



EDUCATION

Year	Degree/Exam	Institute	CGPA/Marks
2027	B.TECH	IIT Kharagpur	9.06 / 10
2023	AISSCE (CBSE)	Delhi Public School, Patiala	93.4%
2021	AISSE (CBSE)	Ryan International School, Patiala	95.4%

INTERNSHIPS

Software Development Engineer Intern Wasserstoff RJ Innovations Pvt. Ltd.	[May'26 - Jul'26]
- Built a Python/FastAPI OCR pipeline for scanned PDFs using Tesseract OCR and Docling, with OpenCV preprocessing, containerized with Docker - Reduced Character Error Rate from 0.481 to 0.080 (83% reduction) via image deskewing and denoising across degraded document conditions - Implemented SHA-256 extraction caching with concurrent batch processing, reducing repeated OCR extraction from 30.1 s to 0.4 s (75x faster)	
Undergraduate Research Intern University of Manchester & University of Liverpool	[May'26 - Jul'26]
- Engineered a Python/Xarray data pipeline over 225 daily ERA5/ChaosBench Zarr stores for leakage-free subseasonal Z500/T850 forecasting - Adapted the 89.1M-parameter ArchesWeather-S model with a 207K residual CNN head, efficiently training only 0.23% of the total parameters - Automated the evaluation of 448 six-hour global forecast steps and 29M+ grid-point predictions across 8 held-out 14-day evaluation windows	
Machine Learning Developer Intern Chi SquareX Technologies	[Dec'24 - Jan'25]
- Built an OpenAI Gymnasium reinforcement learning environment for options trading with state/action spaces, trade logic, and P&L rewards - Trained PPO and A2C RL agents using Stable-Baselines3 and implemented the Call Spread Butterfly simulator using an object-oriented design - Achieved 54.05% backtest return, 48% win rate, and a 16% maximum drawdown across 10 months of historical ADANIPOWER options data	

PROJECTS

ModelRoute: Resilient Multi-Provider LLM API Gateway FastAPI, Redis, PostgreSQL	[Feb'26 - Mar'26]
- Built three routing strategies across the OpenAI/Gemini adapters with bounded retries, automatic fallback and async FastAPI request handling - Implemented Redis caching, atomic Lua rate limiting, and PostgreSQL p50/p95 metrics, cutting API p50 latency by 86.7% (81.2 ms to 10.8 ms) - Containerized using Docker and benchmarked 1,600 requests across all 4 concurrency levels under load, reaching 164 RPS with zero failures	
ProctorVision: Vision-Guided Proctoring Review Platform MediaPipe, YOLO, FastAPI	[Nov'25 - Dec'25]
- Designed an AlertEngine with five event rules, using duration/grace/cooldown logic to convert noisy detections into persistent review alerts - Improved the throughput by ~19.0%, reducing average frame latency from 279.4 ms to 234.9 ms by eliminating redundant landmark inference - Implemented candidate tracking using IoU, center distance, and area similarity, validated using 79 automated tests and GitHub Actions (CI)	
Deterministic PRM and A-Star Motion Planning System SciPy, NumPy, OpenCV	[Jun'25 - Jul'25]
- Engineered the PRM roadmaps using SciPy KDTree over 500 samples, constructing 502-node graphs with 2,233-5,312 collision-validated edges - Implemented Euclidean A-Star graph search using a priority queue, completing roadmap searches in 1.5-19.6 ms with 8-355 node expansions - Benchmarked PRM vs goal-biased RRT across 60 matched-seed runs, achieving 21%-23% shorter successful paths across all 3 benchmark maps	

AWARDS AND ACHIEVEMENTS

- Achieved Expert rank on Codeforces at a peak rating of 1638 through consistent competitive programming (Codeforces Handle: ayushgoel02) - Solved 500+ algorithmic problems across Codeforces, LeetCode, AlgoZenith, AtCoder, covering data structures, algorithms & problem solving - Secured global ranks 1,863, 2,320 & 3,704 in Codeforces Rounds 1110 (Div. 1 + Div. 2), 1111 (Div. 2) and 1115 (Div. 2), among 27K+ contestants	
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COMPETITION/CONFERENCE

Optiver Quantitative Trade-a-thon 2026 Optiver Quantitative Trading Strategy	[Mar '26]
Secured a Rank of 22 in Optiver's competitive Trade-a-thon, developing real-time market-making and pricing strategies for quantitative trading	
Convolve 4.0: Pan-IIT AI/ML Hackathon IIT Guwahati Artificial Intelligence & Machine Learning	[Jan '26]
Secured an All-India Rank of 7 in Round 1 of Convolve 4.0, excelling across machine learning, data analytics and algorithmic problem solving	

SKILLS AND EXPERTISE

Languages: C++ C Python SQL JavaScript HTML Backend & Databases: FastAPI Node.js Express.js PostgreSQL Redis MongoDB REST APIs DevOps & Tools: Linux Git/GitHub Docker Compose GitHub Actions Postman Hugging Face pytest Jupyter Notebooks
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COURSEWORK INFORMATION

Computer Science & Mathematics: Programming and Data Structures (Theory & Laboratory) Artificial Intelligence: Foundations & Applications (AIFA) Advanced Mathematical Techniques Linear Algebra Numerical and Complex Analysis Transform Calculus Advanced Calculus MOOCs: Algorithms Object-Oriented Programming Database Management Systems Operating Systems Computer Networks System Design Machine Learning Deep Learning Reinforcement Learning Natural Language Processing Transformers & Large Language Model

POSITIONS OF RESPONSIBILITY

Undergraduate Researcher Aerial Robotics Research Group (ARK) IIT Kharagpur Prof. Somesh Kumar	[May'24 - Sep'25]
- Built an Iris drone simulation in Gazebo using ROS and MAVROS velocity topics for smooth and responsive keyboard-controlled 3D navigation - Implemented custom gradient-based edge detection and Hough Line Transform algorithms for reliable perception in simulated environments	