

Md. Ashiq Ul Islam Sajid

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in Ashiq Sazid ☎ +880 1631907864

Research Interests

LLM security, adversarial machine learning, trustworthy and explainable AI, reinforcement learning for resource-constrained edge systems, privacy-preserving and federated learning, medical image analysis, multimodal learning, natural language processing.

Education

BRAC University Dhaka, Bangladesh

B.Sc. in Computer Science

- Relevant coursework: Artificial Intelligence, Neural Networks, Natural Language Processing, Image Processing, Data Structures & Algorithms, Parallel, Distributed, and High-Performance Computing, Pattern Recognition, Computational Theory.

Professional Experience

AI/ML Backend Developer · Moodifai USA

May 2025 – Present

- Lead AI research and development for **TheraMuse**, an adaptive music therapy platform that personalizes interventions for individuals with Down syndrome, ADHD, and dementia.
- TheraMuse secured **\$3 million in venture funding** and is supervised by **Dr. Mustak Ibn Ayub (University of Oxford)**.
- Developed **HealthSync**, a medical AI system that analyzes symptoms, interprets prescriptions, and recommends suitable doctors.

Researcher · Elite Research Lab Part time

July 2024 – Present

AI Backend Developer · Sparktech Dhaka, Bangladesh

June 2024 – May 2025

- Architected and deployed production-grade AI services using FastAPI, Docker, and scalable cloud backend infrastructure.
- Developed and optimized retrieval-augmented generation (RAG) pipelines, LLM fine-tuning workflows, and LoRA-based adaptation for AI-powered backend applications.
- Built backend infrastructure supporting real-time inference, model integration, API services, and enterprise AI deployment.

Ongoing Research

Quantum circuits with large language models Came across a new paper of antropic called "Discovering state-of-the-art quantum circuits with large language models", planning to work on this domain Target: ICLR

This research introduces an LLM-driven framework to design and optimize quantum circuits. By combining AI-generated designs with independent evaluation, it reduces computational costs and qubit requirements in seven of eight tasks. It also discovers a new architecture for modular inver-

sion, improving quantum algorithm efficiency and paving the way for AI-assisted quantum computing. System One models Came across another paper which is "JevAgentHarness: Benchmarking, Deploying and Training", brainstorming on what to research on System One models Target: ICML

This research introduces an efficient AI agent framework that uses smaller decision models to handle routine choices instead of relying on large language models at every step. By developing AGENT-DECISIONBENCH, JEVAGENTHARNESS, and AGENTDECISION-4B, while maintaining high task success rates.

Batch Echoes Timing Side Channels in LLM Inference Servers Target: USENIX

Measure token length timing leakage in continuous batching schedulers (vLLM, SGLang), with pilot experiments on RTX 4090 infrastructure.

FedGrid-RL Federated Deep RL for Private Battery Control in Grid Interactive Buildings Target: Scientific Reports

Federated deep reinforcement learning with a shared dynamics encoder for private, personalized battery control.

Publications (13 peer reviewed, first author on 6, full list on [Google Scholar](#))

Under Review (First Author)

[U1] Selective Recovery of Confidential System-Prompt Facts through Required Tool Parameters
Journal of Information Security and Applications (JISA), Elsevier, Q1 · Under review
· [Code & Paper](#) 

[U2] Track-Keyed Sequential Evidence for Misbehaviour Detection and Impact Prioritisation in V2V Networks

Vehicular Communications, Elsevier, Q1 · Under review · [Code & Paper](#) 

First-Author Publications

[P1] BitRL: Reinforcement Learning with 1-bit Quantized Language Models for Resource-Constrained Edge Deployment

2026 IEEE International Conference on Frontiers of Engineering and Emerging Technologies (FET) · Apr 2026 · DOI: [10.1109/FET68771.2026.11601600](https://doi.org/10.1109/FET68771.2026.11601600)  1st of 6 authors

Md. Ashiq Ul Islam Sajid, Mohammad Sakib Mahmood, Md. Tareq Hasan, Md Abdur Rahim, Rafat Ara, Md. Arafat Hossain

[P2] Enhanced Calorie Estimation of Solid Foods Using Federated Learning and YOLO Models: A Distributed Approach for Collaborative Caloric Data Analysis

Advances in Distributed Computing and Machine Learning (ICADCML 2025), Lecture Notes in Networks and Systems, vol. 1407, Springer Singapore · Sep 2025 · DOI: [10.1007/978-981-96-6718-5_10](https://doi.org/10.1007/978-981-96-6718-5_10)  1st of 6 authors

Sajid, M.A.U.I., Mubin, A.A., Islam, M.A., Sarkar, R., Choya, S.B.Z., Tamim Hasan, M.

[P3] Augmented 3D U-Net Architecture for Accurate Multimodal MRI Brain Tumor Segmentation

Advances in Distributed Computing and Machine Learning (ICADCML 2025), Lecture Notes in Networks and Systems, vol. 1406, Springer Singapore · Aug 2025 · DOI: [10.1007/978-981-96-6721-5_11](https://doi.org/10.1007/978-981-96-6721-5_11)  *1st of 5 authors*

Sajid, M.A.U.I., Dohan, D.M., Mubin, A.A., Islam, M.A., Pial, A.J.

[P4] Enhancing User Experience by Tackling the Cold Start Challenge in Product Recommendation System

Innovations in Electrical and Electronics Engineering (ICEEE 2024), Lecture Notes in Electrical Engineering, vol. 1294, Springer Singapore · Jan 2025 · DOI: [10.1007/978-981-97-9037-1_28](https://doi.org/10.1007/978-981-97-9037-1_28)  *1st of 4 authors*

Sajid, M.A.U.I., Romeo, R., Tasin, S., Farid, S.

[P5] Vertical AI for Kidney Stone Detection: Knowledge-Distilled CNNs with Student–Teacher Model for Ultrasound Imaging

5th International Conference on Applied Intelligence and Informatics (AII) · Presented Oct 2025, proceedings in press · [Paper Link](#)  *1st of 4 authors*

Md. Ashiq Ul Islam Sajid et al.

[P6] MedViT-HoVer++ (ViT): A Unified Transformer-Guided Framework for Multitask Nucleus Segmentation, Classification, and Count Regression in Histopathology Images

2nd International Conference on Advancement in Healthcare Technology and Biomedical Engineering (AHTBE) · Presented Jun 2025 *1st of 5 authors*

Md. Ashiq Ul Islam Sajid et al.

Co-Authored Publications

[P7] Federated Fine-Tuning Frameworks for Privacy-Preserving Distributed Large Language Intelligence

Scientific Reports, Nature Portfolio, Q1 · Accepted with minor revisions, Jun 2026, in press · [Paper Link](#)  *6th of 9 authors*

[P8] A Dual-Mode LLM Framework for Medical and General Language Translation for Breaking Barriers in Healthcare Communication

2025 IEEE 2nd International Conference on Computing, Applications and Systems (COMPAS) · Oct 2025 · DOI: [10.1109/COMPAS67506.2025.11381760](https://doi.org/10.1109/COMPAS67506.2025.11381760)  *2nd of 5 authors*

Intishar Rahman Anindo, **Md. Ashiq Ul Islam Sajid**, Mohammad Sakib Mahmood, Naheyen Prottush, Md Kishor Morol

[P9] Optimized Malaria Identification through Transfer Learning Approach

ICCA '24: Proceedings of the 3rd International Conference on Computing Advancements, ACM · Jun 2025 · pp. 719–724 · DOI: [10.1145/3723178.3723273](https://doi.org/10.1145/3723178.3723273)  *2nd of 6 authors*

Al Jubayer Pial, **Md. Ashiq Ul Islam Sajid**, Abdullah Mubin, Muhammad Zawad Mahmud, M. Firoz Mridha, Abdullah Jubair

[P10] Customer Personality Analysis Using Machine Learning with Explainable AI

2025 13th International Symposium on Digital Forensics and Security (ISDFS) · Apr 2025 · DOI: [10.1109/ISDFS65363.2025.11012007](https://doi.org/10.1109/ISDFS65363.2025.11012007) [↗](#) *3rd of 6 authors*

Din Mohammad Dohan, Naheyen Prottush, Md. Ashiq Ul Islam Sajid, Sudipta Mondal, Sumaya Binte Zilani Choya, Md. Golam Rabiul Alam

[P11] Optimizing Multimodal Transformers for Medical Image Captioning: Enhancing Automated Descriptions via AI Systems

2025 IEEE 6th International Conference on Image Processing, Applications and Systems (IPAS) · Jan 2025 · DOI: [10.1109/IPAS63548.2025.10924492](https://doi.org/10.1109/IPAS63548.2025.10924492) [↗](#) *7th of 8 authors*

Mithila Arman, Md. Khurshid Jahan, Ahmed Faizul Haque Dhrubo, Md. Mahfuzur Rhaman, Sumaya Binte Zilani Choya, Din Mohammad Dohan, Md. Ashiq Ul Islam Sajid, et al.

[P12] A Hybrid Attention-Guided Fusion Network with Grad-CAM for MPox Skin Lesion Classification

2025 IEEE 4th International Conference on Computing and Machine Intelligence (ICMI) · Apr 2025 · DOI: [10.1109/ICMI65310.2025.11141216](https://doi.org/10.1109/ICMI65310.2025.11141216) [↗](#) *7th of 8 authors*

Mithila Arman, Naheyen Prottush, Maher Ali Rusho, Arup Datta, Anirban Saha Anik, Din Mohammad Dohan, Md. Ashiq Ul Islam Sajid, et al.

[P13] XAI-PredictFare: Comparative Flight Fare Prediction using Machine Learning Models with Dual Explainability through LIME and SHAP

International Conference on Machine Learning and Applications (ICMLA) · Presented Nov 2025, proceedings in press · Paper Link [↗](#) *3rd of 5 authors*

Preprints

[R1] Advancing Sentiment Analysis: Fine-Tuning LLMs and Traditional Machine Learning Models for Noisy Bangla Texts

SSRN Preprint · Aug 2025 · DOI: [10.2139/ssrn.6275460](https://doi.org/10.2139/ssrn.6275460) [↗](#) *6th of 8 authors*

A Glimpse into Machine Learning Projects

Qwen2.5 LoRA Fine-Tuning

[Qwen2.5 LoRA Fine-Tuning](#) [↗](#)

- Fine-tuned a large language model using LoRA (Low-Rank Adaptation) on a local machine with the Qwen2.5 Instruct model. Built as a step-by-step reference implementation for LoRA, rather than production-scale training.

MedViT-HoVer++ (ViT): Unified Transformer-Guided Framework for Multitask Nucleus Analysis

[MedViT HoVer++](#) [↗](#)

- A transformer-guided framework for histopathology image analysis. Combines MedViT (Medical Vision Transformer) as the backbone with HoVer++ horizontal/vertical maps to perform multi-task learning, simultaneously handling nucleus segmentation, classification, and count regression.

Military Bullet Detection System

[Military Bullet Detection](#) 

- Collaborating with the Bangladesh Army to develop a military-grade bullet detection pipeline using YOLOv8. Implemented model training, evaluation-only mode, and real-time CCTV inference optimized for low-quality imagery, with Weighted Boxes Fusion for ensemble results and deployment for live demonstration.

Brain Tumor Segmentation

[Brain Tumor Segmentation](#) 

- An automated system for brain tumor detection, segmentation, and classification using deep learning, built on a 3D U-Net architecture with TensorFlow.

Kidney Stone Detection with Knowledge Distillation

[Kidney Knowledge Distillation](#) 

- Developed a modular knowledge-distillation notebook integrating machine learning workflows and data analysis pipelines. Automated preprocessing, training, and evaluation to streamline experimentation and reporting in Colab.

Technical Skills

- **Languages:** Python, C++
- **ML and LLMs:** Keras,model fine tuning,langchain,working with Open source model, federated learning, reinforcement learning
- **LLM Systems and Security:** vLLM, SGLang, Model Context Protocol (MCP)
- **Infrastructure:** FastAPI,Docker, Kafka, Azure
- **Talks and Code:** [YouTube](#)  project demos, [GitHub](#)  research repositories

Certificates

I have recieved certificates from IEEE,ACM,SPRINGER and more.