Gul Jain

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Profile

Recent graduate in Computer Science student at UNSW with strong Java foundations and hands-on experience building software systems and AI/ML solutions. Built and tested Java applications with SOLID design, refactoring, and high test coverage; developed deep learning and time-series ML projects with rigorous evaluation and data pipelines. Comfortable delivering production-quality code (APIs, databases, CI/CD) and collaborating with cross-functional teams to integrate AI capabilities into applications.

Education

- **University of New South Wales (UNSW)** — Sydney, NSW
  Bachelor of Computer Science — *Feb 2023 – Dec 2025*
- **LBS School** — India
  High School Certificate — *Mar 2021 – Mar 2022*

Experience

- **IBM** — Sydney, NSW
  Technology Solutions Consultant — *Jan 2025 – Feb 2025*
  - **AI Solution Design (GenAI)**: Collaborated in a 5-person team to design generative AI solution concepts for claims processing, contributing to technical architecture, feasibility analysis, and user experience design.
  - **Process Optimisation & Delivery Planning**: Developed a five-phase, 29-week execution plan proposing automation and AI-driven improvements to streamline workflows and reduce processing delays.
  - **Stakeholder Requirements**: Conducted stakeholder interviews (10+ users) to identify bottlenecks and translate business needs into clear technical requirements and solution scope.

Selected Projects (Java + AI)

- **Enterprise Java Platform** — Software Architecture & System Design
  Java, Design Patterns, JUnit, CI/CD — *2024*
  - **Maintainable Java Architecture**: Redesigned and refactored a legacy Java codebase using SOLID principles and common design patterns to improve modularity and extensibility.
  - **Algorithmic Feature Development**: Implemented complex mechanics including state management, pathfinding, and entity interaction logic across 15+ component types, focusing on correctness and clean abstractions.
  - **Testing & Quality**: Maintained >90% JUnit coverage and ensured CI compliance with automated tests and code-quality checks.
- **Agricultural Pest Detection (AgroPest-12)** — Computer Vision (Team Project)
  YOLOv8, Faster R-CNN, Optuna, Python — *Sep 2025 – Dec 2025*
  - **Model Benchmarking & Optimisation**: Built and optimised detection pipelines on a 12-class dataset (546 test images), achieving mAP@0.5 up to 0.867 and F1-score 0.78; ran principled hyperparameter search (Optuna, 15 trials).
  - **Robust Data Pipelines**: Engineered class-balancing augmentation and stress-tested robustness under Gaussian / salt-and-pepper / blur noise (5–20%), validating stability under real-world corruption.
  - **Collaboration**: Worked in a 5-person team with clear ownership boundaries and reproducible experiments (training configs, metrics tracking, and comparison reports).
- **Forecasting Air Pollution with Machine Learning** — Time-Series ML (Team Project)
  Feature Engineering, Anomaly Detection, Model Evaluation — *Sep 2025 – Dec 2025*
  - **Leakage-Safe Forecasting Pipeline**: Built a leakage-safe pipeline on 9,357 hourly samples with lag features (1–24h), rolling statistics, and calendar encodings to prevent look-ahead bias.
  - **Data Quality & Anomaly Detection**: Implemented rolling z-score and Isolation Forest checks, removing only 3–9% outliers while preserving data integrity across multiple forecast horizons.
  - **Model Benchmarking**: Benchmarked Gradient Boosting, Random Forests, and MLPs; improved +1h CO RMSE from 0.77 to 0.33 and documented trade-offs across horizons.

- **Access Management Dashboard** Full-Stack Web Platform
  TypeScript, NestJS, MySQL, React, Docker *2025*
  - **API + Database Engineering**: Built secure REST APIs and database-backed role-based access control in a modular backend; collaborated in a 6-person Agile team with code reviews and CI checks.
  - **Testing & Delivery**: Delivered a containerised deployment with CI/CD and high automated test coverage (Jest), plus documentation for setup and maintenance.

Technical Skills

- **Languages**: Java (8+), Python, JavaScript/TypeScript, C/C++, SQL, Bash/Shell Scripting, MIPS Assembly
- **AI/ML**: TensorFlow, Keras, Scikit-learn, OpenCV, NumPy, Pandas; model evaluation (RMSE/MAE/F1), feature engineering, data preprocessing
- **Backend & APIs**: RESTful APIs, backend architecture, testing (JUnit/Jest), CI/CD pipelines
- **Data & Platforms**: PostgreSQL, MySQL; Docker; Linux/Unix; Git; Regex

Leadership & Professional Development

- **Competitive Programming Subcommittee Member, UNSW** Sydney, NSW
  Technical Mentoring & Problem Solving *2025 – present*
  - **Workshops & Mentoring**: Organised competitive programming sessions and helped peers strengthen algorithmic thinking through guided problem breakdowns and solution reviews.