

Sarbajit Paul Bappy

Lecturer, Dept. of CSE, Daffodil International University | AI/ML Researcher | Computer Vision | Explainable AI
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PROFESSIONAL SUMMARY

Lecturer and AI/ML researcher (CGPA 3.95/4.00, Batch First) with Erasmus+ exchange experience at Mälardalen University, Sweden. Published researcher with multiple peer-reviewed journal articles, a book chapter, and conference papers spanning deep learning, computer vision, explainable AI, and federated learning for medical and agricultural imaging. Currently teaching Data Structures and Software Quality Assurance at the undergraduate level while continuing an active research pipeline in healthcare AI and clinical decision support.

EXPERIENCE

Lecturer, Department of CSE

Jul 2026 – Present

Daffodil International University

- Teach **Data Structures** (Theory and Laboratory) and **Software Quality Assurance (SQA)** at the undergraduate level.
- Design lecture content, lab exercises, assignments, and assessments aligned with course outcomes.
- Evaluate student performance and provide academic guidance and mentoring.
- Participate in departmental academic and instructional activities.

Teaching Assistant, Department of CSE

Oct 2025 – Jun 2026

Daffodil International University

- Worked under the supervision of Professor Dr. Fernaz Narin Nur.
- Assisted in undergraduate courses, laboratory sessions, and coursework evaluation for over 100 students.
- Mentored junior researchers on deep learning and computer vision projects, and provided academic and research support within the department.

RESEARCH WORK & PUBLICATIONS

Journal Articles (Published)

- Sohel, A., Turjy, R. C. D., **Paul, S. P.**, Assaduzzaman, M., Marouf, A. A., Rokne, J. G., & Alhajj, R. (2025). SkinVisualNet: A Hybrid Deep Learning Approach Leveraging Explainable Models for Identifying Lyme Disease from Skin Rash Images. *Machine Learning and Knowledge Extraction*, 7(4), 157. DOI: 10.3390/make7040157
- Sohel, A., Bijoy, M. H. I., **Bappy, S. P.**, Turjy, R. C. D., Othman, M., & Samad, M. A. (2026). JackVisualNet: A Fine-Tuned Hybrid Deep Learning Model for Jackfruit Disease Classification with Explainable AI. *PeerJ Computer Science*, 12, e3977. DOI: 10.7717/peerj-cs.3977

Journal Articles (Under Review / Submitted)

- Bappy, S. P.**, Tarafdar, S., Alvi, S. T., Turjy, R. C. D., & Soheli, A. Federated Learning for Securing Healthcare Data: A Comprehensive Review on Privacy, Robustness, and Defense Mechanisms. *Computers in Human Behavior Reports* (Q1). *Minor Revision*.
- Bappy, S. P.**, Bijoy, M. H. I., Turjy, R. C. D., Tarafdar, S., Nur, F. N., Soheli, A., Hasan, M. Z., Arefin, M. S., Dhar, P. K., Shimamura, T., & Ohidujjaman. DeepMed-A3Net: A Lightweight Edge-Deployable Backbone with Modality-Aligned Federated Learning for Fair and Efficient Heterogeneous Clinical AI. *Neural Computing and Applications* (Q1). *Under Review*.
- Mondal, A.[†], **Paul Bappy, S.[†]**, Nur, F. N.[†]. Spatiotemporal Patterns and Machine Learning for Road Traffic Accident Prediction in Developing Countries: A Systematic Review with Implications for Bangladesh. *International Journal of Data Science and Analytics* (Q1). *Under Review; equal contribution*.
- Nur, F. N.[†], **Bappy, S. P.[†]**, Mondal, A., Dipu, M. H., Sharmin, S., Moon, N. N., & Jahan, H. A Quantum-Inspired Hybrid DenseNet Framework with Imbalance-Aware Learning for MRI-Based Alzheimer's Disease Classification. *PLOS ONE*. *Under Review; equal contribution*.

Book Chapter

- Bappy, S. P.**, Turjy, R. C. D., Mondal, A., Bithi, T., Bijoy, M. H. I., & Soheli, A. Evaluating Deep Learning Models and Explainable AI for Mushroom Classification. *Taylor & Francis Group*. *Accepted for Publication*.

Conference Papers (Accepted / In Press)

- Bithi, S. A., Nur, F. N., **Bappy, S. P.**, Moon, N. N., & Chakraborty, A. (2026). An Enhanced Hybrid Cipher with Vigenère and Dynamic Caesar with Key-Position Swapping for Secure Encryption. *Proceedings of the 2026 IEEE 2nd International Conference on Quantum Photonics, Artificial Intelligence & Networking (QPAIN)*, 1–7. DOI: 10.1109/QPAIN69676.2026.11546299

Conference Proceedings (Abstract Published)

- Paul, S. P., Turjy, R. C. D., & Soheli, A. A Hybrid Deep Learning Approach for Identifying Jackfruit Leaf and Fruit Disease. *Proceedings of IEEE CS BDC Symposium 2024*, Vol. 3.
- Turjy, R. C. D., Paul, S. P., & Soheli, A. A Hybrid Deep Learning Approach for Identifying Lyme Disease from Skin Rash Images. *Proceedings of IEEE CS BDC Symposium 2024*, Vol. 3.

PROJECTS

- AI Email Assistant** — Intelligent Gmail triage system using Ollama LLM, Gmail API, Telegram API, and Streamlit for automated email classification, job opportunity detection, and tailored cover letter generation.
- RetroX: Dengue Outbreak Forecasting System** — ML-powered outbreak forecasting platform using Scikit-learn, Optuna, SHAP, FastAPI, and Streamlit with leakage-safe time-series feature engineering and explainable AI integration.
- HostelEase: Hostel Management System** — Multi-role hostel management platform built with PHP, MySQL, Bootstrap, and Docker featuring room lifecycle management, automated billing, complaint tracking, and secure authentication.
- Email Spam Classifier** — NLP-based spam detection system using Random Forest and Decision Tree models achieving 97% classification accuracy on 5,172 email samples.
- MLCG-GNN** — End-to-end graph neural network pipeline for multi-label chest X-ray classification (NIH ChestX-ray14, CheXpert, VinDr-CXR) with adaptive graph construction, hybrid CNN-GNN feature fusion, uncertainty quantification, and Grad-CAM interpretability.

EDUCATION

B.Sc. in Computer Science and Engineering, Daffodil International University, Dhaka, Bangladesh — CGPA: 3.95/4.00 (Batch First) *May 2022 – May 2026*

Erasmus+ Exchange Program (CSE), Mälardalen University, Västerås, Sweden — Grade: Passed

Jan 2025 – Jun 2025

HSC in Science, Govt. M. M. City College, Khulna, Bangladesh — GPA: 5.00/5.00

Jul 2017 – Dec 2019

TECHNICAL SKILLS

Programming: Python, C, C++, SQL, HTML, JavaScript **ML/DL:** TensorFlow, Keras, PyTorch, Scikit-learn, OpenCV, GNNs (GraphSAGE), CNNs, Transfer Learning

AI Research: Explainable AI (Grad-CAM, SHAP), Federated Learning, Uncertainty Quantification, Medical Imaging, Computer Vision

Tools: Git/GitHub, Jupyter, Google Colab, VS Code, Pandas, NumPy, Matplotlib, AWS (basic), Docker, Covidence, SPSS, LaTeX

COURSES & CERTIFICATIONS

Supervised Machine Learning: Regression and Classification — Andrew Ng, Coursera/DeepLearning.AI (2023–2024) | **CSE Fundamental** — Phitron.io (2022–2024): DSA, OOP, DBMS, AWS, ML foundations

AWARDS

Erasmus+ ICM Exchange Scholarship, Mälardalen University, Sweden (2025) | 3rd Place, Unlock the Algorithm Programming Contest 2024 (Slot B), DIU, among ~700 participants | 29th Position, Take Off Programming Contest, DIU (2022) | Regional Winner, Jatiyo Shishu Kishore Quiz Utsav (2016) | Regional Winner, National Creative Talent Hunt Competition (2013–2016)

LEADERSHIP & VOLUNTEERING

Vice Chair (Tech.), IEEE DIU SB Computer Society (2024–2025) | Secretary, IEEE DIU SB WIE Affinity Group (2024–2025) | Campus Organizer, Brikhobondhu (2024) **References:** F. N. Nur, Professor, CSE, DIU — fernaz.cse@diu.edu.bd | A. Soheli, Asst. Prof., DIU — nb26101@shibaura-it.ac.jp