** ceremonies and utilizing **GitHub** for collaborative version control.

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

- Optimized **Django** backend applications to reduce **API response times** through efficient query handling and code refactoring.
- Decreased data inconsistencies by designing a data pipeline for **Crunchbase**, **PitchBook**, and **LinkedIn** feeds into **PostgreSQL** with robust schema validation.
- Streamlined development workflows by applying **object-oriented principles** in refactoring legacy code and deploying **Docker**-containerized applications within a **SCRUM** environment.

Projects

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

- Designed an automated data scraping pipeline that processed over **208,584 records** from Reddit and 4chan, leveraging **MongoDB** for storage, **Faktory workers** for concurrency, and **Flask APIs** for real-time insights. Implemented toxicity detection with **98% accuracy**, sentiment analysis using **NLTK**, and interactive visualizations with **Matplotlib** and **Plotly**. Enabled actionable insights into unemployment trends, achieving **30% efficiency** gains through python data crawlers and historical data integration.

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

- Developed **Clockin** – a cross-platform time tracking solution for **iOS** and **watchOS** using **SwiftUI** and **WatchKit**. Engineered a robust clock-in/clock-out system with real-time visual analytics that tracks work time, break time, and earnings based on a configurable hourly rate (default **$15/hr**) and daily goal (**6 hours**). Leveraging an **MVVM** architecture with shared code across platforms.

Detection of Tuberculosis using Transfer Learning | *Tensorflow, Transfer Learning Models, Python* Link to Project

- Led a team to evaluate **InceptionV3, EfficientNetB3, DenseNet201, and ResNet50** for TB detection via chest X-rays, achieving **90.95%** accuracy on the **TBX11K** dataset, aiding **2.4M+** diagnoses nationwide.

Real-Time Sign Language to Text Translator | *OpenCV, Deep Learning, LSTM, Gesture Recognition* Link to Project

- Engineered a deep learning-driven system for real-time sign language translation, leveraging **OpenCV** for hand gesture tracking and **Long Short-Term Memory (LSTM)** networks for sequential pattern recognition, achieving a **96.43% categorical accuracy**.

Certification & Publication

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