JIVJOT SINGH

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PERSONAL PROFILE

An IISER Mohali Physics graduate student majoring in **Astrophysics** with a specialization in Data Science, transitioning to a career as **Machine Learning Researcher**. Passionate to expand the **one & a half year** experience with recent focus on developing Demand Forecasting & Generative AI solutions as a Research Assistant at IIIT Delhi.

WORK EXPERIENCE

Research Assistant
Oct 2023 - Present

Infosys Centre for AI, Indraprastha Institute of Information Technology, Delhi
Delhi, India

- Deploying **LangChain** built Generative AI applications on **Streamlit** to aid content generation for a shopping website
- Crafted nested chains by combining **Open-source LLMs** on Ollama with SEO tools, in-context memory buffers, vector stores etc. alongwith Zero-Shot & One-Shot **Dynamic Prompting**
- Automating scheduled pipelines on **Azure ML Studio** for Demand Forecasting & Inventory Management using **AutoGluon Time Series & Nixtla** libraries
- Trained **Entity Embeddings** in combination with **Tabular Clustering** to counter temporal data-sparsity & integrated filtering criteria to improve the forecast correlation

Research Intern
Jun 2023 - Sep 2023

Institute of Data Sciences, Indian School of Business, Mohali
Mohali, India

- Worked on **Topic Modelling** of grievance data from Punjab Government to identify district-wise issues using **BERTopic**

Project Intern
May 2023 - Jun 2023

Tatras Data
Remote

- Worked on scraping images from Instagram using **Selenium** & classify real vs fake food influencers with **Fine-tuned ResNet50**

Data Science Intern
Jan 2023 - Jun 2023

Sabudh Foundation
Remote

- Built a **Medical Chatbot** in **RASA** & excelled in **Kaggle competitions** - Frame Level Speech Recognition & Document Classification

PROJECTS

GitHub Repos
Jan 2023 - Mar 2023

- Carried out **Research Paper Implementations** of different **Generative Adversarial Networks** in pure **PyTorch** - Vanilla GAN, Deep Conv GAN vs Wasserstein with Gradient Penalty GAN, Conditional Pix2Pix GAN and Progressive GAN
- Implemented classic ML algorithms like, **KNN, Linear & Polynomial Regression** in pure **NumPy**
- Used **Monte Carlo Approximation** to visualize the value of pi

Speech Recognition
Mar 2023 - Apr 2023

Indian Institute of Science Education and Research, Mohali
Mohali, India

- Built **TensorFlow** routines for expanding temporal context & **Deep Residual-Conv** models to perform Phoneme Classification
- Combined **Bi-LSTM & Conv2D** layers to classify at an utterance level using **Functional, Sequential & Sub-classing** methods

Multi-Layer Perceptron using NumPy
Feb 2023 - Mar 2023

Indian Institute of Science Education and Research, Mohali
Mohali, India

- Created an **Object-Oriented** code base that implements the complete architecture of **MLP from scratch**

IPL batting partnership Network Analysis
Sep 2022 - Oct 2022

Indian Institute of Science Education and Research, Mohali
Mohali, India

- Performed **Web Crawling** of ESPN to aggregate partnership statistics & built **Network Graphs** to rank key players

MASTERS THESIS

Dissertation: Multi-wavelength analysis of the NGC 3227 group using AstroSat
May 2022 - Apr 2023, 5 yrs

Indian Institute of Science Education and Research, Mohali
Mohali, India

- **Designed code** implementing an innovative approach for distinguishing faint astronomical objects
- **Discovered a Tidal Dwarf Candidate**, exclusively observable in the AstroSat image of galaxy NGC 3227
- Defended my thesis in front of the Astrophysics committee through **Poster, PowerPoint & LaTeX presentations**

EDUCATION

Indian Institute of Science Education and Research, Mohali   *Aug 2018 - May 2023*
BS-MS with Major in Physics & Minor in Data Science   *Mohali, India*
- **Relevant Courses:** Python Programming, Analysis in one variable, Probability & Statistics, Non-linear dynamics, Machine Learning, Data Science, Design & Analysis of Algorithms

Sacred Heart Senior Secondary School   *Mar 2016 - Apr 2018*
High School   *Ludhiana, India*
- **Subjects**: Physics, Chemistry, Maths, English & Fine Arts

TECHNICAL SKILLS

Python Libraries   TensorFlow, PyTorch, Transformers, LangChain, NumPy, Matplotlib, Plotly, Pandas, Scikit-learn
Miscellaneous   LaTeX, Git, Linux, Microsoft Office, Quarto
Soft Skills   Research, Adaptability, Time Management, Problem-solving, Documentation, Presentation