

# MD ASHIK KHAN

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Mirzapur-1940, Tangail, Dhaka, Bangladesh

+8801796103496 · aasshhik98@gmail.com · ashik.khan@kgpian.iitkgp.ac.in

## RESEARCH INTERESTS

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Deep Learning · Computer Vision · Natural Language Processing · Information Retrieval · Machine Learning

## EDUCATION

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- **Indian Institute of Technology, Kharagpur** 2021 - 2023  
Master of Technology in Computer Science and Engineering CGPA : 8.76/10.00  
*Thesis: A Large-scale Study of Representation Learning and the Benchmarking in Video Action Recognition*  
*Supervisor: [Dr. Abir Das](#)*
- **Bangladesh Army University of Science and Technology, Saidpur** 2015 - 2019  
Bachelor of Science in Computer Science and Engineering CGPA : 3.35/4.00

## RESEARCH EXPERIENCE

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- **Video Action Recognition**  
**Research Assistant, CVIR Lab, IIT Kharagpur** May 2022 - April 2023
  - Conducted extensive experiments on representation learning across diverse datasets through multiple learning models
  - Evaluated multiple transfer learning approaches: **full fine-tuning, linear evaluation, and few-shot learning**
  - Created and validated novel **Construction** action dataset comprising 1844 video samples across 13 categories
  - Evaluated models pre-trained on **Kinetics-400** and **MiT** datasets to understand transfer learning effectiveness

## TECHNICAL STRENGTHS

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Deep Learning Frameworks	PyTorch, MMAction2
Libraries	OpenCV, PyAV, NumPy, Pandas
Programming Languages	Python, C, C++
Development Tools	Linux, Git, Jupyter Notebook, VS Code

## RELEVANT COURSEWORK

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Machine Learning · Information Retrieval · Artificial Intelligence · Complex Network · Data Analytics · Algorithm Design and Analysis · Scalable Data Mining

## PUBLICATIONS

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- **Md Ashik Khan\***, Md Nahid Siddique\*, Md Rezaul Karim Khan, “*From Words to Metadata: A Hybrid Transformer-based Approach for Fake News Detection on Social Media*”, Under Review, 2025.
- **Md Ashik Khan**, Rafath Bin Zafar Auvée, “*Comparative Analysis of Resource-Efficient CNN Architectures for Brain Tumor Classification*”, Proceedings of the 27th International Conference on Computer and Information Technology (ICCIT), 2024 · [Link](#)

## RESEARCH PROJECTS

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- **A Large-scale Study of Representation Learning and the Benchmarking in Video Action Recognition**  
IIT Kharagpur July 2022 - April 2023  
Supervised By **Dr. Abir Das**
  - Performed comprehensive analysis of 2D/3D CNNs and Transformer-based architectures in video action recognition
  - Evaluated representation transfer learning across 14 target datasets through 6 state-of-the-art action recognition architectures including SlowOnly, TimeSformer and SIFAR and established benchmarks for cross-domain transfer learning effectiveness
  - Developed a comprehensive understanding of architecture-specific transfer learning patterns and established correlation between pretraining dataset similarity, downstream performance and identified optimal transfer learning strategies for various action datasets

- Tools/Technology: PyTorch, MMAction2, FFmpeg
- **Document Link:** [Thesis-Book](#)

### Deep Learning-based Hidden Camera Detection using Synthetic Training Data

*Spring 2024*

- Developed a novel synthetic data generation procedure to address real-world data collection challenges in surveillance detection
- Creating large training dataset by strategically combining background environments with varied hidden-camera placements
- Fine-tuned ResNet50 and YOLOv8 with custom augmentation strategies
- Tools/Technology: PyTorch, OpenCV

### Context Specific Quote Recommendation from Historical Text

*Autumn 2022*

*IIT Kharagpur*

- Developed a context-based quote recommendation system using the Hugging Face DistilBERT model
- Prepared dataset and annotations from Quotation POTUS
- Implemented transfer learning techniques like full fine-tuning for quote phrase learning and evaluation , achieving 82.25% accuracy
- Tools/Technology: Python, PyTorch, Hugging Face.
- **Source Code:** [Github](#)

### Evidence Retrieval for Fact Verification

*Autumn 2022*

*IIT Kharagpur*

- Implemented classical Information Retrieval methods to collect evidence related to a claim or fact
- Developed approach by creating collated data and measuring the related evidence using tf-idf score and cosine similarity
- Tools/Technology: Python, NLTK, Beautiful Soup
- **Source Code:** [Github](#)

### Web Crawling and Extraction of COVID-19 News

*Spring 2021*

*IIT Kharagpur*

- Developed a Lex/Yacc-based console application for query-driven COVID-19 data extraction from Worldometer and Wikipedia, covering 55 countries across 5 subcontinents with PLY and Regular Expressions for data parsing and analysis
- Detected Country-wise top closest COVID-19 responded countries according to Jaccard similarity of news and created Word Cloud
- Tools/Technology: Python, PLY, Regular Expression
- **Source Code:** [Github](#)

## WORK EXPERIENCE

### • Software Engineer, Auptimate

*May 2023 - Present*

- Developing and maintaining an e-signature platform for creating, managing, tracking and e-signing documents
- Developing an AI Agent to assist customers regarding legal document-related processes

### • Assistant Programmer, Hovata Technologies

*March 2020 - August 2021*

- Developed a platform for petrol pump managers that allows for the smooth monitoring of daily sales, customer tracking, stock management, employee expenses, shift sales, tax calculations, and vendor goods tracking
- Served as the team lead in designing and implementing features for a cross-platform parking system to improve parking efficiency and manage in-and-out operations.
- Implemented RestAPI with Lumen Micro Framework and built UI components with React JS

## TEACHING EXPERIENCE

### • Teaching Assistant, Department of CSE, IIT Kharagpur

[Software Engineering](#)

*Spring 2022-23*

[Algorithms-I](#)

*Autumn 2022*

**Responsibilities:** Conducted tutorials, evaluated assignments and mentoring a group of 20 students during lab, supervised multiple student groups during their projects.

## LANGUAGE CERTIFICATES

**IELTS Academic**

7.0 (Listening-7.5, Reading-7.0, Speaking-6.5, Writing -6.5)

*September 23,2023*

## TRAINING AND CERTIFICATION

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- Fundamentals of Accelerated Data Science, NVIDIA Deep Learning Institute, 2021
- Skill Development for Mobile Game & Application, ICT Division, Bangladesh, 2018

## SCHOLARSHIPS AND AWARDS

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- **ICCR Scholarship for M.Tech at IIT Kharagpur**  
Awarded under the Bangladesh Scholarship Scheme to pursue postgraduate studies at IIT Kharagpur, 2021-2023
- **Finalist, BAUST-IEEE idea contest 2018, BAUST**
- **Honorable Mention, Inter-University Programming Contest, IUBAT, Dhaka, 2016**
- **Board Talent Rank 35th**  
Secured Board Talent Rank 35th in Secondary School Certificate(SSC) Examination, Dhaka Board, 2012

## EXTRA-CURRICULAR ACTIVITIES

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- **Mentor, CSE Society of BAUST, Bangladesh Army University of Science and Technology**  
**Responsibilities:** Conducting online sessions, mentoring during various competitions  
**Participation Period: January 2024 to till date.**
- **Media & Communication Manager, Career Society of BAUST.**  
**Responsibilities:** Managing social media platforms, content creation , handling public relations and sponsors  
**Participation Period: January 2017 to July 2018**
- **Member, Debate Society BAUST, Bangladesh Army University of Science and Technology.**  
**Responsibilities:** Organizing different debate competitions (Intra and Inter University).  
**Participation Period: January 2017 to April 2019**