Nandini Agrawal

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EDUCATION

Columbia University | New York City, New York   September 2021 - Dec 2022
Master of Science in Computer Science

Ashoka University | Sonipat, Haryana   August 2017 - May 2021
Postgraduate Diploma in Advanced Studies and Research and Bachelor of Science(Hons)
Major: Computer Science ; *GPA:* 3.96/4.0 (Diploma) and 3.82/4.0 (UG)
Honors/Awards: **Summa Cum Laude(Diploma) & Magna Cum Laude(UG); Dean's List; Gold Medal for Academics**

PROFESSIONAL EXPERIENCE

Ashoka University, *Teaching Assistant* | Sonipat, Haryana   August 2019- May 2021
- Appointed as a teaching assistant for four courses : Computer Organisation and Systems, Introduction to Computer Programming, Computer networks and Blockchain & Cryptocurrencies in 4 different college semesters.
- Mentored a core of 40+ students, delivered lectures, graded assignments and provided feedback to students.

Koc University, *International Summer Research Intern* | (Online)   July 2020- September 2020
- Implemented **Blocksim-Net**, a simple, efficient, high performance, network-based blockchain simulator.
- The paper was **published** and presented at the Basarim'20 conference.

Ashoka University, *Research and Software Development Intern* | (Online)   June 2020- August 2020
- Developed **Covidbloc**, a system involving an android(Flutter) mobile application and a web portal(Vue) that uses blockchain powered contact tracing(NodeJS and Hyperledger Fabric) to track and prevent the spread of COVID-19.

Kings College London and Trivedi Centre for Political Data, *Intern* | (Online)   May 2020- August 2020
- Created an **automated scraping system** to extract and clean useful documents released by the Indian government to tackle the Covid-19 pandemic. Implemented a **document classifier** to classify these documents sector wise/topic wise.
- Extracted important information by analysing these policies and displayed this information graphically.

PROJECTS

Secure ML, *Privacy Preserving Machine Learning* | Python, Socket Programming, Machine learning library - Pysyft
- Implementing a linear regression model in a secure 2 party environment as per the protocols mentioned in the Secure ML paper. The presentation of that implementation can be found here.
- Implemented a basic Federated learning model(from scratch) on the MNIST fashion data set.

Synthetic Data Generation, *Machine Learning* | Python, Selenium, Machine Learning libraries - Tenserflow, Keras
- Using Conditional Generative Adversarial networks and Monte Carlo Makes Chain using Gibbs Sampler to generate synthetic data to model sexual harassment cases in India.

Data Decision Support, Data Mining and Warehousing | Python, Selenium, NLP libraries, Mapbox, Javascript
- Scrapped data about top hotels using selenium from Booking.com
- Cleaned data and performed analytics on that data such as polarity score calculation, clustering of hotels, etc.
- Visualised top 10 hotels based on average polarity score using map box.

Hyperfunds, *Blockchain Development* | Hyperledger Fabric, Python, NodeJS, REST, Docker, Amazon Web Services
- Developed a simple distributed Hyperledger application that can help faculty at Ashoka University reliably spend their research funds with approval from the right administrators.

Conversational Chatbot and Image Coloriser, *Machine Learning* | Python, Machine learning libraries - Keras, Tenserflow
- Implemented a conversational chatbot using the Cornell movie dataset and a seq2seq model with attention.
- Image Coloriser dealt with converting black and white images to coloured images using a convolutional neural network model and a subset of the LFW dataset.

Automatic Essay Grader, *Machine Learning and NLP* | Python, Nltk, Machine learning libraries - Keras, Tenserflow
- Created a Bidirectional LSTM based machine learning model (with embeddings) for grading essays using the Hewlett Foundation dataset. Can be used to aid teachers with grading essays on standardized tests.