

Md Ashik Khan

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[Google Scholar](#) • [GitHub](#) • [LinkedIn](#)

Research Interests

Computer Vision, Medical Image Analysis, Multimodal Deep Learning, Video Action Recognition, Trustworthy AI

Education

Indian Institute of Technology Kharagpur

West Bengal, India

M.Tech. in Computer Science and Engineering

2021 – 2023

- CGPA: 8.76/10.00 | Advisor: [Dr. Abir Das](#) | Scholarship: ICCR (fully funded)
- Thesis: *A Large-scale Study of Representation Learning and the Benchmarking of Video Action Recognition*

Bangladesh Army University of Science and Technology

Saidpur, Bangladesh

B.Sc. in Computer Science and Engineering

2015 – 2019

- CGPA: 3.35/4.00 (Final two years: 3.57/4.00)

Publications

Journal

1. **Md Ashik Khan**, Abu Saleh Musa Miah, Fahmid Al Farid, Md Abdur Rahim, and Hezerul Abdul Karim. “Human Activity Recognition Under Low-Light Conditions Using Frozen CLIP with Lightweight Adaptation.” *Discover Artificial Intelligence* (Springer Nature), 2026. *Accepted*.
2. **Md Ashik Khan**, Abu Saleh Musa Miah, Md Abdur Rahim, Jungpil Shin, and Mohd Nizam Husen. “WICA-Net-M: MRI-Based Brain Tumour Classification Using a Lightweight Wavelet-Integrated Coordinate Attention Network with Frequency-Aware Learning.” *Computers* (MDPI), 2026. *Accepted*.

Conference

3. **Md Ashik Khan** and Md Nahid Siddique. “SHIFT-M3: Pre-fusion Alignment-based Consistency Screening for Multimodal ECG Record Integrity.” *Machine Learning for Healthcare (MLHC) 2026, Proceedings of Machine Learning Research* (PMLR). *Accepted*.
4. **Md Ashik Khan** and Md Nahid Siddique. “Fixed-Budget Parameter-Efficient Training with Frozen Encoders Improves Multimodal Chest X-Ray Classification.” *ICCIT 2025*, pp. 2748–2753. [\[DOI\]](#)
5. **Md Ashik Khan** and Arafat Alam Jion. “Fixed-Threshold Evaluation of a Hybrid CNN-ViT for AI-Generated Image Detection Across Photos and Art.” *ICCIT 2025*, pp. 3853–3858. [\[DOI\]](#)
6. **Md Ashik Khan** and Rafath Bin Zafar Auvée. “Comparative Analysis of Resource-Efficient CNN Architectures for Brain Tumor Classification.” *ICCIT 2024*, pp. 639–644. [\[DOI\]](#)

Under Review

- **Md Ashik Khan**, Abu Saleh Musa Miah, Md Nahid Siddique, and Md Abdur Rahim. “Prompt Sensitivity and Answer-Position Bias in VideoLLM Action Recognition.” Submitted to WACV 2027.
- **Md Ashik Khan**, Sawrav Das, Abu Saleh Musa Miah, and Jungpil Shin. “Simple Baselines for Action Recognition Under Visual Detail Loss: Training, Capacity, and Fusion.” Submitted to ICCIT 2026.
- Md Nahid Siddique*, **Md Ashik Khan***, Md Rezaul Karim Khan, Naphtali David Rishe, and Dongsheng Luo. “High Accuracy, Weak Transfer: A Cross-Domain Audit of Fake News Detection.” Submitted to WI-IAT 2026. (*Equal contribution)

Manuscripts in Preparation

- **Md Ashik Khan**, Abu Saleh Musa Miah, Md Abdur Rahim, and Fahmid Al Farid. “Reliability-Aware Cross-Modal Consistency for Label-Efficient Human Activity Recognition.”

Research Experience

CVIR Lab, IIT Kharagpur

West Bengal, India

Graduate Research Assistant (M.Tech Thesis Research) | Advisor: Dr. Abir Das

Jun 2022 – Apr 2023

- **Thesis:** *A Large-scale Study of Representation Learning and the Benchmarking of Video Action Recognition*
- Built VARB, a Video Action Recognition Benchmark covering 6 models (2D/3D CNNs and video transformers), 14 downstream datasets from 6 domains, and 3 evaluation schemes: full fine-tuning, linear evaluation, and limited (few-shot) evaluation.
- Created the Construction Action Dataset by manually trimming and annotating 1,844 videos with industrial actions from noisy, untrimmed YouTube-8M clips, covering 13 activity categories.
- Ran 400+ transfer experiments comparing Kinetics-400 and Moments-in-Time (1M videos) pretraining, with hyperparameter sweeps for each dataset.
- **Tools:** PyTorch, MMAAction2, FFmpeg

Independent Research Collaborations

May 2023 – Present

Collaborators: Dr. Abu Saleh Musa Miah (University of Rajshahi, Bangladesh) · Dr. Fahmid Al Farid (BSBI, Germany) · Dr. Md Abdur Rahim (PUST, Bangladesh) · Dr. Hezerul Abdul Karim (Multimedia University, Malaysia)

- Designed a parameter-efficient temporal adaptation framework for frozen CLIP, achieving +6.01% accuracy under low-light domain shifts with under 0.2% additional computational overhead. [Discover AI, 2026]
- Evaluated PEFT adapter variants under a fixed parameter budget on frozen multimodal encoders, outperforming full fine-tuning by 13.8 pp AUROC (0.908 vs. 0.770) with 40× fewer parameters. [ICCIT 2025]
- Designed SHIFT-M3, a pre-fusion alignment-based consistency screening method for multimodal ECG record integrity. [MLHC 2026]
- Designed WICA-Net integrating wavelet decomposition with coordinate attention for generalizable brain tumor MRI analysis. [Computers, MDPI, 2026]
- Benchmarked action recognition under 9 visual degradation conditions; simple CLIP-VideoMAE fusion beat a parameter-matched quality-conditioned transformer by 13.27 pp at UCF101 Pixel32. [submitted, ICCIT 2026]
- Developed RACM, a semi-supervised skeleton-IMU HAR framework raising missing-skeleton accuracy from 23.6% to 45.2% (+21.6 pp) and exceeding all baselines by >10 pp under 25% labeled data. [in preparation]
- Conducted a controlled response-regime audit of 5 VideoLLMs across 8 action-recognition datasets, uncovering 23–96 pp accuracy swings on identical clips from prompt changes alone. [submitted, WACV 2027]

Selected Projects

Occlusion-Robust Pedestrian Detection with YOLOv12-S and Transformer Backbones

Autumn 2025

- Benchmarked YOLOv12-S (9.25M parameters, 21.5 GFLOPs) with Swin Transformer and ConvNeXt backbones for pedestrian detection on EuroCity.
- Built a stratified occlusion evaluation across four severity levels using per-image occlusion metadata.
- Reached 75% mAP50 and 92% precision overall; the Swin backbone held 75.3% mAP50 under heavy occlusion with no degradation from its overall score.

Deep Learning-based Hidden Camera Generalization Study

Spring 2024

- Synthesized a domain-randomized dataset of hidden camera placements to offset scarce real-world training data.
- Fine-tuned YOLOv8 and ResNet50 with custom augmentation to test generalization under occlusion and low resolution; reached 92% mAP on a held-out synthetic test set.

Context-Specific Quote Recommendation from Historical Text

Autumn 2022, IIT Kharagpur

- Fine-tuned DistilBERT on the Quotation POTUS corpus of U.S. presidential speeches to recommend quotes for an input passage; reached 82.25% passage-to-quote matching accuracy.

Technical Skills

Languages: Python, C++, SQL
ML & Vision: PyTorch, OpenCV, MMAAction2, YOLO
Infrastructure: Git, Linux, Docker, AWS, L^AT_EX

Teaching Experience

Graduate Teaching Assistant | Department of CSE, IIT Kharagpur

- **Software Engineering** *Spring 2022*
- **Algorithms-I** *Autumn 2022*

Conducted tutorials, evaluated 60+ assignments, mentored 20 students in laboratory sessions, and supervised multiple semester-long group projects.

Professional Experience

Auptimate Dhaka, Bangladesh
Senior Software Engineer *Jan 2026 – Present*
Software Engineer *May 2023 – Dec 2025*

- Architected a scalable e-signature and document automation platform with microservices (FastAPI, React.js, PostgreSQL, AWS), supporting end-to-end digital onboarding for enterprise clients.
- Engineered an NLP-powered AI agent for automated legal document processing and semantic query resolution.

Hovata Technologies Dhaka, Bangladesh
Assistant Programmer *Mar 2020 – Aug 2021*

- Built and maintained PetrolERP for petroleum business management (sales, stock, expenses, vendors), implementing real-time inventory tracking that reduced stock discrepancies by 35% via transaction locks.
- Led development of parking management system optimizing space utilization using React.js, Redux, PHP Lumen, and MySQL.

Awards & Fellowships

- **ICCR Scholarship** — Fully funded M.Tech at IIT Kharagpur *2021 – 2023*
- **Finalist** — BAUST-IEEE Idea Contest *2018*
- **Honorable Mention** — Inter-University Programming Contest, IUBAT *2016*
- **Board Talent Rank 35th** — SSC Examination, Dhaka Board *2012*

Academic Service & Certifications

- **Journal Reviewer:** *IEEE Access* (2026)
- **Conference Reviewer:** International Conference on Intelligent Data Analysis and Applications (IDAA 2025)
- **Fundamentals of Accelerated Data Science** — NVIDIA Deep Learning Institute *2021*