Tajamul Ashraf

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Official Address Permanent Address

Department of Computer Vision MBZUAI, Masdar City Abu Dhabi; 50819, UAE

H-1253, New Colony Karan Nagar, Srinagar Kashmir; 190010, India

RESEARCH INTERESTS

I am interested in addressing the challenges faced by multimodal AI systems across reinforced, generative, and perceptual understanding tasks, particularly when confronted with Out-Of-Distribution (OOD) scenarios.

EDUCATION

Indian Institute of Technology, (IIT Delhi)

New Delhi, India

Master of Science (M.S by Research) in Computer Science

June 2024

GPA: 9.28/10.0 Department Rank: 1st

Advisor: Prof. Chetan Arora, Co-Advisor: Prof. (Dr.) Krithika Rangarajan Thesis title: Domain Adaptation in Breast Cancer Detection from Mammograms.

National Institute of Technology, (NIT Srinagar)

Srinagar, Kashmir

Bachelors of Technology in Information Technology

July 2022

GPA: 8.34/10.0

Advisor: Prof. Janibul Bashir

Thesis title: Robust DL Models for Analyzing the Impact of Coherent Climatic Factors.

RESEARCH EXPERIENCE

Mohamed Bin Zayed University of Artificial Intelligence (MBZUAI)

Abu Dhabi, UAE

Research Associate II

Jan 2025 - Current

Line Manager(s): Prof. Salman Khan and Prof. Rao Anwer.

- Managing the **BoRG dataset** for studying mitotic processing in brain organoids.
- Expanding dataset annotations for segmentation and cellular event tracking such as mitosis phases.
- Optimizing annotation pipelines to improve accuracy with minimal expert input.

Microsoft Research (MSR)

Bangalore, INDIA

Research Intern

July 2024 - Dec 2024

Host Advisor(s): Dr. Mohit Jain and Dr. Prachi Jain.

- Worked on Knowledge Graph-based Information Retrieval with RAG.
- Automated LLM pipelines with a semi-structured knowledge base (SKB) for medical chatbots.

 Introduced Cataract-MSICS dataset and proposed a phase-conditioned method with pseudo-labeling for surgical tool segmentation.

AI & Robotics Technology Park, I-Hub (ARTPARK)

Bangalore, INDIA

Visiting Student

Dec 2021 - May 2022

Advisor: Prof. Raghu Krishnapuram.

- Developed an automated washroom cleaning robot Robojanitor.
- Designed robust models for pose estimation, detection, classification, and SLAM.
- Developed 3D pose models and REST APIs for production.

Indian Institute of Science (IISc)

Bangalore, INDIA

Research Intern

Mar 2021 - Sep 2021

Advisor(s): Prof. S.N. Omkar and Prof. Balaji Prabu.

- Developed a novel human pose comparison model to assist yoga teachers during online classes.
- Utilized BlazePose to accurately mark key points of both teachers and students during live sessions.
- Designed a feedback mechanism to compare poses and provide real-time corrections to students.

WORK EXPERIENCE

LEENA AI Remote(WFH), USA

Software Developer I

May 2022 - Oct 2022

Line Manager: Anand Prajapati

- Executed full stack software development for the Product and ML team.
- Worked on cross-functional projects, architecting solutions to meet client requirements.

BSNL ALTTC Delhi, INDIA

Cybersecurity Trainee

Jan 2019 - Mar 2019

Line Manager: R.K. Pandit

- Troubleshooted and resolved network issues related to Wi-Fi, bluetooth.
- Implemented security measures and optimized network performance in wireless environments.

PUBLICATIONS

(* indicates joint first authors, + indicates my role as mentor)

- A3 LLM Post-Training: A Deep Dive into Reasoning Large Language Models. Code Paper.

 Komal Kumar*, Tajamul Ashraf*, Omkar Thawakar, Rao Muhammad Anwer, Hisham Cholakkal,

 Mubarak Shah, Ming-Hsuan Yang, Phillip HS Torr, Fahad Shahbaz Khan, Salman Khan

 Under Review (arXiv 2025).
- C7 Enhancing Climate Change Understanding: A Novel Deep Learning Framework with the Climate Change Parameter Model.

 Paper.

Tajamul Ashraf, Janibul Bashir

International Conference on Modeling, Simulation & Intelligent Computing (MoSICom 2024).

- A2 Phase-Informed Tool Segmentation for Manual Small-Incision Cataract Surgery.
 Bhuvan Sachdeva, Naren Akash, **Tajamul Ashraf**, Simon Mueller, Thomas Schultz, Maximilian WM Wintergerst, Niharika Singri Prasad, Kaushik Murali, Mohit Jain Under Review (arXiv 2024).
- A1 FATE: Focal-modulated Attention Encoder for Temperature Prediction. Code Paper.

 Tajamul Ashraf, Janibul Bashir

 Under Review (arXiv 2024).
- C6 D-MASTER: Mask Annealed Transformer for Unsupervised Domain Adaptation in Breast Cancer Detection from Mammograms. Code Paper.
 Tajamul Ashraf, Krithika Rangarajan, Mohit Gambhir, Richa Gauba, Chetan Arora
 Medical Image Computing and Computer Assisted Intervention (MICCAI 2024).
- C5 HF-Fed: Hierarchical based customized Federated Learning Framework for X-Ray Imaging.

 Code Paper.

Tajamul Ashraf, Tisha Madame

MICCAI Workshop 2024 (Deep-Brea3th: Deep Breast Workshop on AI and Imaging for Diagnostic and Treatment Challenges in Breast Care). Best Student Paper Award!

C4 TransFed: A way to epitomize Focal Modulation using Transformer-based Federated Learning.

• Code Paper.

Tajamul Ashraf, Fuzayil Mir, Iqra Altaf Gillani

IEEE/CVF Winter Conference on Applications of Computer Vision (WACV 2024).

C3 PoseWatch: Advancing Real-Time Human Pose Tracking and Juxtaposition with Deep Learning.

Paper.

 ${\bf Tajamul~Ashraf},~{\rm BV~Balaji~Prabu},~{\rm OS~Jois~Narasipura}$

Computer Vision and Image Processing (CVIP 2023).

C2 Climate Change Parameter Dataset (CCPD): A Benchmark Dataset for Climate Change Parameters in Jammu and Kashmir. Paper.

Tajamul Ashraf, Janibul Bashir

International Conference on Data Science and Applications (ICDSA 2023).

C1 An integral computer vision system for apple detection, classification, and semantic segmentation.

• Code Paper.

Tajamul Ashraf, Nair Abbas, Mohammad Haseeb, Nadeem Yousuf, Janibul Bashir International Conference on Machine Vision (ICMV 2022).

TEACHING and ACADEMIC SERVICES

Teaching Assistant | Indian Institute of Technology, Delhi

- Computer Vision (COL780) | Spring 2024 with Prof. Chetan Arora
- Computer Vision for Robotics (JRL780) | Spring 2024 with Prof. Chetan Arora

- Computer Science Fundamentals and Programming (COL100) | Fall 2023 with Prof. Chetan Arora and Prof. Vireshwar Kumar
- Special Topics in Machine Learning (COL870) | Spring 2023 with Prof. Anurag Mittal
- Data Structures and Algorithms (COL106) | Fall 2022 with Prof. Naveen Garg and Prof. Ashish Chiplunkar

Conference/Journal Reviewing | Reviewer

- ACM MM'25 | MICCAI'25, 24 | WACV'25, 24 | CVIP'23, 22 | HPEC'23
- IEEE Transactions on Parallel and Distributed Systems

Conference Volunteer | Organizer

• Serving as a program volunteer for CVIP conference in IIT Jammu, INDIA

Invited Talk | Speaker

• Presented two talks on Research directions, Placements, and Internships to undergrad IT students at the National Institute of Technology Srinagar.

Pilot Mentorship Program | Mentor

• As an alumnus, I mentor bachelor's students from the graduating batches of NIT Srinagar and guide their final project thesis and potential research publications.

Students (* denotes current)

3. Suhaib Salmani* | 2025

Thesis: Foundational Models and Masked Learning for efficient Medical Object Detection.

2. Rajes Manna* | 2025

Thesis: Source Free Domain Adaptation using Adversarial Class Aware Teacher.

1. Asrar ul Haq | 2024

Thesis: Transformer-Based Unsupervised Domain Adaptation in a Federated Setup.

HONORS and AWARDS

- Awarded \$500 compute grant from alphaXiv for my contributions in LLM research.
- Nominated as Diversity Intern by Microsoft Canada.
- Honorable mention by IIT Delhi for research contributions during my Master's degree.
- Awarded MICCAI 2024 Travel Grant.
- Awarded IIT Delhi Endowment Grant 2024.
- Won India's largest National Entrepreneurship Challenge at IIT Bombay.
- Gold Microsoft Student Learn Ambassador for NIT Srinagar.

TECHNICAL SKILLS

Languages: Python, C, C++, MATLAB, SQL, HTML/CSS, Javascript

Frameworks: PyTorch, TensorFlow, Keras, Scikit-Learn, OpenCV, HuggingFace, Flask

Developer Tools: Git, Docker, VS Code, Visual Studio, PyCharm, Linux

EXTRACURRICULAR and SOCIAL ACTIVITIES

Gold Microsoft Student Learn Ambassador

Actively promoted technology learning and fostered a community of student developers in Kashmir. Organized workshops, webinars, and hackathons to encourage student innovation and collaboration.

Founder Ralith Milth

Established an NGO focused on raising awareness and support for drug abuse prevention and rehabilitation. Spearheaded community outreach programs with local organizations to support affected individuals.

Co-founder AT Talks

Hosting a podcast discussing the intersection of technology and society, featuring expert insights. Managed guest interviews, content strategy, and promotion to grow the podcast's reach and impact.

REFERENCES

Prof. Salman Khan ⋈ Prof. Rao Anwer ⋈ Prof. Chetan Arora ⋈ Prof. Krithika Rangarajan ⋈ Prof. Iqra Altaf Gillani ⋈ Prof. Janibul Bashir ⋈

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