Rohan Waghmare

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Education

Binghamton University, State University of New York — Binghamton, U.S.A.
Master of Science, Computer Science — *Aug 2023 - May 2025*

School of Engineering, MIT ADT University — Pune, India
Bachelor of Technology, Computer Science — *Aug 2019 - May 2023*

Technical Skills

Languages: C/C++, Python, Javascript, R
Frameworks: React.js, Node.js, Express.js, Material UI, Redux Toolkit, Django
Tools & Databases: Git, AWS, Docker, MongoDB, MySQL, Kubernetes
Skills: Front-End, Back-End, Full-Stack, Agile, CI/CD, SCRUM, DevOps

Experience

Data Analyst Intern — Sep 2022 – Oct 2022
Illinois Institute of Technology — *Remote*

- Developed Python-based web crawlers using **Twitter SampleStream API, Reddit API, and 4chan Catalog API,** cutting data processing time by **32%** and boosting technical proficiency by **41%.**
- Utilized **pandas, numpy, matplotlib, plotly, and seaborn** for data analysis and visualization, and integrated **NLTK** with **Streamlit** for real-time monitoring, boosting data interpretation capabilities by **53%**.

Projects

Wallet-io | *MongoDB, Express.js, React.js, Node.js, Typescript* *[Link]*

- Built a feature rich financial dashboard frontend using **TypeScript and React** with **9+** visually stunning charts created using **Recharts and Material UI** giving information about Profit, Revenue, and Loss on monthly basis suggesting a **4% growth.**
- Constructed the backend architecture using **Node.js and Express.js with MongoDB** as the database solution and leveraged **machine learning (linear regression)** predicting a **12%** annual growth for the company.

IntelliPDF | *Javascript, Express.js, React.js, Node.js, Docker, OpenAI API*

- Revolutionized PDF interaction by creating a Chrome extension merging **ChatGPT's NLP and OCR tech**; boosted text explanations' comprehension efficiency by **34%** via context-aware insights.

Population Density | *React.js, OpenStreetMap, Material UI, Leaflet.js*

- Implemented a high-performance geospatial analytics app with **React.js and Leaflet.js**.
- Programmed backend with **Node.js and Express.js, using a PostGIS-enabled PostgreSQL DB** for precise spatial queries. Integrated with **RESTful APIs** for data from OpenStreetMap and census databases, achieving **95%** accuracy in population density calculations.

Network Optimization & Analysis Suite | *Tensorflow, LSTM, OpenCV, Python*

- Engineered a **Rust**-based proxy server and a **C++** UDP Ping toolkit, optimizing network performance with asynchronous IO and TCP/IP enhancements, resulting in a **43%** speed increase and a **31%** boost in diagnostic precision. Integrated SSL optimizations for secure data handling.

Research Work

Detection of Tuberculosis using Transfer Learning *[Link]*

- Led a team of **4 students** to evaluate the effectiveness of **InceptionV3, EfficientNetB3, DenseNet201,** and **ResNet50** in identifying Tuberculosis through chest X-rays, enhancing image quality with **CLAHE** and employing **UNET and GradCAM** for semantic segmentation and interpretability. Achieved **99.95%** accuracy on the TBX11K dataset, improving diagnoses for over **2.4 million people** nationwide.

A Comparative Study of Detection of Tuberculosis using Machine Learning and Deep Learning *[Link]*

- Implemented thorough and assiduous comparative analysis encompassing **21+ research papers and 16+ transfer learning models**.
- Presented the paper at IEEE organised 17th INDIACom-2023 10th International Conference on Advances in Remote Sensing and Medical Applications (ARSAMA) at MVSR Engineering College, Hyderabad, India.