Deepanshu Jindal

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Academic Details

B. Tech. Computer Science & Engineering **CGPA: 9.91**
Indian Institute of Technology Delhi 2016 - 2020 **Institute Rank 1**
Recipient of President's Gold Medal

Work Experience

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-traffictool**: 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

  Poster for the tool accepted at ACM Symposium on SDN Research - 2019, San Jose

Relevant Courses

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

- **Programming Languages:** Python, C/C++
- **Tools and Frameworks:** PyTorch, Git, Bash scripting, LaTeX

Honors and Awards

- 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.
- 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*

Projects

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 Tranfer 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

Co-Curricular Activities

- Attended **Cornell, Maryland, Max Plank Research School 2019** at MPI-SWS, Germany
- Teaching Assistant for *Introduction to Artificial Intelligence*, *Data Structures* and *Introduction to Parallel Programming using OpenMP*
- **Chair, ACES ACM IIT Delhi Student Chapter** - Computer Science Departmental Society
- **Convenor, 2016 entry Computer Science Batch** (April, 2018 - May, 2019)