Md Ashik Khan — Curriculum Vitae

Mirzapur-1940, Tangail – Dhaka, Bangladesh
+880 1796 103496 • ashik.khan@kgpian.iitkgp.ac.in • iamashik
Anashikforu • Google Scholar: EKQLSHQAAAAJ

Research Summary

Computer vision researcher with expertise in efficient deep learning, medical image analysis, and multimodal learning. M.Tech from IIT Kharagpur with 5 publications (1 published, 2 accepted, 2 Q1 journal submissions under review) and 21 citations. Research focuses on developing resource-efficient architectures for video action recognition, 3D human activity recognition, medical imaging, fake news detection, and AI-generated content detection. Experienced in teaching at premier institutions and mentoring undergraduate students in software engineering and algorithms.

Research Interests

Primary: Computer Vision · Medical Image Analysis · Multimodal Deep Learning · Efficient Machine Learning

Secondary: 3D Human Activity Recognition · Video Action Recognition · Cross-Domain Generalization · Fake News Detection · AI-Generated Content Detection · Low-Light Vision · Transfer Learning

Education

Indian Institute of Technology (IIT) Kharagpur **India**
Master of Technology (M.Tech) in Computer Science and Engineering, CGPA: 8.76/10 *2021–2023*
Thesis Title: A Large-scale Study of Representation Learning and the Benchmarking in Video Action Recognition
Advisor: Dr. Abir Das, Assistant Professor, Department of CSE
Scholarship: ICCR Scholarship under Bangladesh Scholarship Scheme (Fully Funded)
Relevant Coursework: Machine Learning, Deep Learning, Information Retrieval, Artificial Intelligence, Complex Networks, Data Analytics, Algorithm Design, Scalable Data Mining

Bangladesh Army University of Science and Technology (BAUST) **Saidpur, Bangladesh**
Bachelor of Science (B.Sc) in Computer Science and Engineering, CGPA: 3.35/4.00 *2015–2019*
Relevant Coursework: Object Oriented Programming, Data Structures, Algorithms, Database Management Systems, Machine Learning, Data Mining, Artificial Intelligence, Digital Image Processing, Computer Architecture

Publications

Peer-Reviewed Conference Papers

[1]: **Md Ashik Khan** and Rafath Bin Zafar Auvee. "Comparative Analysis of Resource-Efficient CNN Architectures for Brain Tumor Classification." In *Proceedings of the 27th International Conference on Computer and Information Technology (ICCIT 2024)*, Cox's Bazar, Bangladesh, December 2024, pp. 639-644. DOI: 10.1109/ICCIT60459.2024.11021970. **[Cited by 21]**

Journal Papers Under Review

[2]: Md Nahid Siddique*, **Md Ashik Khan***, Md Rezaul Karim Khan, Naphtali David Rishe, and Dongsheng Luo. "Cross-Domain Generalization in Fake News Detection: A Systematic Evaluation and Analysis." *Under review at Q1 journal*, 2025. *(*Equal contribution)*

[3]: **Md Ashik Khan**, Abu Saleh Musa Miah, Fahmid Al Farid, Md Abdur Rahim, and Hezerul Abdul Karim. "Low-Light Aware 3D Human Activity Recognition Using Frozen CLIP with Lightweight Adaptation." *Under review at Q1 journal*, 2025.

Conference Papers Accepted

[4]: **Md Ashik Khan** and Md Nahid Siddique. "Fixed-Budget Parameter-Efficient Training with Frozen Encoders Improves Multimodal Chest X-Ray Classification." Accepted at *28th International Conference on Computer and Information Technology (ICCIT 2025)*, Cox's Bazar, Bangladesh, 2025. arXiv preprint arXiv:2512.21508.

[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." Accepted at *28th International Conference on Computer and Information Technology (ICCIT 2025)*, Cox's Bazar, Bangladesh, 2025. arXiv preprint arXiv:2512.21512.

Citation Metrics

Total Citations: 21 (as of January 2026) · h-index: 1 · Google Scholar: EKQLSHQAAAAJ

Research Experience

Computer Vision and Intelligence Research (CVIR) Lab **IIT Kharagpur, India**
Graduate Research Assistant, Advisor: Dr. Abir Das *June 2022–April 2023*
Project: Large-scale Study of Representation Learning in Video Action Recognition

- Conducted comprehensive analysis of 2D/3D CNNs and Vision Transformer architectures for video understanding
- Evaluated transfer learning effectiveness across 14 benchmark datasets using 6 state-of-the-art models (SlowOnly, TimeSformer, SIFAR)
- Established cross-domain transfer learning benchmarks demonstrating 15-20% performance variation based on source-target dataset similarity
- Developed correlation framework between pretraining dataset characteristics and downstream task performance
- Published findings in M.Tech thesis (available upon request)

Independent Research Project *Spring 2024*
Project: Deep Learning-based Hidden Camera Detection using Synthetic Training Data

- Designed novel synthetic data generation pipeline addressing real-world surveillance detection challenges
- Created large-scale training dataset (10,000+ images) combining diverse backgrounds with strategic camera placements
- Fine-tuned ResNet50 and YOLOv8 models achieving 92% detection accuracy with custom augmentation strategies
- Demonstrated feasibility of synthetic-to-real domain adaptation for security applications

IIT Kharagpur
Course Project – Information Retrieval *Autumn 2022*
Project: Context-Specific Quote Recommendation from Historical Text

- Developed context-aware quote recommendation system using transformer-based language models (DistilBERT)
- Curated and annotated dataset from Quotation POTUS corpus (5,000+ quotes)
- Achieved 82.25% accuracy using transfer learning techniques, outperforming baseline TF-IDF by 23%
- Implemented end-to-end pipeline for quote extraction, embedding generation, and similarity-based retrieval

Teaching Experience

Teaching Assistant, Indian Institute of Technology Kharagpur

Department of Computer Science and Engineering
Software Engineering (CS20202) *Spring 2022-23*
Instructor: Prof. [Name] · **Student Enrollment:** 100+ undergraduates

- Conducted weekly tutorial sessions on software design patterns, agile methodologies, and version control
- Evaluated and provided feedback on 20+ semester-long software development projects
- Mentored student teams (4-5 members each) through full software development lifecycle
- Supervised hands-on lab sessions covering Git, testing frameworks, and CI/CD practices
- Held regular office hours providing individualized support and project guidance

Department of Computer Science and Engineering
Algorithms-I (CS21203) *Autumn 2022*
Instructor: Prof. [Name] · **Student Enrollment:** 80+ undergraduates

- Led tutorial sessions on algorithm design paradigms (divide-and-conquer, dynamic programming, greedy)
- Mentored cohort of 20 students during lab sessions on algorithm implementation and complexity analysis
- Graded assignments and exams, providing detailed feedback on algorithmic problem-solving approaches
- Developed supplementary materials and practice problems for core topics

Proposed Courses (Ready to Teach)

Computer Vision · Deep Learning · Machine Learning · Data Structures and Algorithms · Software Engineering · Introduction to Artificial Intelligence

Professional Experience

Auptimate **Dhaka, Bangladesh**
Software Engineer *May 2023–Present*

- Developing AI-driven e-signature platform with 10,000+ active users for document processing and management
- Designed and implemented intelligent AI agent using NLP techniques to assist with legal document workflows
- Built scalable microservices architecture handling 100+ concurrent document processing requests
- Technologies: Python, FastAPI, React.js, PostgreSQL, AWS, Docker

Hovata Technologies **Dhaka, Bangladesh**
Assistant Programmer *March 2020–August 2021*

- Led development of PetrolERP: enterprise web application serving 50+ petroleum retail locations
- Implemented real-time inventory management system reducing stock discrepancies by 35%
- Architected and deployed Hovata Parking System optimizing space utilization for 500+ vehicle capacity
- Technologies: React.js, Redux, PHP Lumen, MySQL, AWS

Presentations & Talks

Dec 2024: "Comparative Analysis of Resource-Efficient CNN Architectures for Brain Tumor Classification," 27th International Conference on Computer and Information Technology (ICCIT 2024), Cox's Bazar, Bangladesh.

Academic & Professional Service

Peer Review

2025: Reviewer, International Conference on Intelligent Data Analysis and Applications (IDAA 2025), organized by Daffodil International University

Professional Memberships

Open to joining relevant professional organizations (IEEE, ACM, etc.) upon faculty appointment

Honors & Awards

2021–2023: **ICCR Scholarship** – Fully-funded scholarship under Bangladesh Scholarship Scheme for M.Tech at IIT Kharagpur (competitive, merit-based)

2021: NVIDIA Deep Learning Institute (DLI) Certificate – Fundamentals of Accelerated Data Science with RAPIDS

2018: Finalist – BAUST-IEEE Idea Contest

2016: Honorable Mention – Inter-University Programming Contest, IUBAT, Dhaka

2012: Board Talent Scholarship – Ranked 35th in Secondary School Certificate (SSC) Examination, Dhaka Board (among 200,000+ candidates)

Technical Expertise

Programming: Python, C++, JavaScript, Java, PHP, MATLAB

Deep Learning: PyTorch, TensorFlow/Keras, Hugging Face Transformers, ONNX

Computer Vision: OpenCV, MMAction2, MMDetection, YOLO, Detectron2, Albumentations

ML/Data Science: scikit-learn, NumPy, Pandas, Matplotlib, Seaborn, Jupyter

NLP: spaCy, NLTK, Hugging Face, Sentence Transformers

Development: React.js, Node.js, FastAPI, Flask, Django, REST APIs, GraphQL

Databases: MySQL, PostgreSQL, MongoDB, Redis, SQLite

Tools & Platforms: Git, Docker, Kubernetes, AWS (EC2, S3, Lambda), Linux, LaTeX, Weights & Biases

Other: Data Augmentation, Model Compression, Transfer Learning, MLOps, Agile/Scrum

Additional Research Projects

OCR Service with NER and Sentiment Analysis *March 2024*

- Developed production-ready OCR pipeline with Named Entity Recognition and sentiment analysis
- Implemented asynchronous processing architecture using FastAPI and Redis for 5x throughput improvement
- Integrated Tesseract OCR, spaCy NER, and TextBlob for comprehensive document understanding
- Containerized application with Docker for seamless deployment

IIT Kharagpur

Web Crawling and Extraction of COVID-19 News *Spring 2021*

- Built Lex/Yacc-based console application for query-driven COVID-19 data extraction
- Crawled and analyzed data from Worldometer and Wikipedia covering 55 countries across 5 subcontinents
- Identified country-wise COVID-19 response patterns using Jaccard similarity on news corpus
- Created visualizations including word clouds and similarity heatmaps

References

Assistant Professor **Department of Computer Science and Engineering**
Dr. Abir Das, IIT Kharagpur, West Bengal, India – 721302
Phone: +91-3222-283426
Email: abir@cse.iitkgp.ac.in
Website: https://cse.iitkgp.ac.in/~abir/
(M.Tech Thesis Advisor and Research Supervisor)

Associate Professor & Head
Dr. Md Nakib Hayat Chowdhury, Bangladesh Army University of Science and Technology (BAUST), Saidpur, Banglad
Phone: [Available upon request]
Email: nakib@baust.edu.bd
Email: hdcse@baust.edu.bd (Head of Department)
Google Scholar: 1GPckP4AAAAJ
(Undergraduate Department Head)

Additional references available upon request