Abhinav Java

Research Fellow, Microsoft Research

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Research Experience

Microsoft Research, India   08/2024 – Present
Research Fellow with Amit Sharma, Nagarajan Natarajan,
Srivathsan Koundinyan, Vineeth N Balasubramanian

University of Virginia,   03/2024 – 03/2025
Visiting Researcher with Chirag Agarwal

Adobe Research, India   05/2021 – 08/2024
Research Associate I, II with Balaji Krishnamurthy
Research Intern with Balaji Krishnamurthy

Massachusetts Institute of Technology,   03/2021 – 10/2022
Collaborator with Ayush Chopra, Ramesh Raskar

Education

Delhi Technological University, India   08/2018 – 07/2022
B.Tech. in Computer Engineering
❯ Research Excellence Award 2022.

Publications   * denotes joint first authorship

CHARACTERIZING DEEP RESEARCH: A BENCHMARK AND FORMAL DEFINITION
Abhinav Java*, Ashmit Khandelwal*, Sukruta Midigeshi*, Aaron Halfaker, Amit Deshpande, Navin Goyal, Ankur Gupta,
Nagarajan Natarajan, Amit Sharma
SEA@NeurIPS '25 (Workshop on Scaling Environments for Agents), Under Review ICLR '26   [1]

FRUGALRAG: LEARNING TO REASON AND RETRIEVE FOR MULTI-HOP QA
Abhinav Java, Srivathsan Koundinyan, Nagarajan Natarajan, Amit Sharma
ER@NeurIPS '25 (Workshop on Efficient Reasoning), Under Review ICLR '26   [2]

UNDERSTANDING TASK TRANSFER IN VLMS
Bhuvan Sachdeva*, Karan Uppal*, Abhinav Java*, Vineeth N. Balasubramanian
UniReps@NeurIPS '25 (Workshop on Unified Representations in Neural Models), Under Review CVPR '26   [3]

TOWARDS OPERATIONALIZING RIGHT TO DATA PROTECTION
Abhinav Java*, Simra Shahid*, Chirag Agarwal
NAACL (Main) '25, MLDPR@ICLR '25   [4]

REEDIT: MULTIMODAL EXEMPLAR-BASED IMAGE EDITING
Ashutosh Srivastava*, Tarun Ram*, Abhinav Java*, Avadhoot Jadav, Silky Singh, Surgan Jandial, Balaji Krishnamurthy
WACV '25, AI4VA@ECCV '24   [5]

ALL SHOULD BE EQUAL IN THE EYES OF LMS: COUNTERFACTUALLY AWARE FAIR TEXT GENERATION
Pragyan Banerjee*, Abhinav Java*, Surgan Jandial*, Simra Shahid*, Shaz Furniturewala, Balaji Krishnamurthy, Sumit
Bhatia
AAAI '24   [6]

THINKING FAIR AND SLOW: ON THE EFFICACY OF STRUCTURED PROMPTS FOR DEBIASING LANGUAGE MODELS
Shaz Furniturewala, Surgan Jandial, Abhinav Java, Pragyan Banerjee, Simra Shahid, Sumit Bhatia, Kokil Jaidka
EMNLP (Main) '24   [7]

ONE-SHOT DOC SNIPPET DETECTION: POWERING SEARCH IN DOCUMENTS BEYOND TEXT
Abhinav Java, Shripad Deshmukh, Milan Agarwal, Surgan Jandial, Mausoom Sarkar, Balaji Krishnamurthy
WACV '23   [8]

LEARNING TO CENSOR BY NOISY SAMPLING
Ayush Chopra, Abhinav Java, Abhishek Singh, Vivek Sharma, Ramesh Raskar
ECCV '22   [9]

Patents

Personalized form error correction propagation, US Patent 12394236.   2025/08/19

One Shot Doc Snippet Detection, US Patent 20250005048A1.   2025/01/02

Form structure similarity detection, US Patent 12124497B1.   2024/10/22

Systems and methods for data augmentation, US Patent 20240119122A1.   2024/04/11

Featured Projects and Collaborations

Efficient Multi-Hop Reasoning for Retrieval Augmented Generation   08/2024 – Present
w/ Amit Sharma, Nagarajan Natarajan, Srivathsan Koundinyan   Microsoft Research
> Led the development of a project to create efficiently adaptable and low-latency RAG system with SLMs.
> Proposed FrugalRAG: by learning efficient use of test-time compute using reinforcement learning
> Improved latency and data efficiency by approximately 2x.

Rethinking Taskonomy in the era of Large Vision Language Models   04/2025 - Present
w/ Vineeth N Balasubramanian   Microsoft Research
> Proposed a framework to study transferability of perception tasks in Vision-Language Models (VLMs).
> Introduced a novel metric to quantify cross-task influence in VLM finetuning.
> Revealed actionable insights – beneficial task cliques and transfer trends for effective finetuning strategies.

A Model Agnostic Approach to Create Unlearnable Text Datasets   03/2024 – 03/2025
w/ Chirag Agarwal   University of Virginia
> Developed the first model-agnostic, efficient unlearnable text data generation framework for user data privacy.
> Proposed RegText: a mechanism to perturb sensitive datasets using information-theoretic insights.
> Demonstrated that finetuning large models (e.g. GPT-4o) on our datasets drops performance below zero-shot!

Protecting Private Information in 3D Point Clouds for Perception Tasks   03/2021 – 10/2022
w/ Ayush Chopra, Ramesh Raskar   Camera Culture, MIT Media Lab
> Designed an approach to simplify the release of sensitive point cloud data with privacy protection (e.g. medical scans).
> Implemented CBNS: an end-to-end differentiable sampler and a novel loss to protect point clouds from adversaries.
> Demonstrated improved privacy-utility tradeoffs with CBNS on perception tasks on 3D face datasets.

Leadership, Invited Talks, and Service

Fireside Chat, LiveDRBench. Plutos Dev   **Fall 2025**

Career Talk, AI Summer School. Delhi Technological University   Summer 2025

Oral Talk, Prompting for Debiasing LLMs. AAAI   Winter 2024

Pre-placement Talk, Adobe Hiring. Delhi Technological University   Summer 2024

Team UAS-DTU, Vice Captain, Software & Airframes Technician.   2019 - 2020
> Secured a funding of $1M from Adani Group for building Drone Swarm for disaster relief. (Media)
> Awarded the best communication architecture prize of INR 250K in IAF National Competition. (Media)

Umeed Foundation, Volunteer.   2022 - 2023
> Provided career counseling to college students, and assisted with interview preparation.
> Taught middle school students basic science and mathematics during covid.
> Awarded for my volunteering efforts by Adobe as one of the top 50 contributors.

Reviewer: ICLR '26, CVPR '25, KDD '24, CVPR'24, U&ME@ECCV'24, WACV'23, ML4PS@NeurIPS'22, ECCV'22

Honors and Awards

NeurIPS Scholar Award, 2025   Awarded funding for travel to NeurIPS 2025 by the conference.

AAAI Oral Talk, 2024   Selected for an invited talk at AAAI 2024, Student Abstract Track.

Research Excellence Award, 2022   Awarded for undergraduate research during undergrad (1 in approx 2000).

Semester Merit Award, 2021   For securing University Rank 1 in the 5th Semester (1 in approx 2000).

Joint Entrance Exams, 2018   Secured 99.28 percentile in Main and 96.78 percentile in Advanced (in 1.2 million).

National Talent Search Exam, 2017   Qualified Stage 1 (Top 1% in 1.2 million).