Saksham Mishra

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Education

Indian Institute of Technology Bombay — **Bombay, India**

B.Tech Computer Science Engineering — *Aug. 2024 – June 2028 (Expected)*

Selected Coursework: Linear Algebra, Numerical Linear Algebra, Probability & Statistics, Calculus, Differential Equations, Data Structures & Algorithms

Work Experience

Fold Inc. — **Remote**

AI Systems Intern / Research Engineer — *Jan. 2026 – Present*

- Built autonomous codebase management pipelines with persistent execution state and sandboxed runtime isolation.
- Designed retrieval-augmented tooling systems to improve reliability and reduce invalid code generation.

Intelligent Digital AI Twin (UK-India Collaboration) — **Remote**

Technical Lead — *Aug. 2025 – Present*

- Engineered a multi-agent reinforcement learning digital twin for supply-chain waste reduction using LLMs, agent orchestration and simulation-based optimization.
- Led development from research prototype to deployable implementation; research accepted for presentation at ISDSI-Global 2025 and LMTSM ICON 2026.

UbiSys Lab, IIT Jodhpur — **Jodhpur, India**

Research Intern — *May 2025 – Aug. 2025*

- Built self-supervised learning systems for driver representation learning using IMU sensor data.
- Developed telemetry collection infrastructure for high-frequency edge data acquisition.

Technical Projects

Distributed HPC Job Scheduler | *Go, Raft Consensus, Distributed Systems*

- Implemented the Raft consensus protocol across 100+ simulated nodes.
- Built a fault-tolerant distributed scheduler with recovery and leader election; developed real-time cluster visualization tools.

Particle Collision Monte Carlo Simulator | *C++, Python, NumPy*

- Developed high-throughput Monte Carlo simulator processing 670k+ events/sec.
- Implemented relativistic scattering simulations and statistical validation; residual error below 1e-12.

Predictive Maintenance for Aerospace Engines | *Python, PyTorch, LSTM, GRU*

- Benchmarked 7 deep learning architectures for Remaining Useful Life prediction.
- Improved performance using feature selection and temporal windowing; best model achieved RMSE 16.86.

Amazon Supply Chain Intelligence | *Python, Gradient Boosting, Geospatial*

- Built multi-class delay prediction systems using geospatial and temporal features.
- Evaluated ensemble models and calibrated operational risk thresholds.

GPT-2 Personal Assistant Core | *Python, PyTorch, Transformers, RAG*

- Implemented transformer internals from scratch including multi-head attention, positional encodings and feed-forward networks without relying on high-level transformer APIs.
- Built retrieval-augmented memory architecture with persistent context management for long-horizon assistant interactions.

3D Skeletal ASL Recognition | *TensorFlow, MediaPipe, Bi-LSTM*

- Developed a real-time sign language recognition system combining MediaPipe skeletal landmarks and Bi-LSTM temporal modeling, achieving 99.86 benchmark accuracy.
- Optimized deployment for Raspberry Pi edge devices and integrated explainability using Grad-CAM and skeletal visualization techniques.

Quantitative Research & Backtesting Platform | *Python, Pandas, NumPy, Quantitative Finance*

- Built an event-driven quantitative research and backtesting infrastructure supporting 10+ years of historical market data.
- Implemented portfolio analytics, risk metrics, walk-forward validation and automated research reporting pipelines.
- Developed market microstructure and execution-analysis modules for systematic strategy evaluation and deployment readiness assessment.

Technical Skills

Programming: Python, C++, Go, SQL
Machine Learning: PyTorch, TensorFlow, Scikit-learn, Reinforcement Learning, Computer Vision, Explainable AI
Systems: Docker, Linux, Git, Distributed Systems, Raft Consensus
Mathematics: Probability, Statistics, Linear Algebra, Numerical Methods