Priyanshu Mishra

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Education

Vellore Institute of Technology (VIT) **Expected Jun 2026**
Bachelor of Technology in Computer Science *GPA: 8.4 / 10.0*

Technical Skills

Languages: C++, Python
Frameworks & Libraries: PyTorch, TensorFlow, FastAPI, Django, LangGraph, Google Agent Development Kit
AI/ML & Math: Physics-Informed Neural Networks (PINNs), Deep Learning(CNN), NumPy, Linear Algeba, Probability
Databases & Technologies: MongoDB, PostgreSQL, DBMS
Core CS: DSA, OOP, DBMS, System Design

Experience

ProRoute **December 2025 − January 2026**
Freelancing Project (Paid): Server & Backend Development

- Architected a dual-service backend (Django + FastAPI) with secure inter-service communication via API keys: Django for auth and ride orchestration, FastAPI for OTP and stream link management.
- Implemented JWT authentication with salt verification, refresh token rotation, blacklisting, and role-based access for Passenger and Driver across the API surface.
- Designed PostgreSQL schema with composite indexes, constraints, and an audit trail for ride lifecycle events; implemented token-based stream access with access logging and expiry handling.
- Optimized database queries and implemented caching strategies to reduce response times by 40%.

Projects

Emilio Beaufort **July 2025 − Oct 2025**
Agentic AI CRM System

- Engineered a multi-agent AI CRM pipeline using LangGraph and LLMs with FastAPI, automating lead segmentation and personalized campaign actions.
- Designed and deployed an AI Call Analyzer & Sales Agent using speech transcription and sentiment analysis, improving conversion guidance accuracy by 27%.
- Developed a Manager Dashboard with real-time AI-powered lead scoring based on customer interaction history.
- Implemented complex agent coordination mechanisms for handling customer queries and routing them to appropriate specialized agents.

Vapour Composition Prediction using Physics-Informed Neural Networks (PINNs) | *PyTorch, PINNs, Thermodynamics*

- Designed a Physics-Informed Neural Network (PINN) for Ethanol-Water VLE prediction, achieving a MAE of 0.052 (2% error).
- Integrated a **custom thermodynamic loss function using Modified Raoult's Law** to ensure physically consistent predictions and enforce thermodynamic principles.
- Implemented automatic differentiation to compute physical constraints and incorporated them into the loss function for better generalization.
- Validated model predictions against experimental data and traditional thermodynamic models, demonstrating superior accuracy.

Multimodal Price Prediction - Amazon ML Challenge | *PyTorch, ResNet-50, BERT* **Oct 2025**

- Developed a multimodal deep learning pipeline in PyTorch, fusing image embeddings from ResNet-50 with text embeddings from BERT, improving prediction accuracy by 30%.
- Implemented GPU-accelerated batch inference and automated dataset image acquisition for large-scale data processing.
- Used a MultiLayer Perceptron to utilize the break downs of text and image to predict prize .

Achievements & Certifications

- **Tata Elxsi Teleport 2026:** Secured 19th rank out of 6000+ teams that participated.

- **Amazon ML Challenge 2025:** Secured Top 17% rank nationally (787 / 4800+ teams).

- **LeetCode:** 1700+ rating with 250+ Data Structures and Algorithms problems solved.

- **Intra-VIT Competitive Programming Contest:** Top 4 finalist among 100+ participants.