

# Udit Arora

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## EDUCATION

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

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

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

New York, NY

*Jan 2020 – Dec 2021*

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

*Bachelor of Engineering in Computer Engineering*

Delhi, India

*Aug 2012 – May 2016*

## EXPERIENCE

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### Product Labs, IIIT Hyderabad

*Research Engineer*

Hyderabad, India

*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

*Research Associate*

Delhi, India

*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

*Software Engineer*

Hyderabad, India

*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 information from different modalities of a video - designed and implemented a hierarchical attention based architecture that achieved SOTA results. (*Under review*)
- **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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- **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., Paka, W., Chakraborty, T.** (2019), Multitask learning for blackmarket tweet detection. In Proceedings of the 2019 IEEE/ACM International Conf. on Advances in Social Networks Analysis and Mining (*Acceptance rate: 15%*)
- **Yadav, S., Chakraborty, P., Mittal, P., Arora, U.** (2018), Children aged 6-24 months like to watch YouTube videos but could not learn anything from them. Acta Paediatrica, *doi:10.1111/apa.14291* (*Impact Factor: 2.265*)

## PROGRAMMING SKILLS

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- **Languages:** Python, C/C++, Javascript, C#, Java
- **Tools/Frameworks:** PyTorch, Keras, Git, MySQL