Nasif Safwan

nasifsafwan@gmail.com · nasifsafwan@archelab.org · Dhaka, Bangladesh · +880 1798994476
nasifsafwan.me · github.com/nasifsafwan · linkedin.com/in/nasifsafwan

Professional Summary

AI researcher and software developer known for collaborative leadership, rapid learning, and translating complex ideas into practical systems. Driven by applying intelligent computing to human health and understanding the mechanisms behind cognition, with experience leading research teams and building reliable AI solutions. I enjoy working at the intersection of scientific research and real-world technology, where ideas can develop into systems with meaningful impact.

Experience

Arché Intelligence Lab — Dhaka, Bangladesh
Co-Founder and Research Director — *2024 – Present*
arche-lab.org · sulci.archelab.org

- Co-founded and lead a **35+ member** cross-border research team spanning multiple countries, driving work across medical AI, NeuroAI, explainable AI, self-supervised learning, federated learning, and AI-enabled software systems.
- Led and contributed to research resulting in **12+ journal and conference publications**, including work published in Scientific Reports, IEEE Access, Biomedical Engineering Advances (Elsevier), Tech Science Press, Healthcare Technology Letters, Wiley, IET and many more.
- Led the **Arché NeuroAI Initiative** and **Sulci(sulci.archelab.org)** program utilizing the BrainVISA/Morphologist pipeline for blinded paracingulate sulcus annotation; coordinated researchers across experimental design, model development, evaluation, and manuscript preparation.

Ledgercross — Dhaka, Bangladesh
Software Developer – On Site, Full-Time — *2026 – Present*
ledgercross.com · led-scan.com

- Develop AI and production software systems spanning identity verification, supply-chain security, risk analysis, and business automation, including platforms engineered for up to **10M+ monthly users**.
- Developed real-time verification infrastructure capable of producing counterfeit-risk verdicts in approximately **0.3 seconds** while supporting distributed product-verification workflows.
- Built core components of a KYC authentication tool, integrating computer vision, document intelligence, AI risk scoring, cloud infrastructure, and authentication into production-oriented workflows.

FrithX LLC — Wyoming, USA
Chief Management Officer — *2026 – Present*
frithx.com

- Coordinate cross-functional teams, manage workflows, and maintain clear communication to keep projects aligned and accelerated.
- Facilitate collaboration between team members and stakeholders by managing responsibilities, follow-ups, and day-to-day execution.

Education

American International University-Bangladesh — Dhaka, Bangladesh
Bachelor of Science in Computer Science and Engineering; CGPA: 3.93/4.00 — *2022 – 2026*

Dhaka City College — Dhaka, Bangladesh
Higher Secondary Certificate; GPA: 5.00/5.00 — *2021*

Thakurgaon Govt. Boys' High School — Thakurgaon, Bangladesh
Secondary School Certificate; GPA: 5.00/5.00 — *2019*

Technical Skills

Programming: Python, C++, R, JavaScript/TypeScript, Go, HTML/CSS
AI/ML Frameworks: PyTorch, TensorFlow, Scikit-learn
AI/ML Areas: Medical Imaging, Computer Vision, NLP, Transfer Learning, Explainable AI, Self-Supervised Learning, Federated Learning
Software & Data: Next.js, React, FastAPI, Supabase/PostgreSQL, Docker
Developer & Research Tools: Git, GitHub, Kaggle, Google Colab, LaTeX, OpenGL
AI Tools: OpenAI, Claude Code, Kimi, Opencode, GitHub Copilot

Publications

Journal Articles

T3SSLNet: Triple-Method Self-Supervised Learning for Brain Tumor Classification 2025
IEEE Access, Volume 13. DOI: 10.1109/ACCESS.2025.3589619
Developed a triple-method self-supervised learning framework for learning robust brain MRI representations for multi-class tumor classification.

Hi-TGNet: Hierarchical Tumor Guidance Network for Explainable Brain Tumor Classification 2026
Scientific Reports, Nature Portfolio. Final publication stage.
Introduced a hierarchical tumor-guidance framework for explainable brain tumor classification from medical images.

ExtrimoInsight: Analyzing Online Extremism through Toxic Comment Classification 2026
CMC – Computers, Materials & Continua, Tech Science Press. DOI to be published soon.
Developed a computational framework for analyzing online extremism through automated toxic-content classification.

KbFL-XAI: Knowledge-Based Federated Learning with Explainable AI for Eye Disease Diagnosis 2025
Biomedical Engineering Advances, Elsevier. DOI: 10.1016/j.bea.2025.100196
Combined knowledge-based federated learning and explainable AI for privacy-aware multi-class eye disease diagnosis.

OpthaNet: Attention-Integrated for High-Precision Multi-Class Ophthalmic Image Classification 2026
Healthcare Technology Letters, IET & Wiley. DOI: 10.1049/htl2.70067
Applied attention-integrated deep learning to improve multi-class ophthalmic image classification.

Submitted Manuscripts

AMCS: Adaptive Multi-Stage Threat Containment via Closed-Loop Kernel Control 2026
Under review at *Journal of Systems Architecture*, Elsevier.
Developed an adaptive runtime-security framework using closed-loop kernel control for rapid containment of malicious file-system activity.

HybridMAE-Net: Lightweight Skin Lesion Classification with MAE-Inspired Auxiliary Masked Reconstruction 2026
Under review at *IEEE Access*.
Designed a lightweight skin-lesion classifier that incorporates MAE-inspired auxiliary masked reconstruction for representation learning.

Ethic-BERT: An Enhanced Deep Learning Model for Ethical and Non-Ethical Content Classification 2025
Preprint available on *arXiv*.
Developed a BERT-based NLP framework for automated classification of ethical and non-ethical textual content.

Conference Proceedings

MIME: Imbalance Mitigation Engine for Skin Cancer Classification 2025
International Conference on Trends in Computational and Cognitive Engineering, Melaka, Malaysia.
Introduced an imbalance-mitigation framework for improving learning from class-imbalanced skin cancer image datasets.

VARENet: Variance-Aware Residual Enhancement Network for Microscopic Fungal Classification 2026
BECITHCON, Dhaka, Bangladesh. DOI: 10.1109/BECITHCON69222.2025.11504042
Developed a variance-aware residual enhancement architecture for microscopic fungal image classification.

BUSegNet: A Speckle-Aware Multi-Scale CNN with Noise Modeling and Gated Calibration for Breast Ultrasound Diagnosis 2025
International Conference on Computer and Information Technology, Bangladesh. DOI: 10.1109/ICCIT68739.2025.11491069
Designed a speckle-aware multi-scale CNN with explicit noise modeling and gated calibration for breast ultrasound diagnosis.

SSChNet: Self-Supervised Learning for Child Speech Recognition 2025
NCIM 2025, Bangladesh. DOI: 10.1109/NCIM65934.2025.11160221
Applied self-supervised representation learning to improve automatic speech recognition for children's speech.

VisionOcular: Transfer Learning with Self-Attention for Multi-Class Ocular Diagnosis 2025
QPAIN 2025. DOI: 10.1109/QPAIN66474.2025.11171736
Combined transfer learning and self-attention for automated multi-class ocular disease classification.

Lightweight Supervised Approach for Behavioral Insider Anomaly Detection from SQL Logs 2025
International Conference on Computer and Information Technology, Cox's Bazar, Bangladesh. DOI: 10.1109/ICCIT68739.2025.11491429
Developed a lightweight supervised-learning pipeline for detecting behavioral insider anomalies from structured SQL activity logs.

Parental Influence in Shaping Student Performance: A Data-Driven Study in Bangladesh 2024
International Conference on Industrial Engineering and Operations Management, Dhaka, Bangladesh
Analyzed the influence of parental involvement, socioeconomic factors, and family support on student academic performance in Bangladesh using data-driven methods.

Projects

Serverless KYC & Identity Verification Platform 2026

Engineered a serverless KYC and identity-verification platform using **FastAPI, React/TypeScript, PostgreSQL, Docker, and Google Cloud**, designed to support **10M+ monthly users**. Integrated **Google Document AI/Gemini** for document extraction and **InsightFace, ONNX Runtime, OpenCV, and MiniFASNet** for face matching and liveness detection, enabling automated verification decisions, signed credentials, and real-time webhooks. Deployed on **Cloud Run** with Terraform-based infrastructure and automated CI/CD, providing a scalable alternative to manual identity-verification workflows.

LedgerScan – AI-Powered Supply-Chain Authenticity Platform 2026

Developed a real-time product-authenticity platform using **React, Fastify, FastAPI, Python, Supabase, Keycloak, Solidity, and Docker**, combining immutable product identities with an **AI risk engine** that evaluates location, device, timing, and supply-chain activity. Designed to protect consumers and enterprises from counterfeit products by detecting suspicious scans in real time, with verdicts averaging **0.3 seconds** and independent verification across **three continents**. **Live:** led-scan.com

Zentra – Custom Sportswear E-Commerce Platform 2026

Built a full-stack custom sportswear platform using **Next.js, React, TypeScript, Supabase/PostgreSQL, and Vercel**, enabling teams across Bangladesh to order personalized football, cricket, and basketball jerseys with custom names, numbers, and logos. Integrated the customer storefront, product customization, pricing, ordering, and administrative workflows into a unified system, reducing manual coordination between customers and business operations. **Live:** zentra-bd.vercel.app

Mario's Multiverse Adventure: OpenGL Game 2023

Developed a three-level interactive game using **C++ and OpenGL**, implementing custom graphics, physics, collision handling, and gameplay mechanics to demonstrate low-level graphics programming and interactive system design. **GitHub:** github.com/nasifsafwan/MarioMultiverseAdventures

Honors and Leadership

Best Thesis Poster Award 2026

Won the Best Thesis Poster Award in the Computer Vision category.

Dean's List Honor

Awarded for 4(four) consecutive academic semesters at AIUB for maintaining a CGPA above 3.75.

AIUB Social Welfare Club, SHOMOY 2022 – Present

Organized the National Ideas Challenge, blood donation campaigns, winter clothing drives, and flood-relief activities, and served as HR Lead for Oder Eid Amader Khushi 2025.

AIUB Robotic Crew 2022 – Present

Contribute to robotics projects with a focus on machine learning algorithms and software development.

IEEE AIUB Student Branch 2023 – Present

General Member.

Regional Winner & National Participant – Bangladesh Biology Olympiad 2017

Regional winner of the Rangpur Division at the Bangladesh Biology Olympiad.

Bangladesh Scouts 2015 – 2018

Developed leadership, teamwork, discipline, and problem-solving skills through scouting activities.

Champion - Physics poster presentation 2022

Organized by Department of Physics, AIUB.

References

Dr. Muhammad Firoz Mridha, Professor and Head of Undergraduate Studies, Department of Computer Science, American International University-Bangladesh. firoz.mridha@aiub.edu

Dr. Mohammad Nasir Uddin, Professor and Head of Graduate Studies, Department of Electrical and Electronic Engineering, American International University-Bangladesh. Email: drnasir@aiub.edu.

Dr. MD Iftekharul Mobin, Assistant Professor, Department of Computer Science and Engineering, American International University-Bangladesh. iftekhar.mobin@gmail.com.