

Abhijeet Pandey

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AI/ML Engineer | Computer Vision | Autonomous Systems | Deep Learning

Technical Summary

Specialized MSCS student at Texas Tech University (GPA: 4.0) with deep expertise in **Computer Vision**, **Reinforcement Learning**, and **Robotics**. Proven record in architecting **high-performance data pipelines** (480 GB) and deploying **offboard vision-in-the-loop** systems.

Education

• Texas Tech University – Lubbock, TX

Master of Science in Computer Science (Expected May 2027)

GPA: 4.0/4.0

Relevant Coursework: Intelligent Systems (101.77%), Analysis of Algorithms (100.09%)

• Tribhuvan University – Kathmandu, Nepal

Bachelor of Science in Computer Science and Information Technology (B.Sc. CSIT) (Graduated Nov 2024)

Technical Skills:

Languages: Python, SQL, C/C++, C#, Java

Frameworks/Libraries: TensorFlow, OpenCV, Numpy, Pandas, Matplotlib, Django

Tools: Git/GitHub, Postman

Experience

1) Junior Researcher | Phantom – Kathmandu, Nepal — Aug 2024 – Jun 2025

- Optimized UAV object detection models to achieve an **18% accuracy increase** (60% to 78%) through systematic data augmentation and hyperparameter tuning.
- Developed an **offboard vision-in-the-loop** safety system using **SegNet for semantic segmentation** to define real-time safety buffers and navigate "No-Fly Zones".

2) Software Intern | LIS Nepal – Lalitpur, Nepal — Apr 2024 – Jun 2024

- Achieved 90% accuracy on standard queries and 75% on complex nested-join schemas when evaluated against **validation benchmarks** established by the Lead Data Engineer.
- Engineered a personalization system using vector embeddings, K Nearest Neighbours, and cosine similarity to provide long-term memory and context-aware user interactions.
- Expanded query complexity coverage by engineering multi-table join support for the chatbot's LLM.

Projects

1) Autonomous Driving Car in GTA V — Python, C#

- Engineered a **480 GB multi-modal data pipeline** using **WebSockets (IPC)** to stream and synchronize game telemetry with image frames via **temporal alignment**.
- Implemented real-time heuristic validation (e.g., zero-velocity consistency checks) to filter corrupted telemetry at the source, ensuring high-fidelity synchronization for the 480GB dataset.
- Designed a perception system using **Inverse Perspective Mapping (IPM)** and **sliding window search** to track lane curvature in a top-down bird's-eye view.
- Integrated GIS mapping for real-time route navigation and telemetry-based reinforcement learning.

2) Reinforcement Learning Car in TORCS — Python, C

- Trained a **Deep Q-Network (DQN)** agent using a **multi-objective reward function** balancing directional alignment, spatial centering, and progress-based displacement.
- Implemented **heuristic-driven exploration** and a **predictive look-ahead penalty** for cornering, achieving 95% on-track accuracy on complex circuits.

3) Flight Information Display System (FIDS) — Python, Django, MySQL, ML Libraries

- Developed an ML-driven flight delay prediction system achieving 85%+ accuracy via Fully Connected Neural Network.
- Deployed RESTful APIs for real-time flight status and delay insights.

Leadership & Achievements

- Winner, Kathford Intercollege Coding Competition (2024) — 200+ participants
- Mentor, Git/GitHub and ML Workshop (2023) — Trained 50+ students in major and minor projects.
- Organizer, InnovateX & Kathfest 2.0 — Led coordination of 7 large-scale tech events with 5,000+ attendees