Ankur Sharma

ankursharma.iitd@gmail.com | (+91) 9971060451 Github | LinkedIn

Academic Qualifications

Year	Degree	Institution	CGPA/Percentage
2015-2020	B.Tech. & M.Tech. (Dual Degree) in Computer Science and Engineering	**Indian Institute of Technology Delhi**	Overall: **8.51**/10.0 Master's: **9.24**/10.0
2015	Class XII, CBSE	Seth Anandram Jaipuria School	97.60% (District Topper)
2013	Class X, ICSE	St. Mary's Convent School	97.00% (District Topper)

Publications

- **Love thy Neighbor: A study of what drives the political dialogue on Twitter** Amar Budhiraja, Ankur Sharma, R. Agrawal, Monojit Choudhury & Joyojeet Pal. (Under Review) *ECIR'21: European Conference on Information Retrieval*
- **Ideology Detection in the Indian Mass Media** Ankur Sharma*, Navreet Kaur*, Anirban Sen & Aaditeshwar Seth. (Accepted) *ASONAM'20: IEEE/ACM International Conference on Advances in Social Networks Analysis & Mining*
- **Master's Thesis: Ideology Detection in the Indian Mass Media**, IIT Delhi, 2020. Ankur Sharma (Preprint)
- **Devotees on an Astroturf: Media, Politics, and Outrage in the Suicide of a Popular Film Star** Ankur Sharma*, Syeda Zainab Akbar*, H. Negi, S. Nishal, D. Mishra, Anmol Panda, R. K. Mothilal & Joyojeet Pal. (Under Review) *CSCW'21: ACM Conference on Computer-Supported Cooperative Work & Social Computing*
- **Anatomy of a Rumour: Social media and the suicide of Sushant Singh Rajput** (ArXiv preprint, Blog) Syeda Zainab Akbar, Ankur Sharma, Himani Negi, Anmol Panda & Joyojeet Pal.
  Press coverage: Scroll, The Wire, India Today, The Quint, Mid-Day and NDTV.
- **Price Forecasting & Anomaly Detection for Agricultural Commodities in India** (Paper) Lovish Madaan, Ankur Sharma, P. Khandelwal, S. Goel & Aaditeshwar Seth.
  (Accepted) *COMPASS'19: Proceedings of the 2nd ACM SIGCAS Conference on Computing and Sustainable Societies*
- **Representation Learning on Graphs: A survey** Ankur Sharma*, Mehak P. Dhaliwal*, K. Sharma* (Preprint)
- **Poster Presentations:** (Accepted) *"A Study of Onion Price Fluctuation in India"* (Poster), *"An Audio Tactile Reader for the Visually-Impaired"* (Blog), *"A Personalised Campus Rickshaw Service"* (Poster), Open House IIT Delhi

Work Experience

Microsoft Research (MSR), India — Prof. Joyojeet Pal
Research Intern — *July 2020 - Present*

- Conducted a mixed-methods study to showcase themes of conspiracy & astroturfing on social media (Twitter & YouTube) across 33k politicians, 300^{+} media houses and 3k journalists in the death case of a popular film star in India
- Modeled engagement (mentions/retweets) of politicians on Twitter as a time-evolving graph problem to understand the correlation between their patterns of connectivity and state-party affiliation especially during state & national level events
- Learnt embeddings of politicians based on their retweets & content to understand the language divide on social media
- Developed a multi-modal transformer model for politician classification using tweet text, description and other meta data
- Designed a novel pipeline for automatically finding aggressive trollers on Twitter along nationalistic and religious themes

Microsoft Corporation (R&D), India — Office-365 Team
Software Engineering Intern — *May 2019 - July 2019*

- Designed an end-to-end contextual add-ins recommender for Outlook Web with auto installation & launch facility
- Deployed it as a real-time service while composing/reading emails to ensure greater usage & adaptability across clients

*Awarded a **Pre-Placement Offer** for impeccable performance during internship; project being fast-tracked to production*

Massachusetts Institute of Technology (MIT), USA — Prof. Dina Katabi
Visiting Student Researcher — *Dec 2018 - May 2019*

- Worked on Skeleton-based Identity Recognition with predictions from pose estimation models from the RF Signals
- Learnt unsupervised representations using local feature aggregation for modeling 4-D spatio-temporal trajectories
- Achieved more than **91%** classification accuracy for $\mathbf{20}^{+}$ subjects in the lab setting using only a single RF-sensor
- Tested in through-wall identification scenarios for personalized & real-time sensing in smart homes, security, etc.

Microsoft Corporation (R&D), India — Azure Storage Team
Software Engineering Intern — *May 2018 - July 2018*

- Deployed interactive real-time monitoring system for performance & time series analysis of MSFT's big data platforms

- Integrated the tool to automatically check consistencies & deviations among different benchmark runs for reliability

University of Illinois at Urbana-Champaign (UIUC), USA Prof. Marianne Winslett
Research Intern *May 2017 - July 2017*
- Conducted successful side-channel attacks (**95%** accuracy) on a 3-D printer using EMF sensors & Power Channels
- Reconstructed the object back using this data by applying Genetic & Image Processing algorithms in MATLAB

Major Projects

Ideology Detection in the Indian Mass Media Prof. Aaditeshwar Seth
Master's Dissertation Project *July 2019 - October 2020*
- Designed a pipeline for classifying political statements into pro/anti stances for studying ideological biases in mass media
- Curated a dataset of spoken political statements for economic and technological policies with phrase level annotations
- Modeled stance as tree hierarchical ReNN with frozen fine-tuned embeddings that ensures generalisability across policies
- Demonstrated statistically significant pro-policy coverage & tech-deterministic nature of mass media and the ruling party

Price Forecasting & Anomaly Prediction Prof. Aaditeshwar Seth & Prof. Parag Singla
Bachelor's Research Project *Jan 2018 - July 2019*
- Designed a 2-step classifier for anomaly prediction & detection in potato & onion prices from 2006 - 2017 in India
- Incorporated multivariate time series models like SARIMAX (+ external regressors) achieving 80% accuracy in forecasting
- Identified the factors like Weather, Hoarding, etc. for anomalous periods using newspapers & time series signature
- Analysed the possible correlations for modeling the price movements as a lead-lag graph between wholesale & retail centres

Alpha-Zero for the Game of "Go" *(Reinforcement Learning, Fall 2019, Blog)* Prof. Parag Singla
- Trained agent to master the Game of Go without using any human knowledge using DeepMind's Alpha-Zero Algorithm
- Implemented Monte Carlo Tree Search (MCTS) to generate training examples of self-play for the Policy-Value Network

Learning Sentence Representations *(Deep Learning, Fall 2018)* Vineet Kumar, IBM Research
- Trained an RNN based Seq2Seq Model on Natural Language Inference (NLI), Constituency Parsing (CP) & Machine Translation (NMT) tasks via multi-task learning with a shared-private encoder-decoder architecture
- Evaluated model performance on evaluation tasks like text classification, paraphrase identification & semantic similarity

Attention Models in CNNs *(Deep Learning, Fall 2018, Blog)* Dr. Raghavendra Singh, Director (Oyla)
- Added multi-headed & self-attention schemes to AlexNet CNN model for image classification on CIFAR dataset
- Visualized attention maps to highlight how the model focuses on main object while ignoring the background details

Miscellaneous Projects
- Performed Makeup transfer from example to target image using warping, alpha blending & gradient editing of face layers
- Designed an Augmented Reality (AR) application to render multiple 3D objects using ArUco & custom visual markers

Scholastic Achievements

- **All India Rank 54** in **IIT-JEE Mains** & **All India Rank 136** (in 1.5 million) in **IIT-JEE Advanced** [2015]
- Awarded **KVPY** fellowship for excellence in science by Dept. of Science and Technology, Govt. of India [2014]
- **Teaching Assistant** for *Data Structures & Algorithms* for Fall 2019, directly managing 350^{+} UG students [2019]
- **Teaching Assistant** for junior undergraduate course on *Parallel & Distributed Programming* for Spring 2020 [2019]
- Represented as International Delegate in Harvard's Largest Student Conf. in Asia-Pacific Region (**HPAIR**) [2019]
- Represented as Research Delegate in SENG Summer Camp for Elite Students at **HKUST (Hong Kong)** [2019]
- Qualified **NSEA**, **NSEP** & **NSEC** (National Standard Examinations in Astronomy, Physics & Chemistry) [2015]

Social Initiatives

PickMe, A Campus Rickshaw Service (*Co-founder, 2016 - 2018, Playstore*) Prof. M. Balakrishnan
- Launched the first-ever optimized Rickshaw Service for IIT-Delhi with 17 Rickshaws & an easily deployable software
- Mimicked the Uber Framework with automatic geo-tagging while connecting the closest available driver for pickup

*Represented IIT Delhi and secured **2nd position** amongst 110 teams at Smart Innovations TechExpo, IIT Guwahati*

Audio Tactile Reader (*Embedded System Design, Spring 2017, Blog & Demo*) Prof. M. Balakrishnan
- Developed an app that aids visually-impaired to read the tactile sheets by playing the mapped audio on gestures
- Implemented real-time finger scanning & detection mechanisms with subsequent image calibration using OpenCV

Technical Skills

- **Languages:** C++, C, Python, Java, Ocaml, Prolog, ARM, VHDL, HTML/CSS, Javascript, Typescript, SQL
- **Libraries/Softwares:** TensorFlow, PyTorch, Keras, OpenMP, MPI, Bokeh, Xilinx ISE, MATLAB, Android