Prem Kumar

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GitHub — LinkedIn — Portfolio

Education

Indian Institute of Technology Jodhpur   Jodhpur, India
B.Tech in Artificial Intelligence and Data Science   *Oct 2022 – Expected May 2026*
GPA: 8.52 / 10   —   Relevant Coursework: Data Structures, Algorithms, ML, AI, OS, CN, Probability
Kendriya Vidyalaya Mokamaghat
Class XII (CBSE): 92.4%   *2022*
Class X (CBSE): 91.6%   *2020*

Experience

Software Engineering Intern   *Expected May 2025 – Jun 2025*
Citadel   New York, NY, USA (Remote)
- Built a high-frequency trading simulator in Python processing **100K+ trades/sec** with **¡5ms latency**, enabling realistic backtesting for algorithmic strategies.
- Led a 4-member team to optimize data ingestion pipelines using **Kafka and Redis**, reducing data lag by **35%** and improving real-time analytics reliability.
- Automated CI/CD workflows using **GitHub Actions and Docker**, increasing deployment reliability by **40%** and reducing manual errors.

Projects

Smart-Grading-App   *Aug 2024 – Nov 2024*
Guided by Dr. Binod Kumar   GitHub   Live Demo
- Developed an automated grading tool for faculty, processing 150+ student records with modular rubrics, cutting manual grading time by **50%**.
- Designed a Tkinter GUI with Excel I/O integration, enabling seamless import/export and improving usability for non-technical users.
- Visualized performance trends using **Pandas and Matplotlib**, helping educators identify class-wide learning gaps.
- Maintained **85% unit test coverage**, resolving 12+ integration bugs before release.

Packet Analyzer Dashboard   *Mar 2024 – Apr 2024*
Guided by Dr. Sumit Kalra   GitHub
- Created a real-time network monitoring dashboard using **Dash**, visualizing 500 packets/sec with **92% anomaly detection accuracy**.
- Reduced false positives in intrusion alerts by **20%** using heuristic filtering and optimized packet parsing algorithms.
- Improved throughput by **25%** via concurrency and algorithmic optimization, enabling scalable analysis for large networks.

Language Learning Bot   *Nov 2023 – Dec 2023*
Independent Project   Live Demo
- Built an NLP-powered chatbot using **seq2seq RNN models (TensorFlow)** for real-time translation across Spanish, French, Japanese, and Hindi.
- Deployed a **Flask backend** handling 500+ daily queries with **200ms latency**, ensuring responsive user experience.
- Designed a clean frontend that improved user engagement by **40%**, ideal for language learners and travelers.

Technical Skills

Languages: Python, C++, Java, JavaScript, SQL   **AI/ML:** TensorFlow, Keras, Scikit-learn, NLP, Pandas, NumPy
Web: React, HTML, CSS, JavaScript, Flask, Dash   **Tools & Platforms:** Git, GitHub Actions, Docker, Linux, Kafka, Redis

Concepts: Data Structures, Algorithms, OOP, CI/CD, Microservices, Unit Testing

Certifications

- Deep Learning Specialization - Coursera (DeepLearning.AI)
- AWS Certified Cloud Practitioner