

# Deepanshu Jindal

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<https://djin31.github.io/>

## WORK EXPERIENCE

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### Quantitative Trader, Tower Research Capital

Aug 2020-Present

- Worked on high-frequency market making and taking strategies as part of equity trading desk in Limestone
- Successfully deployed strategies in US equity, cryptocurrency and India equity markets
- Analyzed time series market data to identify and quantify statistical trading opportunities.
- Designed feature sets, sampling techniques and trained machine learning models for price forecasting.
- Implemented low latency execution strategies to trade on the opportunities while controlling risk exposure

### Strategy Intern, Tower Research Capital

May-July 2019

Summer Internship

- Built models to predict market signals to generate buy-sell triggers for an aggressive trading strategy
- Employed variety of feature selection, data sampling techniques to efficiently use long market histories

### Research Intern, ChironX

Nov-Dec 2018

Winter Internship

[Project repo](#)

- Worked towards building deep learning techniques for medical diagnosis from Retinal Fundus images
- Designed a U-Net based deep CNN for blood vessel segmentation from high resolution fundus images
- Segmented vessel map and background fundus are used for detecting clinical features by downstream models

### Summer Research Intern, National University of Singapore

May-Jul 2018

Under Prof. Ben Leong, Systems & Networking Lab, School of Computing

[Project repo](#)

- **P4-trafficool**: An open-source tool for P4 developers to aid custom protocol packet generation and parsing
  - Generates plugin code for network tools to support custom packet formats defined in P4 program
  - Currently supports code generation for Wireshark, Scapy, MoonGen, PcapPlusPlus

*[Poster](#) for the tool accepted at ACM Symposium on SDN Research - 2019, San Jose*

## ACADEMIC DETAILS

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Year	Degree	Institute	CGPA/Percentage
2016-Present	B.Tech, Computer Science & Engineering	Indian Institute of Technology Delhi	<b>9.913</b> <b>Institute Rank 1</b>
2016	Class XII, CBSE	S. D. Public School	98.6%
2014	Class X, CBSE	S. D. Public School	10.00

## RELEVANT COURSES

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Reinforcement Learning, Natural Language Processing, Machine Learning, Artificial Intelligence, Discrete Mathematics, Parallel Computing for Deep Learning, Linear Algebra, Linear Optimization, Prob. & Stochastic Processes

### Online Courses

[Deep Learning Specialization](#), [Bayesian Methods for Machine Learning](#), [Econometrics: Methods and Applications](#), [Financial Markets](#)

## TECHNICAL SKILLS

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- **Programming Languages:** Python, C/C++
- **Tools and Frameworks:** PyTorch, Git, Bash scripting, L<sup>A</sup>T<sub>E</sub>X

## PROJECTS

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**Neural Learning of One-of-Many Solutions for Combinatorial Problems** July 2019 - *Present*  
*B.Tech. Thesis under Prof. Mausam and Prof. Parag Singla, IIT Delhi* [Project repo](#)

- Explored challenges posed due to solution multiplicity when training deep learning models
- Proposed a reinforcement learning based teacher module to guide the training process

*Paper* accepted at ICLR 2021

**DeepGo: AlphaGoZero implementation for low resource training** Oct 2019 - Nov 2019  
*Prof. Parag Singla, Course Project for Reinforcement Learning*

- Open-source implementation with customized exploration strategy for MCTS enabling model training with limited compute and memory

**Deep Learning for inference over Markov Networks** Jan 2019 - May 2019  
*Prof. Mausam and Prof. Parag Singla, IIT Delhi*

- Developed an *anytime algorithm* to do MAP inference over Markov Networks with varied sizes
- Used Graph Attention Networks to build a deep learning model that could generalize over graph-size
- Model predictions were used to provide initialization state to MaxWalkSAT algorithm for MAP inference

**Style Transfer to combat Hate Speech** March 2019 - May 2019  
*Prof. Mausam, Course project for Natural Language Processing*

- Worked towards addressing the problem of hate speech on social media using Style Transfer techniques
- Used Vocabulary Augmentation to build lexicon to remove semantically inconsequential abusive words
- Used style transfer models to reduce hatred in text while preserving meaning to the extent possible

**Hand Gesture Controlled Robot** Sep 2016 - Jan 2017  
*Robotics Club, IIT Delhi*

- Designed and fabricated a differential drive hand-gesture controlled robot capable of transporting weights
- Secured Second Runner-up position at the nationwide event Magneto, organised by IIT Madras

## SCHOLASTIC ACHIEVEMENTS

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- Awarded **President's Gold Medal** for securing highest GPA amongst the graduating students at IIT Delhi.
- Awarded **IIT Delhi Merit Prize** in every semester for being in the top 7 percentile of students.
- Secured **All India Rank 1** in Joint Entrance Exam Mains - 2016 among 1.2 million candidates.
- Secured **All India Rank 53** in Joint Entrance Exam Advanced - 2016 among 178,000 candidates.
- Student attendee at **Cornell, Maryland, Max Plank Research School 2019** at MPI-SWS, Germany
- Awarded Kalpana Chawla Scholarship for scientific achievement at IIT Delhi.
- Awarded KVPY Fellowship by *Dept. of Science & Technology, Govt. of India*
- Awarded Certificate of Excellence for scoring 100 Marks in Physics and Mathematics by *HRD Ministry*
- Teaching Assistant for Introduction to Artificial Intelligence, Data Structures and Algorithms, and Introduction to Parallel Programming using OpenMP