Md Ashraful Hossen Akash

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GitHub | Google Scholar | Website | LinkedIn

RESEARCH INTERESTS

Computer Vision, Medical Imaging, Healthcare AI, Federated Learning.

EDUCATION

B.Sc. in Computer Science & Engineering Mar 2022 - July 2026
Rajshahi University of Engineering & Technology
CGPA: 3.25/4.00 **(3.68 in last 61.75 Credits)**

PUBLICATIONS & PREPRINTS

Preprints & Manuscripts Under Review

[P1] Abdullah Al Mamun, Md. Nasif Osman Khansur, **Md Ashraful Hossen Akash**, Md. Kishor Morol, Tze Hui Liew. "Beyond Accuracy: Quantifying Pulmonary Attribution in Anatomy-Guided Chest X-Ray Classification Under Domain Shift." *Under review at Scientific Reports.*
[Paper] [arXiv] [Code]

[P2] **Md Ashraful Hossen Akash**, Shyla Afroge, Abdullah Al Mamun, Md. Kishor Morol, Tze Hui Liew. "TRIAGE: Risk-Controlled Pseudo-Label Admission for Annotation-Efficient Semi-Supervised Retinal OCT Classification." *Under review at Scientific Reports.*
[Paper] [arXiv] [Code]

[P3] Md Abdur Rahaman, **Md Ashraful Hossen Akash**, Ayman Tahmid, Farjana Parvin. "MeLA-Light: Melanoma Classification Using Multi-Stage DCT-Based Frequency-Channel Attention Fusion on RepViT." *Under review at 7th ICRPSET 2026.*
[Paper]

[P4] Md. Tanvir Kabir Akon, A. F. M. Minhazur Rahman, **Md Ashraful Hossen Akash**. "Compact Calibrated Prototypical Networks for Cross-Domain Few-Shot Plant Disease Classification." *Under review at 29th ICCIT 2026.*
[Paper] [Code]

Peer-Reviewed Conference Proceedings

[C1] **Md Ashraful Hossen Akash**, Shyla Afroge, Md. Asif Sajeed, Md Barkullah, Abul Khayer. "An Explainable Deep Learning Framework for Multi-Class Alzheimer's Diagnosis with Multi-Scale CNN." *in 2nd QPAIN 2026.*
[Paper] [DOI] [Code]

[C2] Md. Asif Sajeed, Shyla Afroge, **Md Ashraful Hossen Akash**, Abul Khayer, Abdullah Al Mamun. "Memory-Efficient Deep Learning Architectures for Water Body Segmentation in Satellite Imagery: A Comparative Analysis and Ensemble." *in 28th IEEE ICCIT 2025.*
[Paper] [DOI] [Code]

[C3] Abul Khayer, Shyla Afroge, Abdullah Al Mamun, Md. Asif Sajeed, **Md Ashraful Hossen Akash**. "Transformer-Based Multi-Label Disease Prediction from Radiology Reports." *in 28th IEEE ICCIT 2025.*
[Paper] [DOI] [Code]

EXPERIENCE

Research Intern Aug 2026 – Present
Elite Research Lab LLC *New York, USA*
Supervised by Kishor Morol

- Conducting research on multimodal architectures and federated learning for healthcare AI applications.

Research Assistant June 2026 – Present
Arché Intelligence Lab *CSE, AIUB*
Supervised by Mahamodul Hasan Mahadi

- Spearheaded deep learning and LLM research for neuro-oncological imaging, focusing on MRI-based brain tumor classification, semantic segmentation (tumor boundary delineation), and automated grading.

Student Researcher May 2024 – Aug 2026
Supervised by Shyla Afroge *CSE, RUET*

- Conducted research in deep learning for medical imaging, satellite imagery, and clinical text analysis.
- Contributed to three published international conference papers (ICCIT 2025, QPAIN 2026) involving multi-scale CNN architectures, transformer-based NLP models, and ensemble deep learning methods.

Software Engineer Intern Feb 2025 – May 2025
Code Studio Software Company *Rajshahi, Bangladesh*

- Applied SDLC workflows, relational DB schema design, and SQL. Built full-stack CRUD apps (Node.js, Django, React, Next.js) with SQL/NoSQL DBs REST APIs, auth, middleware, and rate limiting.

COMPETITIONS

Kaggle Competitions

- **Santa 2025 - Christmas Tree Packing** — Rank: **425/3357** (**Top 13%**).
- **Predicting Student Test Scores** — Rank: **96/4317** (**Top 3%**).
- Kaggle profile: Ashraful

PROJECTS

AlzDetect-Ai: Explainable Alzheimer's Disease Classification System
Developed an AI-powered system for multi-class Alzheimer's disease diagnosis from brain MRI scans using a custom multi-scale CNN and an ensemble of ResNet50 and Xception models. [GitHub] [Live Demo]

TRIAGE: Risk-Controlled Semi-Supervised Learning Framework
Engineered a pseudo-label admission mechanism in PyTorch for annotation-efficient retinal OCT classification, reducing error propagation under severe domain shifts. [GitHub] [arXiv]

BeyondAccuracy: Anatomy-Guided Attribution Benchmark
Implemented a pulmonary attribution quantification pipeline on chest X-rays to evaluate anatomical plausibility beyond standard accuracy metrics under cross-hospital domain shifts. [GitHub] [arXiv]

ACHIEVEMENTS

- **Government Technical Scholarship**: Awarded by the Ministry of Education (MoE), Government of Bangladesh, for academic performance in the 3rd and 4th year of undergraduate study at RUET.
- **Government Talentpool Scholarship (2015)**: Awarded by the Board of Intermediate and Secondary Education, Jashore, for top-tier academic merit in the Junior School Certificate (JSC) examination.
- **HR Lead, RUET Computing Society (RCS)**: Led human resources operations, member coordination, and organized campus-wide programming events and workshops.

SKILLS

ML/DL Frameworks	PyTorch, Torchvision, Hugging Face, MONAI, OpenCV, Scikit-learn
Core Methodologies	CNNs, Explainable AI (XAI), Semi-Supervised Learning, ViTs
Programming Languages	Python, C/C++, SQL, JavaScript
Tools & Platforms	Linux/Bash, Git, GitHub, Kaggle, LaTeX

REFERENCES

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