

MANISH GHOSHAL

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Profile

Master of Data Science student at the University of Melbourne with hands-on experience in **AI engineering**, **time-series modelling**, and **production ML systems**. Built and deployed machine learning solutions across AI-driven trading research, LLM applications, and cloud-native analytics pipelines using Python, PyTorch/TensorFlow, SQL, Docker, and Kubernetes. Strong foundation in stochastic modelling, model optimisation, MLOps, and end-to-end deployment, with experience translating research ideas into robust, user-facing systems. Seeking to contribute to *AI Engineering* roles focused on building reliable, high-performance machine learning infrastructure and intelligent products.

Education

University of Melbourne (UniMelb) <i>Master of Data Science, specialisation: Computational Data Science</i>	March 2025 – December 2026 <i>Melbourne, Australia</i>
Jain (Deemed-to-be) University (JU) <i>B.Tech. in Computer Science Engineering, specialisation: Artificial Intelligence and Machine Learning</i> • GPA: 8.85/10.0 ($\approx 3.6/4.0$)	July 2020 – June 2024 <i>Bengaluru, India</i>

Professional Experience

Walter and Eliza Hall Institute of Medical Research (WEHI) <i>Research Computing / Data Engineering Intern</i> • Refactored a metadata ingestion tool by replacing brittle scripts with Pathlib and a configuration-driven schema; added config.json support with validation and clearer errors to reduce setup friction for researchers • Consolidated three scanning routines into a single recursive workflow that categorises raw/processed/summarised files and extracts sample identifiers; produced structured JSON metadata and interactive HTML summaries to streamline quality checks and troubleshooting • Packaged the tool as an installable CLI (documentation + examples) and liaised with web, workflow, and testing teams to align fields, handle edge cases, and deliver a robust, user-friendly solution	November 2025 – March 2026 <i>Melbourne, Australia</i>
Wolf Tech (stealth venture; reference available) <i>AI Engineer</i> • Led development for ATOM , an options-trading research platform; integrated modelling pipelines into a web product and supported releases through testing, monitoring, and issue triage • Built time-series forecasting prototypes using stochastic differential equation baselines (Vasicek, CIR, Hull–White) and continuous-time neural architectures; iterated on errors with analysis and stakeholder feedback • Delivered 7+ internal/external POCs and coordinated a cross-functional team of 9; standardised deployments via Docker/Kubernetes CI/CD and improved handover through run-books and technical documentation	December 2023 – August 2024 <i>Bengaluru, India</i>
FutureNSE Technologies <i>AI Engineer Intern</i> • Developed a medical chatbot and self-serve knowledge base using BioMistral 7B, PubMedBERT, Qdrant, LangChain, and Llama.cpp; packaged the workflow for repeatable local runs and demos • Fine-tuned Llama-2 7B on a resource-constrained 15 GB GPU using QLoRA and 4-bit quantisation, enabling rapid iteration without full-parameter retraining • Improved turnaround for hospital data analysis by combining advanced SQL with containerised pipelines and concise reporting outputs for non-technical stakeholders	January 2024 – May 2024 <i>Bengaluru, India</i>
Central Automation & IT, AM/NS India <i>Software Development Intern</i> • Developed and deployed PlateMill LIVE , a full-stack web application for real-time equipment data visualisation and predictive maintenance; coordinated with departments to integrate MES and ERP systems • Implemented an MVC architecture using C#, ASP.NET, HTML/CSS, Bootstrap, FusionCharts, and Oracle SQL; improved performance and supported maintainability through clear documentation and database backup/restore procedures	January 2023 – April 2023 <i>Surat, India</i>

Key Academic Projects

Nebula: Gas Sensor Drift & Conc. Analysis Dashboard <i>React, Vite, ML</i> • Built an interactive web dashboard to explore gas-sensor signatures under sensor drift (ageing) and concentration (dose) changes; designed controls to simulate scenarios and highlight how data shifts affect predictions • Evaluated drift-robust classifiers (logistic regression, SVM, LightGBM) and surfaced predicted gas + confidence in the UI with short, human-readable explanations when drift/low-dose distorts signatures • Implemented radial “fingerprint” plots and response-magnitude charts; deployed a live demo on Vercel (nebula-web-app-gray.vercel.app)	September 2025 – December 2025
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Cloud-Native Social-Media Sentiment Analytics Pipeline | *Kubernetes, RabbitMQ, KEDAMarch 2025 – May 2025*

- Architected a Kubernetes ingestion and analytics pipeline (scrapers → RabbitMQ → Elasticsearch), processing 25k+ posts/day and enabling near-real-time querying
- Reduced compute costs via KEDA auto-scaling; delivered Kibana dashboards and automated weekly trend reports to support stakeholders

Driver Drowsiness Detection System | *CNN-LSTM, GAN* January 2024 – May 2024

- Built a real-time drowsiness detection model using a CNN-LSTM architecture; achieved 90%+ accuracy through iterative training and evaluation
- Reduced inference latency via model optimisation and GAN-based augmentation to improve robustness under limited data

AgriLens.AI: Plant Disease Diagnosis Demo | *FastAPI, React, Tailwind, Vercel* December 2021 – February 2022

- Built a full-stack plant disease diagnosis demo (FastAPI backend + React frontend) with an image-upload workflow and clean UI states for success, errors, and retries
- Implemented REST endpoints including a health check and environment-based backend URL configuration; enabled CORS for local/dev to support quick testing and integration
- Deployed a live demo on Vercel (agri-lens-ai.vercel.app) and documented setup steps (Python virtual environment + Node/Yarn) for repeatable builds

Technical Skills

Programming Languages: Python, Java, C#, SQL, Bash, Git
Modeling & Accel: PyTorch, TensorFlow, Transformers, PEFT/LoRA, ONNX Runtime, TensorRT/Triton, FlashAttention-2
MLOps & Cloud: Kubeflow, MLflow, ZenML, DVC, Weights & Biases, Docker/Kubernetes, AWS SageMaker, GCP Vertex AI
Explainability & Monitoring: SHAP, LIME, Captum, Evidently, Prometheus, Grafana
Automation & Vector Ops: n8n, Apache Airflow, LangChain, LangGraph, CrewAI, Autogen, RAG (ZerveAI), Pinecone, Weaviate, RunPod, Unsloth, MoE, LLaVA
Data & DevOps: Spark, Delta Lake, BigQuery, Redis, PostgreSQL, REST, FastAPI, gRPC, dbt, Terraform, GitHub Actions, Jenkins, Argo CD, Kafka, Snowflake, Pulumi, Airbyte, Loki

Competitions & Awards

Runner-up, 24 Hours Honeywell Hackathon, Jain University – 75+ teams (April 2024)
First place, Data Science/ML/Cyber Security FDP, Jain University – 700+ participants (February 2024)
Top-15 globally, Amazon ML Challenge – 1500+ participants (April 2023)
Fifth place, FutureNSE Techathon – Real-Time Network Anomaly Detection (May 2023)
Semi-finalist, Mastek DeepBlue Hackathon Season 8 – Underwater Gate Detection (November 2022)

Volunteering & Mentorship

Chegg | *Subject Matter Expert – Computer Science* October 2023 – Present
Answered ~200 monthly queries on algorithms, data structures, and programming fundamentals; provided clear, step-by-step guidance
Code in Place (Stanford University) | *Section Leader* April 2023 – June 2023
Mentored 10+ students through a Python programming course, improving project outcomes and learner confidence
Jain University | *Peer Mentor* February 2023 – December 2023
Guided 7 classmates in research and coursework, contributing to 2 peer-reviewed publications

Academic & Professional Development

McKinsey Forward Learner Program | *Mentee* May 2025 – June 2025
Completed a 10-week program on structured problem-solving, persuasive storytelling, and collaboration; led a traffic-reduction capstone using issue trees and prioritisation matrices
Technical Writing & Thought Leadership | *Blog* February 2024 – Present
Author of technical blog posts on Medium covering software, data, and ML engineering topics; focused on clear explanations, practical examples, and knowledge sharing
Amazon ML Summer School | *Mentee* September 2023 – October 2023
Completed advanced ML seminars covering modelling, pattern recognition, and applied data analysis

Extracurricular Activities & Leadership

Bach Flower Therapist (Certified) | *Therapist* August 2022 – Present
Certified in incorporating Bach flower remedies for overall wellbeing; treated 37 people to date
ENIGMNA Technology Club | *Core Technical Member* September 2022 – May 2024
Co-organised 10+ events including workshops and a campus tech-fest for 300+ attendees, strengthening event operations and communication