PRANJAL MISHRA

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EDUCATION

New York University, Tandon School of Engineering, New York, NY — Sept 2025 - May 2027 (Expected)
Master of Science in Computer Science — GPA: **4.0/4.0**
Coursework: Machine Learning, Deep Learning, Generative AI, Big Data, Cloud Computing, Algorithms, Software Engineering

Vellore Institute of Technology, Chennai, India — Aug 2021 - Aug 2025
Bachelor of Technology in Computer Science and Engineering — CGPA: **8.51/10.0**

TECHNICAL SKILLS

AI & ML: LLMs, AI Agents (multi-agent, agentic workflows), LangGraph, LangChain, RAG, Embeddings, Evals, Guardrails, Prompt Engineering, PyTorch, Deep Learning, Reinforcement Learning, Transformers, MLOps
Development: Python, TypeScript, JavaScript, Java, C++, SQL, R, FastAPI, Node.js, React, Next.js, REST APIs, WebSockets
Cloud & DevOps: AWS, GCP, Docker, Kubernetes, CI/CD, GitHub Actions, Linux, Git, HPC (Slurm)
Data: PostgreSQL, Redis, Kafka, Spark, Neo4j, MongoDB, TimescaleDB, Data Pipelines, Real-Time Streaming

EXPERIENCE

NYU Langone Health, Department of Radiology — New York, NY
Research Assistant, Johnson Lab (Prostate Cancer MRI AI) — Oct 2026 - Present

- Joined the NCI-funded prostate cancer AI project; building the **full-stack clinical web app**: **DICOM** upload, report parsing and **async model-inference jobs**

Research Assistant, Mazzoli Lab (Musculoskeletal MRI) — June 2026 - Present

- Built **RadAssistant**, an **agentic AI** research extension for **3D Slicer**, used internally by the lab: **LLM agents** (LangGraph) plan and execute across **50+ imaging tools** via **tool calling**, with **guardrails** and **human-in-the-loop** approval on every consequential action
- Engineered the **agent harness** for **production reliability**: **deterministic verification** of every tool output and a **provenance ledger** tracing each reported measurement to its source tool call; adopted by the lab's radiologist, whose workflows became new **agent skills**
- **First and presenting author**, accepted **ISMRM** 2026 workshop abstract (Boston); **JMRI** manuscript in progress: built **end-to-end ML pipelines** on multimodal MRI, benchmarking **11 model families** on **6,752 radiomics features**; improved strength-prediction **R^2 by 0.17-0.21** with bootstrap and permutation testing on **HPC**

CASDIC, DRDO (National Defense R&D Laboratory) — Bengaluru, India
Machine Learning Engineering Intern — Feb 2025 - Jul 2025

- Built a **deep learning** (PyTorch) radar-signature classifier that improved detection accuracy by **15%**, and a **reinforcement learning agent** that automated a manual operator-evaluation protocol in simulation, improving accuracy by **18%**; automated the **signal-processing pipelines** behind both

Physical Research Laboratory (PRL), ISRO — Ahmedabad, India
Software Engineering Intern — Aug 2023 - Dec 2023

- Built a **real-time Apache Kafka streaming pipeline** across **21 LIDAR stations** (hundreds of GB/day), replacing physical hard-drive transport; shipped a **Flask** dashboard on ISRO's public website
- Trained a **deep learning time-series forecasting** model on satellite and ground LIDAR data, cutting regional forecast error by **12%**

PROJECTS

AudioVision | **3rd Worldwide of 4,000+ Teams, AMD Pervasive AI Contest** — **Code** | **Demo**

- **Led a 5-person team** to build a **generative AI** video restoration pipeline in **PyTorch** (GANs, super-resolution, audio generation), optimized for **GPU inference** on AMD ROCm; live demo on AMD's keynote stage

Fleet-Opt | **2nd of 5,000+ Teams, Shell.ai Hackathon** — **Demo**

- Built the **full-stack** app (**Next.js, PostgreSQL, Redis**) around a Python **MILP optimization** service (IBM CPLEX) over 100 stochastic demand scenarios; job queue with request batching and **real-time** progress streaming

VoiceGraph | **Build with AI Hackathon (Google x NYU)** — **Code**

- Built solo overnight: a **real-time voice AI agent** (Gemini Live) over a **Neo4j knowledge graph**; **GraphRAG** with **multi-agent retrieval** across 8 strategies incl. text-to-Cypher and **semantic search**; **FastAPI** + **React**, deployed on **GCP**

IoT Alert Triage Platform — **Code**

- **Full-stack TypeScript** platform for industrial IoT alerts: **event ingestion** with deduplication, **concurrency-safe state machine**, **TimescaleDB** time-series analytics, **multi-tenant React** dashboard, **CI** test suite

OPEN SOURCE

kornia | **3 merged PRs, PyTorch computer vision library (11k+ stars)** — **PRs**

- Fixed a numerical bug in the quartic solver, verified with **randomized property tests** and **mutation testing**; vectorized the RandomRain augmentation into a single GPU write (**8.8x faster**)

career-ops | **5 merged PRs, open-source AI job-search tool (72k+ stars)** — **PRs**

- Fixed the **ATS resume scorer** (Node.js): removed 3 false positives costing every resume **15 of 100 points** and fixed section detection in **18 of 19 languages**; shipped with **regression tests**

AWARDS

NTSE Scholar (India National Talent Search Examination) | **SEAMO Silver Medal** (Southeast Asian Mathematical Olympiad)