

# ARYAN ISHAN RAVESHIA

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## Education

<b>Northeastern University</b> <i>Master of Science in Computer Science</i>	<b>Sep. 2025 – May 2027</b> <i>Boston, MA</i>
• <b>Relevant Coursework:</b> Programming Design Paradigms, Web Development, Algorithms, Foundations of AI	<b>GPA: 4.0/4.0</b>
<b>Manipal Institute of Technology</b> <i>Bachelor of Technology in Computer and Communication Engineering</i>	<b>Oct. 2020 – Jul. 2024</b> <i>Manipal, India</i>
• <b>Relevant Coursework:</b> 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

<b>The Boeing Company</b> <i>Entry Level Software Engineer</i>	<b>Aug. 2024 – Aug. 2025</b> <i>Bangalore, India</i>
• Architected a <b>Python</b> and <b>Neo4j</b> Data-Fetch service ( <b>Cypher</b> ) 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 <b>1,000</b> flights in under <b>2 minutes</b> for downstream ingestion.	
• Engineered a high-performance aircraft-state streaming using <b>ZeroMQ</b> by developing Python publisher/receiver, <b>Cythonized</b> and compiled to .pyd modules to reduce overhead; achieved approx under <b>20ms</b> end-to-end latency and sustained over <b>5,000 messages/sec</b> 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 <b>200k routes</b> and returned queries in under <b>500ms</b> on average.	
• Implemented waypoint ETL via Python module to fetch and normalize approx <b>50k waypoints</b> 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 <b>Protocol Buffers (Protobuf)</b> for TAAM aircraft payloads to support <b>FMI 3.0 migration</b> and defined <b>ZeroMQ</b> streaming message schemas; reduced serialized payload size by <b>40%</b> vs. JSON and standardized interfaces for microservice decomposition.	
• Automated packaging of Windows runtime dependencies in Linux containers using <b>CrossOver</b> : 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 <b>90%</b> .	

<b>Manipal Institute of Technology</b> <i>Undergraduate Artificial Intelligence Research Assistant</i>	<b>Jan. 2024 – Jul. 2024</b> <i>Manipal, India</i>
• Authored thesis titled “Evaluating Explainable Artificial Intelligence in Regression Models”: Designed and constructed interpretable machine learning models, improving explanation fidelity by approx <b>15%</b> on benchmark datasets.	
• Engineered Explainable AI visualization pipelines using <b>Python, SHAP, and LIME</b> to extract and display model decision factors.	
• Evaluated model transparency through quantitative metrics (e.g., stability, feature attribution consistency) to ensure reliable interpretability.	

## Projects

<b>Calendar Management System (Java, Swing)</b>	
• Architected, designed and built a robust calendar system using <b>Java</b> and <b>Swing</b> , strictly adhering to the Model-View-Controller ( <b>MVC</b> ) architecture to ensure modularity, scalability, type-safety and separation of concerns.	
• Applied advanced design patterns and engineered a flexible controller using the <b>Command Pattern</b> to decouple user actions from business logic and integrated the <b>Builder Pattern</b> to streamline the creation of complex event objects.	
• Implemented a custom AnalyticsHub for Calendar Analytics and utilized Immutable <b>Data Transfer Objects (DTOs)</b> with defensive deep-copying to ensure <b>MVC</b> and <b>SOLID principles-safe</b> data transport and strict encapsulation between layers.	
• Developed complex algorithms for recurring event scheduling and conflict detection, optimizing for <b>performance</b> to handle dense calendar data efficiently.	

<b>Learning Management System (TypeScript, React, Node.js, MongoDB, Express)</b> - <a href="#">Link</a>	
• Developed and deployed a scalable learning management system with <b>role-based access control (RBAC)</b> supporting students, faculty, and administrators, implementing <b>RESTful APIs</b> with <b>Express.js</b> and <b>MongoDB</b> for persistent data storage with optimized queries using <b>Mongoose ODM</b>	
• Built responsive <b>React</b> frontend with <b>Next.js</b> and <b>TypeScript</b> featuring real-time course enrollment, dynamic user management with <b>CRUD</b> operations, modular assignment tracking, and session-based authentication with secure cookie handling, deployed on <b>Vercel</b> and hosted on <b>Render</b> .	

## Technical Skills

**Languages:** Java, Python, C++, TypeScript, JavaScript, SQL, C#

**Frameworks and Libraries:** ZeroMQ, REST APIs, gRPC, Protobuf, CMake, React, Angular, Swing, ExpressJS, NodeJS

**Machine Learning:** SHAP, LIME, Scikit-learn, NumPy, Pandas, TensorFlow, XGBoost, Random Forests, Decision Trees, Regression Models, Feature Engineering, Model Evaluation and Explainability

**Databases:** MySQL, MongoDB, SQLite

**Tools & Cloud:** Git, Docker, GitLab CI/CD, Jira, Postman, Vercel, Render, VS Code, IntelliJ, Eclipse