

ABHINAV JAVA

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EDUCATION

Delhi Technological University

B.Tech. in Computer Science & Engineering (2022)

New Delhi, India

CGPA: 8.72

RESEARCH EXPERIENCE

Massachusetts Institute of Technology

Collaborator, Media Lab (Advisor: [Ayush Chopra](#))

March 2021 - Present

Massachusetts, USA

- Designed noisy sampling based techniques to protect semantic information in point cloud data.
- Adapted split learning techniques through local parallelism and learnt client selection for low bandwidth client-server settings.

Adobe, Media and Data Science Research (MDSR)

Research Intern (Host: [Balaji Krishnamurthy](#))

May 2021 - Present

Noida, India

- Worked with the forms team to develop solutions for automating the review and correct tool in the form segmentation and structure extraction pipeline.
- Set up strong baselines and experiments to develop a learning based solution for few shot identification of form structures and correction without changing the base model.

Indian Institute of Technology, Bombay

Research Intern (Host: [Prof. Ganesh Ramakrishnan](#))

Sept. 2020 - Feb. 2021

Mumbai, India

- Conducted a literature study of 3D vision representation methods.
- Designed and implemented a generative text image restoration based strategy for robust optical character recognition.

Delhi Technological University, Delhi

Undergraduate Researcher (Advisor: [Prof. Anil Parihar](#))

April 2020 - May 2021

Delhi, India

- Designed and implemented a suite of transformer based single image dehazing solution that is efficient in terms of parameter count.
- Conducted a literature review of single image dehazing and image quality analysis techniques.

PUBLICATIONS

1. Chopra, A., [Java, A.](#), Singh, A., Sharma, V., & Raskar, R. (2022). **Learning to Censor by Noisy Sampling**. ECCV (*under review*) [[Preprint](#)]
2. Chopra, A., Sahu, S. K., Singh, A., [Java, A.](#), Vepakomma, P., Sharma, V., & Raskar, R. (2021). **AdaSplit: Adaptive Trade-offs for Resource-constrained Distributed Deep Learning**. KDD (*under review*) [[Preprint](#)]
3. Sahu, S. K., [Java, A.](#), Shaikh, A., & Kilcher, Y. (2021). **Rethinking Neural Networks With Benford's Law**. Machine Learning and the Physical Sciences, Neurips 2021. [[Paper](#), [Poster](#)]
4. [Java*](#), [A.](#), A. S., Singh*. **Densely Connected Convolutional Transformer for Single Image Dehazing**. The Visual Computer. (*under review*)
5. Parihar*, A. S., Singh*, K., & [Java*](#), A. **Dehazeformer: Single Image Dehazing with Transformers**. Signal Processing: Image Comm. (*under review*)
6. Mitharan, S., [Java, A.](#), Sahu, S. K., & Shaikh, A. (2021). **Introducing Self-Attention to Target Attentive Graph Neural Networks**. International Conference on Artificial Intelligence and Signal Processing 2021. [[Preprint](#)]

INDUSTRY EXPERIENCE

IDfy

Intern, ML Team (Host: [Gurudatt Bhobe](#))

May 2020 - July 2020

Mumbai, India

- Developed an offline signature verification microservice for document validation. Trained a metric learning based architecture on publicly available datasets and initiated its beta release towards the end of internship period.

ACADEMIC PROJECTS

Defense against Targeted Clean Label Data Poisoning Attacks

BTech Project (Minor)

Mathematical formulation and development of various strategies to mitigate Data Poisoning attacks on Neural Networks. (ongoing work)

Handwritten Form Reader

Developed an end to end attention based OCR pipeline to detect text in boxed forms. The model was trained only on synthetic data generated using open source tools like text-renderer. The REST API was built using flask and is deployed on heroku.

Multi Agent Multi Target Swarm Search

UAS-DTU (College Team)

Implemented a custom multi object search for 25 drones both in a centralized and decentralized fashion for the efficient human search using UAVs. This was simulated on the DroneKit Python API. The algorithm was tested on college ground and with the Indian Airforce.

LEADERSHIP ROLES

Unmanned Aerial Systems, DTU

Vice Captain (2020)

Sept. 2019 - Oct. 2020

Worked with a team of around 20 highly motivated undergraduates towards development of a swarm of 50 UAVs with capabilities of extreme weather tolerance, 50km range, human detection, payload drop etc for aid in Humanitarian Assistance and Disaster Relief situations for the Air Force. ([website](#))

AWARDS AND HONOURS

- Partnered with [Adani Defense and Aerospace](#), UAS-DTU was one of the top 3 and only undergraduate team in IAF-Mehar Baba Prize, Phase 3. The prize for engineering a robust aerial swarm in the previous phase was INR 25 lakh. In the final phase, team won the prize for best communication architecture (2020).
- Qualified for the National Talent Search Examination (NTSE) stage 2 in high school (2017).
- Participated in JENESYS Youth Football Exchange program to Japan as a sports-cultural representative from India (2015).

TECHNICAL SKILLS

Programming Languages

Python, C/C++, Octave, Bash Scripting

Libraries, Databases

PyTorch, PyTorch Lightning, OpenCV, Flask, Keras, Pandas, Numpy, MySQL, SQLite

Tools

Insomnia, GCP, Git, Colab,

* Denotes Equal contribution