ARYAN ISHAN RAVESHIA

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Education

Northeastern University **Sep. 2025 – May 2027**

Master of Science in Computer Science *Boston, MA*

- **Relevant Coursework:** Programming Design Paradigms, Web Development.

Manipal Institute of Technology **Oct. 2020 – Jul. 2024**

Bachelor of Technology in Computer and Communication Engineering *Manipal, India*

- **Relevant Coursework:** Data Structures and Algorithms, Database Systems, Operating Systems, Machine Learning, Data Mining, Cloud Computing, Neural Networks, Computer Networks, Software Engineering, Big Data Analytics.

Work Experience

The Boeing Company **Aug. 2024 – Aug. 2025**

Entry Level Software Engineer *Bangalore, India*

- Built a Python **Neo4j** Data-Fetch service (**Cypher/REST**) to pull airline and airport data, conditionally fall back to OAG, and convert outputs into .ACF schedules for the Simulation Management Service; produced schedules of up to approx **10,000** flights in **under 2 minutes** for downstream ingestion.
- Implemented high-performance aircraft-state streaming using **ZeroMQ** by developing Python publisher/receiver, Cythonized and compiled to .pyd modules to reduce overhead; achieved approx **under 20ms** end-to-end latency and sustained over **5,000 messages/sec** in test harnesses to support real-time conflict detection.
- Developed a reusable Python flight-path module that decodes aggregated route datasets (routes.rts, routes.json, waypoints.wpt, airport.apt), supports city–city and waypoint–airport queries, and returns route strings plus structured waypoint files — handled a dataset of approx **200k routes** and returned queries in **under 500ms** on average.
- Implemented waypoint ETL: Python module to fetch and normalize approx **50k waypoints** from Neo4j, convert decimal co-ordinates to cardinal format, and publish standardized waypoint datasets for modular simulation components.
- Designed serialization and inter-service contracts for microservice migration: prototyped **Protocol Buffers (Protobuf)** for TAAM aircraft payloads to support **FMI 3.0 migration** and defined ZeroMQ streaming message schemas; reduced serialized payload size by **40%** vs. JSON and standardized interfaces for microservice decomposition.
- Automated packaging of Windows runtime dependencies in Linux containers using **CrossOver**: created a bottle-install/archive/deploy workflow for VC++ redistributables and other runtimes, enabling headless container deployment and cutting manual VM-based packaging effort by approx **90%**.

Manipal Institute of Technology **Jan. 2024 – Jul. 2024**

Undergraduate Artificial Intelligence Research Assistant *Manipal, India*

- Authored thesis titled "Evaluating Explainable Artificial Intelligence in Regression Models": Designed and implemented interpretable machine learning models, improving explanation fidelity by approx **15%** on benchmark datasets.
- Engineered Explainable AI visualization pipelines using **Python, SHAP, and LIME** to extract and display model decision factors.
- Evaluated model transparency through quantitative metrics (e.g., stability, feature attribution consistency) to ensure reliable interpretability.

Projects

Airtime Analytics: Using Machine Learning to Forecast Flight Delays – Machine Learning Project

- Built and evaluated Regressor models in Python, achieving **93% R^2 score**, with extensive feature engineering on factors like take-off time, schedules, weather, and flight duration.
- Presented findings at the **5th Springer IDEA-2K Conference** and submitted the research for publication in **Springer Lecture Notes on Electrical Engineering.**

Restyled: An Online Thrift-Shopping Android Application: Full-Stack Android Application

- Built a full-stack thrift-shopping app using **Java, MySQL, and MongoDB** integrating core features such as product listings, detailed descriptions, pricing, and a shopping cart.
- Designed and implemented a modern UI with navigation and search functionality, improving user experience and enabling seamless browsing and discovery of thrifted items.

Technical Skills

Languages: Python, C, C++, C#, SQL, XML, JavaScript, TypeScript, Java, Haskell
Frameworks and Libraries: Angular, React .NET, CMake, REST APIs, gRPC, ZeroMQ
Machine Learning: SHAP, LIME, Scikit-learn, NumPy, Pandas, scikit-learn, TensorFlow, Regression Models, Decision Trees, Random-Forests, XGBoost, Feature Engineering, Model Evaluation and Explainability
Databases: MySQL, MongoDB, SQLite
Tools & Cloud: Git, JIRA, Postman, Docker, Microsft Azure, GitLab CI/CD, Docker, Protocol Buffers (Protobuf), Simulation Engines, CrossOver/Wine, VS Code, IntelliJ, Eclipse