

# Udit Arora

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## EDUCATION

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### Courant Institute of Mathematical Sciences, New York University

New York, NY

*Master of Science in Computer Science; GPA: 3.89/4.0*

*Jan 2020 – Dec 2021*

*Relevant Coursework: Machine Learning, Deep Learning, NLP, Distributed Systems*

### Netaji Subhas Institute of Technology, University of Delhi

Delhi, India

*Bachelor of Engineering in Computer Engineering*

*Aug 2012 – May 2016*

## EXPERIENCE

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### Product Labs, IIIT Hyderabad

Hyderabad, India

*Research Engineer*

*Jul 2019 - Dec 2019*

- Implemented a pipeline for object detection and tracking in thermal images.
- Developed an end-to-end system for crowd-sourced speech data collection and transcription for 22 Indian languages.
- Architected a badminton player tracking tool used by Star Sports and a chatbot used by SBI (India's largest bank).

### Laboratory for Computational Social Systems, IIIT Delhi

Delhi, India

*Research Assistant*

*Aug 2018 - Jul 2019*

- Researched on user, content (tweet) and action (retweet/quote) level detection of blackmarket-driven collusion for gaining inorganic appraisals on Twitter using different embedding methods and machine learning techniques.

### Microsoft

Hyderabad, India

*Software Engineer*

*Jun 2016 - Jul 2018*

- **Excel:** Developed innovative ways of sharing Excel content, which are being productionized as a part of Fluid framework. Enabled integration of Excel with a messaging app and filed a patent with the USPTO for the same.
- **Kaizala:** Worked on a time-driven release of Kaizala messaging app's UWP application. Solved critical problems for workflows like heterogeneous message views and custom cards to ensure good performance.
- **Skype for Business:** Developed the Cloud Call Analytics feature for Skype for Business Server 2019, building a secure pipeline to upload call telemetry data online - among the most popular features of the 2019 release.
- **Hackathon:** Winner of the 2017 company-wide hackathon - created a utility to scan and analyze receipts in Excel.

## PROJECTS

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- **Out-of-distribution Detection:** Collaborating with Prof. He He (NYU) on research to develop machine learning algorithms for detection of out-of-distribution data and improve model robustness. (*June 2020 - present*)
- **Multimodal Text Summarization:** Text summarization using different modalities of a video - designed and implemented a hierarchical attention based architecture that achieved SOTA results. (*EMNLP-NLPBT 2020*)
- **Covid News Analyzer:** A web-based tool for analysis of Covid-19 articles on different metrics using ML. ([link](#))
- **Fashion Product Classification:** Classification of fashion product images using convolutional neural networks with multitask learning, utilizing product metadata to improve accuracy by 3.27%. ([link](#))
- **Automated Cricket Umpire:** A tool to visualize ball trajectory and make cricket umpiring decisions from a single smartphone camera feed - used OpenCV for the ball tracking mechanism and Python for visualization. ([link](#))
- **Guidance System for Visually Impaired:** A Raspberry Pi based device to detect crosswalks/staircases using computer vision, and a companion android app to activate the device and provide haptic feedback to users. ([link](#))
- **Chain Reaction:** An Android game with bots that use a modified minmax algo - 10,000+ users. ([news-link](#), [app-link](#))

## PUBLICATIONS

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- Khullar, A.\*, **Arora, U.\*** (2020), *MAST: Multimodal abstractive summarization using trimodal hierarchical attention*. In Proceedings of the First EMNLP Workshop on NLP Beyond Text
- **Arora, U.**, Dutta, H., Joshi, B., Chetan, A., Chakraborty, T. (2020), *Analyzing and detecting collusive users involved in blackmarket retweeting activities*. ACM Transactions on Intelligent Systems and Technology (*Impact Factor: 3.971*)
- **Arora, U.** et. al. (2019), *Multitask learning for blackmarket tweet detection*. ASONAM 2019 (*Acceptance rate: 15%*)

## PROGRAMMING SKILLS

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- **Languages:** Python, C/C++, Javascript, C#, Java
- **Other:** PyTorch, Keras, scikit-learn, Git, MySQL

## ACADEMIC ACHIEVEMENTS

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- **Program Committee:** EMNLP Workshop on NLP Beyond Text (2020)
- **Merit Scholarship (NSIT) for Academic Performance (2015-2016):** Placed among top 25% students