Nitish Bhardwaj

Final year B.Tech. Student
in Artificial Intelligence and Data Science
Indian Institute of Technology Jodhpur
Rajasthan, India

+91-8287040699
bhardwaj.11@iitj.ac.in
Github
LinkedIn

Personal Statement

As a motivated student, I'm passionate about Artificial Intelligence and Data Science, especially in the field of machine learning and computer vision, aiming to gain expertise and contribute to impactful projects.

Education

Degree/Certificate	Institute/Board	CGPA/Percentage	Year
B. Tech.	Indian Institute of Technology Jodhpur	8.37	2021-2025
Senior Secondary	CBSE Board	95.8%	2021
Secondary	ICSE Board	98.2%	2019

Projects

- **Taxi Demand Forecasting** *April 2024 - May 2024*
  Course Project, Guide: Dr. Angshuman Paul, Assisstant Professor, IIT Jodhpur Github
  – Developed a staged approach to enhance time series forecasting, achieving a **10% improvement in Mean Squared Error** compared to baseline models.
  – Utilized a comprehensive dataset comprising over 100,000 trip records from yellow taxis in New York City, preprocessed with linear interpolation and normalization.
  – Introduced major innovations including the **Seasonal Net architecture** and **Periodicity-preserving sequences (PPS)**, resulting in a significant enhancement in forecasting performance.
  – **Tools / Technologies :** Python, Numpy, Pandas, Matplotlib, PyTorch

- **Super Store Dashboard** *April 2024*
  Course Project, Guide: Dr. Suman Kundu, Assisstant Professor, IIT Jodhpur Website
  – Developed an interactive **Streamlit dashboard** for analyzing sales data from a superstore.
  – Implemented dynamic filtering options for exploring data based on region, state, city, product categories selections.
  – Created insightful visualizations including bar charts, pie charts, tree maps and time series analysis to uncover sales trends and patterns.
  – Data and dashboard documentaion can be used from Github (click here).
  – **Tools / Technologies :** Python, Plotly, Streamlit

- **Vehicle Detection and Tracking** *March 2024*
  Personal Project Github
  – Utilized the **Ultralytics YOLO** model and **SORT algorithm** to robustly detect and track vehicles, improving traffic management by providing real-time data on vehicle flows and congestion.
  – Developed an interactive **CLI** for user-friendly operation and implemented **dynamic ROI** handling with optional mask application, optimizing detection accuracy under various environmental conditions.
  – Integrated advanced tools like OpenCV, cvzone to efficiently process video streams, contributing to smart city solutions by enhancing **traffic flow optimization** and urban mobility planning.
  – **Tools / Technologies :** Python, PyTorch, OpenCV, cvzone, Ultralytics

- **LinkedIn Web Scraping Project** *Jan. 2024*
  CourseWork Project, Guide: Dr. Saptarshi Pyne, Assistant Professor, IIT Jodhpur Github
  – Engineered an **automated web scraping tool** in Python for extracting data from LinkedIn profiles, using Streamlit for the interactive user interface.
  – Implemented Selenium for web automation, enabling users to input LinkedIn credentials and upload a text file containing profile URLs.
  – Developed modules for **logging in, scraping profile details, and processing data**, resulting in a **downloadable JSON file** with scraped profile data.
  – **Tools / Technologies :** Python, Streamlit, Selenium, BeautifulSoup.

- **MensWear Classification** *Oct. 2023*
  CourseWork Project, Guide: Dr. Pratik Mazumder, Assistant Professor, IIT Jodhpur Github
  – **Designed a CNN** for Mens Clothing classification and created dataset with **411 self captured images**.
  – Employed **transfer learning** on CNN trained on regular images, and achieved **10% increase in accuracy** on partially masked images.
  – **Deployed** the model using Flask, enabling users for clothing classification
  – **Tools / Technologies :** Python, PyTorch, OpenCV, Flask.

- **NCVPRIPG Writer Verification** *May. 2023 - Jul. 2023*
  Self-paced Project Github
  - Engineered a **Siamese Network architecture with KNN classifier** for writer verification in order to **authenticate handwritten documents.**
  - Attained a **20% boost in AUC** compared to pre-trained models while training on real-life handwritten Hindi dataset.
  - **Deployed** the model using the **Flask**, allowing users to verify handwritten documents.
  - **Tools / Technologies :** PyTorch, Scikit-learn, OpenCV, Flask.

- **Network Intrusion Detection** *April 2023*
  Exploratory Project, Guide: Dr.Ravi Yadav, Assistant Professor, IIT Jodhpur Github
  - Utilized the **CICIDS2017 dataset**, comprising network features like IP addresses, ports, packets, payload data, and protocols.
  - **Built a model** which could **detect trojans** by examining network behavior and statistical changes in network traffic, achieving an **accuracy of 99.2%** on this dataset
  - **Tools / Technologies :** TensorFlow, Scikit-learn, Numpy, Pandas, Matplotlib.

Technical Skills

- **Programming**: Python, C++, HTML, CSS, JavaScript, R, MySQL, MongoDB, Neo4j
- **Tools/Frameworks**: Pytorch, TensorFlow, Flask, Streamlit, ML Libraries
- **OS/Others**: Windows, Ubuntu, Latex, Github

Key courses taken

Pattern Recognition and Machine Learning, Principles of Computer Systems, Data Structures and Algorithms, Introduction to Computer Science, Linear Algebra, Probability, Maths for Computing, Data Engineering, Optimization for Machine Learning, Visual Computing, Design and Analysis of Algorithms, Artificial Intelligence, Deep Learning, Computer Vision, Data Visualization

Achievements

- **Course Grade**:Got Grade A in Visual Computing Lab Course, A- in Computer Vision, Data Visualization, Deep Learning.
- **NCVPRIPG**:Ranked among the top 10 competitors in the competition.
- **Branch Changer**:Only top 3% academic performers gets the chance for branch change at the end of first year.
- **MTA**: Introduction to Programming Using Python - Microsoft Certified 2022.
- **City Topper**:Secured 2nd rank in the Kanpur City in Class 10th ICSE Board Examinations