Mahir Afser Pavel

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116/1 School Road, Mohakhali, Gulshan, Dhaka - 1212, Bangladesh| (WhatsApp)+880 1873742510| September 26, 2001|
Google Scholar| ORCID| LinkedIn| GitHub| Portfolio

About

- Honest, reliable, and highly motivated, always eager to expand knowledge and skills.
- Committed to continuous learning and making meaningful contributions in dynamic and fast-paced environments.
- Strong interest in roles such as Lecturer, Data Scientist, Machine Learning Engineer, and Research Assistant/Associate.
- Passionate about applying technical expertise to deliver impactful results in research, development, and teaching.

Work Experience

Research Assistant
ELITE Research Lab (EliteLab.AI), 143, Crescent Road, Dhanmondi, Dhaka 1205
September 2025 - Present

- Conducting advanced research in medical artificial intelligence with a focus on brain tumor diagnosis, developing a novel Federated Generative Adversarial Network with Dual Encoder Contrastive Learning (Fed-GAN-DE-CL) framework that integrates federated learning for privacy-preserving decentralized training, GAN-based data augmentation for class imbalance mitigation, and contrastive learning for robust feature representation. The work incorporates explainable AI techniques to enhance clinical interpretability and is currently under review at *npj Digital Medicine*.

United International University (UIU), Dhaka, Bangladesh
May 2025 - July 2025

- Engaged in academic and industrial research on advanced deep learning and natural language processing, with a focus on developing research proposals, conducting thorough literature reviews, and supporting data preprocessing and model evaluation. Collaborates closely with UIU faculty to contribute to scholarly publications, grant applications, and technical reports, advancing research quality and impact.

North South University, Dhaka, Bangladesh
April 2024 - June 2024

- Played a key role in publishing the research paper *"Real-Time Fire Detection: Integrating Lightweight Deep Learning Models on Drones with Edge Computing"* in *Drones* (2024). Implemented and optimized object detection algorithms, enhancing model accuracy by 10-20% and contributing to research outcomes presented in peer-reviewed journals.

Mahdy's Research Academy, Virtual
Service-3, AI/ML Track, February 2024 - December 2024

- Engaged in advanced research projects focusing on Clinical Natural Language Processing (NLP) and Machine Translation for high-resource languages, under the mentorship of Dr. Mahdy Rahman Chowdhury.

AI Engineer Intern
Razzaq Plaza, Mogbazar More, Dhaka
October 2024

- Assist in developing and implementing AI/LLM models, enhancing capabilities using RAG and fine-tuning, and optimizing prompts for various applications. Utilize Llama 3 and other open-source LLMs, while working with vector databases to manage data efficiently. Collaborate with the CTO and team to deliver high-quality solutions and contribute innovative ideas for improvements.

Publications

- Md Fahim Shahoriar Titu, Mahir Afser Pavel, Goh Kah Ong Michael, Hisham Babar, Umama Aman, and Riasat Khan. *(2024).* "Real-Time Fire Detection: Integrating Lightweight Deep Learning Models on Drones with Edge Computing." *Drones*, 8(9), 483.
- Mahir Afser Pavel, Rafiul Islam, Shoyeb Bin Babor, Riaz Mehadi, and Riasat Khan. *(2024).* "Non-small cell lung cancer detection through knowledge distillation approach with teaching assistant." *PLOS ONE*, 19(11), e0306441.
- Afifa Zain Apurba, Md Fahim Shahoriar Titu, Mahir Afser Pavel, Intisar Tahmid Naheen, and Riasat Khan. *(2025).* "Fusion of Image Filtering and Knowledge-Distilled YOLO Models for Root Canal Failure Diagnosis." *IEEE Access*, vol. 13, pp. 66557–66573.
- Mahir Afser Pavel, Ramisa Asad, Goh Kah Ong Michael, Md Ikramuzzaman, Murad Mustakim, and Riasat Khan. *(2025).* "Multi-stage knowledge distillation with layer fusion-based deep learning approach for skin cancer classification." *Scientific Reports*, vol. 15, no. 1, Article 39792. Nature Publishing Group UK.
- Ananya Saha, Mahir Afser Pavel, Md Fahim Shahoriar Titu, Afifa Zain Apurba, and Riasat Khan. *(2025).* "Hybrid ViT-RetinaNet with Explainable Ensemble Learning for Fine-Grained Vehicle Damage Classification." *Vehicles*, vol. 7, no. 3, Article 89. MDPI.

Additionally, three manuscripts are currently under peer review, expanding ongoing contributions to the fields of deep learning and medical imaging.

Education

- **Bachelor of Science in Computer Science and Engineering**
  North South University
  January 2019 - January 2024
  CGPA: 3.71 out of 4.00 (90.06% mark) with *Magna cum laude* honors
  Major in Artificial Intelligence Trail
  Relevant Coursework: Artificial Intelligence, Machine Learning, Pattern Recognition, Neural Networks, Natural Language Processing, Computer Vision, Image Processing, Robotics

Languages

- English - Fluent
- Bengali - Native

Notable Projects

- **NSCLC Classification Using DL, CV, NLP** - Researched and implemented a lung cancer classification model using deep learning, computer vision, and natural language processing techniques, achieving an accuracy of over 90%. (GitHub Link)

- **Research** - Developed a cluster-based search engine to allow users to establish clusters of links and define the data they want the program to scrape. The scraped data is saved in an Elasticsearch index, allowing users to conduct effective searches. (GitHub Link)
- **Tooth Decay Identification Using YOLO Algorithm** - Developed an algorithm based on YOLO for identifying tooth decay in dental X-ray images, achieving over 90% accuracy.
- **More projects available on LinkedIn** - Visit my LinkedIn profile for more projects: LinkedIn

Certifications

- **Communication Masterclass by Tahsan Khan** (May 2023) - View Certificate
  Enhanced communication skills, including public speaking, negotiation, and effective interpersonal communication.
- **Audited DeepLearning.AI Courses**
  - Machine Learning
  - Deep Learning Specialization
  - Natural Language Processing Specialization
  - Generative Adversarial Networks (GANs) Specialization
  - Advanced TensorFlow Techniques Specialization
  - Improving Accuracy of Large Language Model (LLM) Applications
  - LangChain for LLM Application Development
  - AI Python for Beginners

Professional Skills

Technical Skills

- **Languages:** Python, Java, C++, C, PHP
- **Web Development:** HTML, CSS, JavaScript, Django
- **Databases:** SQL
- **Version Control:** Git
- **Libraries/Frameworks:** Scikit-learn, TensorFlow, PyTorch, Keras, Pandas, NumPy, Matplotlib, Seaborn, NLTK, SpaCy, OpenCV, LangChain
- **Containerization:** Docker

Software Tools

- **IDEs:** PyCharm, VS Code, Jupyter, Google Colab, Kaggle
- **Project Management:** Jira, Trello
- **Collaboration:** Slack, Microsoft Teams
- **Document Tools:** Word, Excel, PowerPoint, LaTeX

References

Available upon request.