ISHAAN WATTS

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EDUCATION

Indian Institute of Technology, Delhi *(July 2019–Present)*
- Bachelor of Technology in Engineering Physics — *CGPA: 9.11/10*
- Minor Area Specialisation in Computer Science. — *CGPA: 9.33/10*

Relevant Coursework: Machine Learning, Linear Algebra and Differential Equations, Probability and Stochastic Processes, Calculus, Data Structures and Algorithms, Analysis and Design of Algorithm, Social Computing, Signals and Systems

Delhi Public School Sector-19, Faridabad *(April 2004– April 2019)*
Specialized in Physics, Chemistry and Mathematics (CBSE) — *Marks: 93.20%*

SCHOLASTIC ACHIEVEMENTS
- **Merit Award:** Awarded by **scholarship** and **merit certificate** 3x time for being **top 7% student**. *(2021-2022)*
- **JEE-Mains:** Secured **99.94** percentile/All India Rank **785** in JEE-Mains amongst **1.4 million candidates**. *(2019)*
- **JEE-Advanced:** Awarded an All India Rank of **1635** in JEE-Advanced from over **0.25 million** candidates. *(2019)*
- **KVPY:** Recipient of the prestigious KVPY Fellowship (Kishore Vaigyanik Protsahan Yojana). *(2018)*

INTERNSHIPS

Udaan, Bangalore | *Data Science and Analytics* *(May'22–July'22)*
- Developed framework to generate unsupervised **multi-purpose embeddings** to include context from every vertical.
- Applied **DeepWalk** and built Multi-Relational buyer-seller graph with over **1.5 million** edges via pytorch-geometric.
- Designed **Hetero-Graph AutoEncoder** and deployed in Fraud Prevention improving **Udaan Hit by 2.45%**.

Conferred with a Letter of Recommendation by the Data Science Lead at Udaan for impactful contribution.

Torch Investment Management Pvt. Ltd | *Machine Learning Engineer* *(Sept'22–Present)*
- Optimised and managed code base for Regression Model to predict Top30 S&P500 for next year with **19%** returns.
- Scraped Twitter with **snscrape** and used **BART** and **FinBERT** for topic classification and **sentiment analysis**.
- Curated and modelled SASEIDX dataset extracted from Bloomberg achieving **33%** returns using regression models.

Griffith University, Australia (Dr Saiful Islam) | *Research Intern* *(May'20 - July'20)*
- Performed **static analysis** on binary programs to construct **Control Flow Graphs** (CFGs) using angr library.
- Extracted opcodes, adjacency lists and applied **tf-idf vectorisation** to generate features for CFG of binary programs.
- Utilised Graph Convolutional Neural Network to construct graph2vec for classifying programs as malware.

PROJECTS

Physics at Large Hadron Collider: Data Analytic Approach | *Prof. Abhishek Iyer* *(Aug'22 - Nov'22)*
- Utilized **CERN's ROOT** framework to obtain energy and momenta of two-proton collision for **anomaly detection**.
- Inspected features of dataset derived from physics to calculate **2.719** signal discovery significance of distributions.
- Designed Neural Networks and Auto-Encoders with **96.3%** and **80%** accuracy and optimized model using **Optuna**.

Social Network Analysis of The Indian Stock Market | *Dr. Abhijnan Chakraborty* *(Jan'22 - Apr'22)*
- Sourced **NIFTY** 4 year OHLC data from NSE, India and **Yahoo Finance** for preliminary and Covid19 analysis
- Performed **time-series decomposition** estimating return, visualised **stock-split** and **40%** log deviation in Covid .
- Visualised stock graphs using Winner Takes All and MST method with Louvain **community detection** via Gephi.

Yoga Pose Estimator | *Prof. Rahul Garg* *(Oct'21 - Nov'21)*
- Designed **Deep CNN** model using transfer learning in **PyTorch** to detect yoga pose through various camera angles.
- Transformed dataset images containing **19** Asanas to avoid background misrecognition & better feature interpretation.
- Developed hybrid **Densenet121** architecture achieving **83%** accuracy leveraging GPU acceleration using **HPC**.

Image Captioning | *NLP task combined with ResNet50 model architecture* *(June'21 - July'21)*
- Programmed Image Caption Generator using **Flickr8k Dataset** and **glove.6B.50d** word embeddings via Kaggle.
- Utilised **transfer learning** to initialise image vectors using **ResNet50** model architecture with ImageNet weights.
- Generated caption with data generator combining image vector and LSTM model with Keras Functional API.

TECHNICAL SKILLS

Python, SQL, PySpark, Databricks, PyTorch, TensorFlow, Keras, Snscrape, Git, LaTeX, Gephi, HPC, Scikit-Learn

POSITION OF RESPONSIBILITY

Publicity Coordinator | *Rendezvous'23* *(Jan'23 - Present)*
- In-charge of Offline Publicity in 100 colleges of Delhi-NCR by finding Campus Ambassador and distributing pamphlet.
- Coordinating with student organisation International Fraternity of Medical Students (IFMS) and 6 activity heads.

Student Mentor | *Board for Student Welfare, IITD* *(Oct'22 - Present)*
- Mentoring 6 freshman over the course of semester for smooth transitioning to campus life and organising activities.