JIVJOT SINGH

Ludhiana, Punjab

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PERSONAL PROFILE

An IISER Mohali Physics graduate student with a specialization in Data Science, transitioning to a career as **Machine Learning Researcher**. Currently focused on applying **Natural Language Processing** techniques to generate strategic insights. Passionate to expand the one year experience in Machine Learning & combine it with **Astrophysics** to leverage my knowledge for positive societal change.

WORK EXPERIENCE

Indian School of Business
Mohali, India

Research Intern @ Institute of Data Sciences
Jun 2023 - Present

- Working on **Multi-lingual Code-mixed** seeded translation using AI4Bharat base libraries
- Operating within a dynamic Big Data environment, leading **Data Mining** of news articles from the last century
- Harnessing the power of GPU computations to perform **Topic Modelling** through Latent Dirichlet Allocation & Transformers

Tatras Data
Mohali, India

Project Intern
May 2023 - Jun 2023, 2 months

- Scraped social media handles of Political leaders to perform **Sentiment Analysis**
- Facilitated the identification of small to medium-scale food influencers within specific geographies by **scraping Instagram** using Selenium
- Fine-Tuned Keras models like **ResNet50**, achieving accuracy of 97.36% on classifying Food-vs-NonFood images to enhance filtering

Sabudh Foundation
Mohali, India

Data Science Intern
Jan 2023 - Jun 2023, 6 months

- Seasoned with Data Structures & Algorithms, **Machine Learning**, Deep Learning & **Natural Language Processing**
- Excelled in **Kaggle competitions**: Frame Level Speech Recognition and BBC Document Classification
- Built a **Medical Chatbot** powered by RASA & Python as part of the Passion Project with the presentation delivered through Quarto

UNIVERSITY PROJECTS

Speech Recognition
Mohali, India

Indian Institute of Science Education and Research, Mohali
Mar 2023 - Apr 2023, 1 month

- Thoughtfully devised **Sequence models** using non Recursive Nets making use of residual connections to classify at a frame level
- Engineered **feature-expansion** approaches by parameterizing temporal context through customizing TensorFlow generators
- Constructed Dense and Convolution Deep Residual Networks by combining **Functional, Sequential & Sub-classing** methods

Multi-Layer Perceptron using NumPy
Mohali, India

Indian Institute of Science Education and Research, Mohali
Feb 2023 - Mar 2023, 1 month

- Successfully created an **Object-Oriented code base** that implements the complete architecture of MLP from scratch
- Coded different methods of weight initializations & activations alongwith **Stochastic Mini-batch Gradient Descent with momentum**
- Tested on the MNIST data which resulted in **98.00% validation accuracy** using a deep architecture

IPL batting partnership Network Analysis
Mohali, India

Indian Institute of Science Education and Research, Mohali
Sep 2022 - Oct 2022, 1 month

- Aggregated the partnership statistics by **Web Crawling** the ESPN website
- Built dynamic **Network Graphs** to rank key players based on various Centrality measures
- Discovered that the IPL batting Network is very weak Dis-assortative type using the Average Nearest Neighbor Degree results

SKILLS

Data Science	Python, Probability, Statistics, Linear Algebra, Calculus, Data Structures & Algorithms, Data Mining
Libraries	Selenium, BeautifulSoup, NumPy, Matplotlib, Plotly, Pandas, Scikit-learn, RegEx, TensorFlow, Keras
Machine Learning	Bayesian Learning, Gaussian Models, Regressions, Supervised & Unsupervised Learning, Clustering, Dimensionality Reduction, Latent variable models, Deep Learning
Natural Language Processing	Vector Embedding, Feature Engineering, Topic Modelling, Text Classification, Sentiment Analysis, Speech Recognition, Translation, Transliteration, Chatbot
Miscellaneous	LaTeX, Git, Linux, Microsoft Office, Quarto
Soft Skills	Research, Adaptability, Time Management, Multitasking, Problem-solving skills, Documentation Presentation skills, Logical & Critical Thinking, Teamwork, Creativity

MASTERS THESIS

Dissertation: Multi-wavelength analysis of the NGC 3227 group using AstroSat
Mohali, India
Indian Institute of Science Education and Research, Mohali
May 2022 - Apr 2023, 5 yrs
- Studied the dynamics of Star-forming galaxies within an interacting system, employing a comprehensive multi-wavelength approach
- Conducted **statistical analysis** on astronomical sources extracted from AstroSat-UVIT's image of galaxy NGC 3227
- **Designed code** implementing an innovative approach for distinguishing faint objects between Point sources & Extended objects
- Modelled Spectral Energy Distribution model by integrating data from various astronomical missions
- **Discovered an exciting Tidal Dwarf Candidate**, exclusively observable in the AstroSat data of the Far Ultraviolet band
- Effectively communicated the findings to the Thesis committee through results showcased in **Poster, PowerPoint & LaTeX presentations**

- **Technical Skills:** Python, SciPy, Matplotlib, SOURCE EXTRACTOR, MAGPHYS, LaTeX, PowerPoint
- **Soft Skills:** Time Management, **Research**, Presentation skills, Report & **Thesis writing**

EDUCATION

Indian Institute of Science Education and Research, Mohali
Mohali, India
BS-MS with Major in Physics & Minor in Data Science
Aug 2018 - May 2023
- **Relevant Courses: Python programming**, Analysis in one variable, Introduction to Cryptography, **Probability & Statistics**, Math methods for physicists, Statistical Mechanics, Non-linear dynamics, **Data Science**, **Machine Learning**, **Design & analysis of algorithms**

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

ACHIEVEMENTS

2023	**Elite**, Design & Analysis of Algorithms NPTEL Exam	*India*
2018, 2019	**Volunteer**, Physics experiments demonstration @ IISER Mohali Foundation Day	*India*
2016	**Winner**, Radiometer Construction @ Science Exhibition	*India*

INTERESTS

Art	I dedicate my free time to painting and sketching as a form of artistic expression.
Technical Writing	I began posting on LinkedIn where I combine GitHub-hosted IPython Notebooks with digital notes on ML

LANGUAGES

English	Professional proficiency
Punjabi, Hindi	Native proficiency