

ISHAAN WATTS

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EDUCATION

Indian Institute of Technology, Delhi

(July 2019–Present)

- Bachelor of Technology in Engineering Physics
- Minor Area Specialisation in Computer Science.

CGPA: 9.11/10

CGPA: 9.33/10

Relevant Coursework: Linear Algebra and Differential Equations, Calculus, Probability and Stochastic Processes, Data Structures and Algorithms, Analysis and Design of Algorithms, Machine Learning, Social Computing, Digital Electronics, Signals and Systems, Computational Physics, Statistical Physics.

Delhi Public School Sector-19, Faridabad

(April 2004– April 2019)

Specialized in Physics, Chemistry and Mathematics (CBSE)

Marks: 93.20%

SCHOLASTIC ACHIEVEMENTS

- **Merit Award:** Received 3x times for securing position amongst top 7% students for 3 semesters. (2021–2022)
- **JEE-Mains:** Secured 99.94 percentile/All India Rank of 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 a framework for generating unsupervised multi-purpose embeddings to include context from every vertical.
- Applied DeepWalk and constructed Multi-Relational Heterogeneous buyer-seller graph via pytorch-geometric library.
- Designed Hetero-Graph AutoEncoder and used in Fraud and Abuse Prevention improving Udaan Hit by **2.45%**.

Torch Investement Management Pvt. Ltd | *Quantitative Strategist*

(Sept'22–Present)

- Optimised and managed the code base for the Regression Model to predict Top30 S&P500 stocks for next year.
- Extracted Twitter data and used NLP models BART and FinBERT for topic classification and sentiment analysis.
- Curated and modelled SASEIDX dataset analysing results for 10 different 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 libraries.
- 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 Muralidhar Iyer* (Aug'22 - Nov'22)

- Utilized CERN's ROOT framework for obtaining the energy and momenta data of two-proton collision events.
- Inspected features of the dataset derived from physics to calculate the Signal Discovery Significance of distributions.
- Designed Neural Networks and Auto-Encoders and selected the best performing model using the Optuna framework.

Social Network Analysis of The Indian Stock Market | *Dr. Abhijnan Chakraborty*

(Jan'22 - Apr'22)

- Sourced NIFTY top stocks OHLC data from NSE, India and Yahoo Finance for preliminary and Covid19 analysis
- Performed time-series decomposition and estimated returns visualising stock splits and covid effect on stock market.
- Visualised stock graphs using Winner Takes All and MSTs methods with Louvain community detection via Gephi

Yoga Pose Estimator | *Prof. Rahul Garg*

(Oct'21 - Nov'21)

- Designed a Deep CNN model using transfer learning in PyTorch to detect yoga pose through various camera angles.
- Transformed dataset images containing 19 Asanas to avoid the background misrecognition better feature interpretation.
- Developed hybrid Densenet121 architecture with pretrained weights leveraging GPU acceleration using HPC.

McMohans Burgers - Restaurant Simulation | *Prof. Mausam*

(Feb'21 - Mar'21)

- Developed real-time simulation of restaurant environment using hypothetical model designed to increase work output.
- Efficient implementation of MinHeaps to execute multiple queries and AVL Trees to access customer database
- Fabricated algorithm with state function which updates the customer with state of his order in every instant of time

TECHNICAL SKILLS

Python, Java, SQL, PySpark, Databricks, PyTorch, TensorFlow, Angr, Networkx, Snsrape, Git, LaTeX, Gephi, HPC

POSITION OF RESPONSIBILITY

Student Mentor | *Board for Student Welfare, IITD*

(Oct'22 - Present)

- Mentored 6 IITD freshman over the course of the semester for smooth transitioning to campus life.
- Organised activities and interactive sessions for mentees to introduce campus culture and solve issues.

Captain & Vice-Captain Aquatics (Girnar Hostel) | *Board for Sports Activities, IITD*

(Sept'20 - May'21)

- Co-led water polo team to 3rd position in Inter-hostel Sports Championship and emerged overall winners aquatics.
- Contingent secured 1st position in Intra IIT Sports General Championship across 13 hostels by gaining 62.2 points.