Shuvashis Sarker (Shuvo)

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Summary — Motivated AI enthusiast with a solid foundation in Natural Language Processing and Computer Vision, driven by a passion for advancing research and translating innovative ideas into practical, real-world solutions. Dedicated to leveraging technical expertise to address complex challenges and contribute meaningfully to impactful, forward-thinking projects.

Experience

Southeast University, Department of Computer Science and Engineering
Adjunct Lecturer February 2025 – June 2025

- Delivering undergraduate courses including Digital Logic Design and Algorithm, with a focus on applied learning.
- Guiding students through assignments and conceptual problem solving while contributing to course design.

Articulated Research Institute for Scientific Excellence (A.R.I.S.E.)
Research Assistant April 2024 – February 2025

- Conducting research in deep learning, natural language processing, and chat models.
- Co-authored research publications focused on explainable AI and advanced neural model applications.

Applied Intelligent System and Information Processing Lab (AISIP), Dr. Shamim's Lab.
Research Assistant September 2023 – December 2024

- Engaged in deep learning model development and algorithm optimization for health signal classification.
- Published the paper *"Butterfly Optimization and Deep Learning to Classify Heart Sound Signals"* under Prof. Dr. Shamim Akhter.

Research Publications

- Shamim Rahim Refat, Zihan Shirin Raha, **Shuvashis Sarker**, Faika Fairuj Preotee, Mushfiqur Rahman, Tashreef Muhammad, Prof Dr. Shafiul Alam Shuvo, *VR-FUSENET: A Fusion of Heterogeneous Fundus Data and Explainable Deep Network for Diabetic Retinopathy Classification*, currently under peer review at Biomedical Materials & Devices Journal, a Q2 journal of Springer Nature (2025).
- Bidyarthi Paul, Faika Fairuj Preotee, **Shuvashis Sarker**, Shamim Rahim Refat, Shifat Ahmed, Tashreef Muhammad, *ANCHOLIK-NER: A Benchmark Dataset for Bangla Regional Named Entity Recognition*, currently under peer review at PLOS ONE, a Q1 journal published by the Public Library of Science (2025).
- Faika Fairuj Preotee, Md. Sabbir Hossain, **Shuvashis Sarker**, Farliha Binte Faisal, Nawrin Tabassum, Prof Dr. Shamim Akhter, *Butterfly Optimization and Deep Learning to Classify Heart Sound Signal*, International Conference on Emerging Smart Computing and Informatics (ESCI 2025), AISSMS IOIT, Pune.
- **Shuvashis Sarker**, Faika Fairuj Preotee, Shamim Rahim Refat, Shifat Ahmed, Tashreef Muhammad, *An Approach Towards Identifying Bangladeshi Leaf Diseases through Transfer Learning and XAI*, 27th International Conference on Computer and Information Technology (ICCIT 2024).
- **Shuvashis Sarker**, Faika Fairuj Preotee, Shamim Rahim Refat, Shifat Ahmed, Tashreef Muhammad, Ashraful Alam, *An Exploratory Approach Towards Investigating and Explaining Vision Transformer and Transfer Learning for Brain Disease Detection*, 27th International Conference on Computer and Information Technology (ICCIT 2024).
- **Shuvashis Sarker**, Shamim Rahim Refat, Faika Fairuj Preotee, Tanvir Shawon, Raihan Tanvir, *Comprehensive Lung Disease Detection Using Deep Learning Models and Hybrid Chest X-ray Data with Explainable AI*, the 27th International Conference on Computer and Information Technology (ICCIT 2024).
- **Shuvashis Sarker**, *Fuzzy Rank-Based Ensemble Learning for Eye Disease Classification Using Retinal Images: A Bangladeshi-Specific Dataset with Explainable AI Integration*, 13th International Conference on Electrical and Computer Engineering (ICECE 2024).
- **Shuvashis Sarker**, *Transfer Learning and Explainable AI for Brain Tumor Classification: A Study Using MRI Data from Bangladesh*, 6th International Conference on Sustainable Technologies for Industry 5.0 (STI 2024).
- **Shuvashis Sarker**, *A Comprehensive Analysis of COVID-19 Detection Using Bangladeshi Data and Explainable AI*, International Conference on Innovations in Science, Engineering and Technology (ICISET 2024).
- Bidyarthi Paul, Faika Fairuj Preotee, **Shuvashis Sarker**, Tashreef Muhammad, *Improving Bangla Regional Dialect Detection Using BERT, LLMs, and XAI*, IEEE Conference on Computing Applications and Systems (COMPAS 2024).
- **Shuvashis Sarker**, Shamim Rahim Refat, Faika Fairuj Preotee, Tashreef Muhammad, *Advanced CNN and Explainable AI Based Architecture for Interpretable Brain MRI Analysis*, 3rd International Conference on Computing Advancements (ICCA 2024).

Skills

Languages Fluent in English and Bangla
Programming C, C++, Java, Python, PHP.
Databases MySQL, MSSQL, Firebase.
Other Research, teaching, and publishing

Libraries & Tools TensorFlow, Keras, PyTorch, Scikit-learn, Pandas, Numpy, Matplotlib
Web Development HTML, CSS, JavaScript, Apache

Education

B.Sc. in Computer Science and Engineering with CGPA : 3.522
Ahsanullah University of Science and Technology (AUST)
2020 – 2025

HSC
GPA: 5.00
Dhaka Residential Model College
2017 – 2019

SSC
GPA: 5.00
Dhaka Residential Model College
2015 – 2017

Projects

Advanced Data Analytics and Time Series Forecasting for NYC Taxi and Dhaka Accident Dataset
- Analyzed NYC taxi and Bangladesh accident datasets for traffic trends and hotspots.
- Applied SARIMA, SARIMAX, and clustering for forecasting and geospatial insights.
- Delivered actionable insights for traffic management and urban planning.

Genetic Diversity Analysis of Turkish Rice Varieties Using Advanced Image Classification
- Classified five Turkish rice varieties using 75,000 grain images.
- Developed machine learning models (SVM with PCA features) achieving 98.2% accuracy.
- Built deep learning CNN models to extract genetic features, attaining 99% accuracy.
- Fine-tuned transfer learning models (VGG16, InceptionV3, MobileNetV2) for specialized classification, achieving 99.7-99.9% accuracy.

Forestscape: A Dynamic Forest Environment with Seasonal Transitions
- Designed a 3D forest scene with textured objects, seasonal animations, and dynamic lighting.
- Enabled user interaction and camera navigation with mouse and keyboard controls.

Dental-Care
- Developed a web-based dental appointment management application.
- Utilized PHP, CSS, and JavaScript for a responsive interface.

WhatsApp Clone (Model-View-ViewModel)
- Developed an Android application for real-time messaging using Java and Android SDK.
- Implemented backend services and real-time database using Firebase.
- Integrated WebSockets for real-time messaging functionality and AES for end-to-end encryption.

Hyacinth
- Built a pharmacy management system using Java FX.
- Streamlined inventory control and order processing.

Death-Stalker
- Created a 2D game using iGraphics in C.
- Designed basic gameplay mechanics and user interactions.

Leadership Experience

- **Organizing Secretary and Executive Committee Member,**
  AUST Programming and Informatics Club 2022 – 2024
  Played a pivotal role in planning and executing Inter-University Programming Contest, attracting participants from across the country. Coordinated with academic departments and industry sponsors to secure resources and funding. Supervised a team of volunteers to manage contest logistics, including technical support, and event scheduling. Contributed to the club's strategic development by organizing workshops, hackathons and knowledge-sharing sessions to promote programming and informatics among students.
- **Treasurer, DRMC Science Club** 2017 – 2019
  Managed the club's financial operations, including budget planning, expense tracking, and fundraising activities. Successfully organized 4 National Science Carnivals, overseeing logistics, sponsorship acquisition, and event coordination. Fostered collaboration among a team of 100+ members to ensure the smooth execution of events.

Awards

- **Best Technical Presentation Award**, ICCIT 2024 December 2024
  Awarded for presenting the paper *Comprehensive Lung Disease Detection Using Deep Learning Models and Hybrid Chest X-ray Data with Explainable AI* at the 27th International Conference on Computer and Information Technology (ICCIT 2024), held at Long Beach Hotel, Cox's Bazar, Bangladesh.

References

Prof. Dr. Shamim Akhter

- Professor and Head of the Department of Computer Science and Engineering
- Ahsanullah University of Science and Technology (AUST), Dhaka, Bangladesh.
- Phone: +8801795716777
- Email: shamimakhter.cse@aust.edu

Tashreef Muhammad

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- Southeast University, Dhaka, Bangladesh.
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