

RISHABH RAJ

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EDUCATION

WorldQuant University
M.Sc. Financial Engineering

In progress
Remote

National Institute of Technology Delhi

Jun 2025

B.Tech, Electrical & Electronics Engineering - CGPA: 7.79/10

New Delhi, India

Coursework: Data Structures & Algorithms, Problem Solving, Linear Algebra, Numerical Analysis

TECHNICAL SKILLS

Languages: Python, Java, C++, C, JavaScript, SQL, Bash

Backend & Data: Spring Boot 3, Node.js, Express, REST APIs, MySQL, PostgreSQL, MongoDB, Pandas, NumPy

Quality & Systems: Git, GitHub Actions, Pytest, Postman, AWS, Linux, SystemVerilog, Icarus Verilog

EXPERIENCE

Hindustan Petroleum Corporation Limited (HPCL)

Aug 2025 - Present

Operations Officer

Jamshedpur, India

- Own end-to-end operations for a high-availability LPG production environment supporting **300 MT/day dispatches** and **109.5 TMTPA throughput**; monitor workflows, triage incidents, isolate bottlenecks, and drive root-cause corrective actions that delivered an average **15% month-on-month productivity improvement**.
- Automated recurring reporting, procurement, and audit workflows with **Python, Pandas, and VBA**, reducing process cycle time **17%** and saving **22.5 hours/month**; reconciled 45 critical consumables and improved inventory accuracy **75%**.
- Lead **2 junior executives** and coordinate a 10-member multidisciplinary maintenance workforce; served as electrical coordinator for the **OISD-144 audit**, closing documentation, field-inspection, and corrective-action requirements while introducing preventive and predictive monitoring for critical assets.

NorthRock Capital Management

Jan 2025 - May 2025

Junior Quantitative Developer

New Delhi, India (Remote)

- Architected an end-to-end investment-research system using **Llama-3.2-1B-Instruct** to synthesize commodities and interest-rate analysis into structured, reviewable reports, reducing manual reporting time **70%** while preserving data-security and confidentiality controls.
- Engineered resilient ingestion and transformation pipelines for **250+ financial instruments**, persisted normalized outputs to a cloud database, and delivered recurring performance intelligence to a Portfolio Management team overseeing **\$450M+ AUM**.
- Built and backtested a **QMI-based portfolio-optimization model** for a **\$1M initial allocation** with monthly rebalancing and sector constraints; partnered with portfolio managers to translate investment objectives into testable specifications and risk-adjusted decision outputs.

RapidBox

Jun 2024 - Jul 2024

Associate Software Engineer Intern

Bengaluru, India

- Developed a **Java 17 / Spring Boot 3 / MySQL** vehicle-rental backend covering branch onboarding, inventory, booking, pricing, and fallback selection; tuned SQL queries/indexes, validated REST endpoints with Postman, and deployed to **AWS/Tomcat through CI/CD** with input validation and secure authentication patterns.

PROJECTS

DWT-ANN-MAV Condition Monitoring | *Python, SystemVerilog, PyTorch*

- Architected a hardware-software condition-monitoring pipeline combining **9-level Daubechies-44 DWT** feature extraction, ANN training/inference, fixed-point model export, and board-independent SystemVerilog ADC/DWT/ANN integration.
- Established bit-accurate Python/RTL verification with **Pytest and Icarus Verilog** across filter windows, signed arithmetic, ADC conversion, inference parity, watchdogs, and latched protection; added CPU/CUDA **MagNet motion amplification** with reproducible checkpoints and explicit safety boundaries.

MediKart | *React, Node.js, Express, MongoDB*

- Engineered a production-oriented MERN commerce architecture with **server-authoritative catalog pricing**, secure httpOnly JWT sessions, structured order persistence, and signed, idempotent Stripe-webhook fulfillment that prevents clients from setting prices or marking orders paid.
- Hardened the API with schema validation, rate limiting, CORS allowlists, security headers, caching, automated security tests, and pull-request checks; delivered an accessible UX using **semantic navigation, ARIA live regions, visible keyboard focus, reduced-motion handling**, and optimized WebP assets.

AgriProPlus | *React, Node.js, Express, MongoDB, Firebase, Python*

- Architected a serverless agricultural-intelligence platform spanning React, Node/Express, MongoDB, and Firebase; exposed validated crop inference, searchable/paginated government schemes, protected administration, and support workflows through bounded REST APIs.
- Embedded a **96-tree crop-recommendation model** in the API runtime and improved serverless reliability with cached connections, bounded payloads, and guarded writes; engineered first-party Firebase routing, mobile popup-to-redirect fallback, route-level code splitting, **ARIA live results, keyboard focus, and reduced-motion handling**.

LEADERSHIP & RECOGNITION

LeetCode: 869 solved, 1704 contest rating | **Codeforces:** Specialist, 1551 | **CodeChef:** 3-star, 1664 | Meta Hacker Cup 2024 Round 2 qualifier; GATE CS 2025 & DA 2026 qualified

Leadership: Led 25+ placement coordinators and developed relationships with 30+ employers; served as NIT Delhi Alumni Cell General Secretary, engaging a 1,500+ member network.

Competitions: Flipkart GRiD semifinalist (top 800 of 400,000+ teams); top 5% in the Adobe x GeeksforGeeks Generative AI Hackathon; CodeChef START115C global rank 38.