

SHAMPA BANIK

Dhaka, Bangladesh

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RESEARCH INTERESTS

Machine Learning, Image processing, Computer Vision, Natural Language Processing, Cybersecurity

EDUCATION

Patuakhali Science & Technology University (PSTU) January 2018 — October 2023
B.Sc. in Computer Science and Engineering (Dean's List last three Semesters) Cumulative GPA: 3.84/4.00 (Rank: 1/46)
Thesis Title: Prediction of Dengue Outbreaks Using LSTM Recurrent Neural Network in Bangladesh

APPOINTMENTS

Bangladesh University of Business and Technology (BUBT) Dhaka, Bangladesh
Lecturer July 2024 — Present
Conducting Courses: System Analysis and Design, Numerical Analysis and Computer Operation & Applications.

University of Scholars Dhaka, Bangladesh
Lecturer November 2023 — June 2024
Conducting Courses: Data Structure and Algorithms, Software Engineering, Computer Fundamentals, Numerical Analysis, Competitive Programming and Technical Writing.

HONORS AND AWARDS

PSTU Dean's Merit Award: Awarded scholarships for academic excellence among 70 students from session 2019 to 2021.
PSTU IT Carnival: First Prize for the "IoT-Based Food Spoilage Detection System" project at IT Carnival.
NGPC: Compete for the final round of **National Girls Programming Contest (NGPC)** in both 2019 and 2021.
PSTU Independent Day Programming Contest: Ranked in the top 5 out of 50 teams in 2018.
Merit Scholarships: Government Board Merit scholarships for outstanding results in both Secondary School Certificate (2015) and Junior School Certificate (2012).

SELECTED PROJECTS

- D-Alert: Dengue Prediction using Machine Learning | Python** Jan 2023
- Built a dengue dataset from DGHS data, developed an LSTM model for area-based dengue prediction, and bench-marked against three models.
- SmartSpoil: IOT Based Food Soilage Detection System | Arduino** July 2021
- Developed an IoT-based system using Arduino to monitor and detect food spoilage. The system utilizes sensors to track key freshness indicators, providing real-time alerts to ensure food safety.
- Eatsy: Web Application for Food Ordering | HTML, CSS, Bootstrap, PHP, JavaScript, MS-SQL** August 2022
- Developed a smart food ordering app using modern development tools and software design principles to ensure fast connectivity, efficient data management, and a modular system architecture.
- WellnessWise: A Desktop Application for Healthcare Management | Java, System Design** August 2022
- Built a healthcare management desktop app using Java and MS-SQL, employing OOP principles for efficient management of patient records and appointments, ensuring modularity and scalability.

Publications

Journal Papers

- Under Review:** "Efficient and Accurate Classification of Watermelon Diseases using CucurbitViT: A Vision Transformer-Based Approach." *Frontiers in Computer Science - Computer Vision. First Author(2024)*

Conference Papers

1. A. Khan, D. T. Valivarthi, **Banik, S.**, A. Kakkad, B. Sujatha and D. Acharya, "Development of Additive Manufacturing Design Based on Machine Learning: A Biomedical Engineering Approach," 2025 First International Conference on Advances in Computer Science, Electrical, Electronics, and Communication Technologies (CE2CT), Bhimtal, Nainital, India, 2025, pp. 817-821, doi: 10.1109/CE2CT64011.2025.10939680 [Paper].
2. Porna, S. B., Rahman, M. A., **Banik, S.**, Khan, M. H., Uddin, R., Basit, A., Uddin, H. H., Bhavani, G. D. (2025). Novel CNN-based models for breast ultrasound image classification: Leveraging EEHO, PSO, and BSA optimizers. In Proceedings of the 2025 International Conference on Knowledge Engineering and Communication Systems (ICKECS) (pp. 1–6). IEEE. <https://doi.org/10.1109/ICKECS65700.2025.11034865>[Paper].
3. Sharma, R., **Banik, S.**, Hossain, M. Z., Kabir, M. F., Thapa, S., Ullah, M. A., Hossain, A., Uddin, R., Bhavani, G. D. (2024). A novel classification scheme for early Alzheimer's disease (AD) severity diagnosis using deep features of a hybrid cascade attention architecture. In 2024 International Conference on Augmented Reality, Intelligent Systems, and Industrial Automation (ARIIA) (pp. 1-6). IEEE. <https://doi.org/10.1109/ARIIA63345.2024.11051777> Paper
4. **Accepted:** "Hyperparameter Optimization: Achieving State-of-the-Art Caloric Burn Prediction with Fine-Tuned ML-PRegressor" Accepted for presentation at 2025 IEEE 4th International Conference on Computing and Machine Intelligence (ICMI), Central Michigan University, Mount Pleasant, MI, USA. **Second Author(2025)**
5. **Accepted:** "Classifying Bengali Quotes: A Comparative Study of Machine Learning and Deep Learning Approaches" accepted for presentation at IEEE QPAIN 2025. **Third Author (2025)**

Book Chapter

1. Banik, S. (2024) in *Computer Vision for Sustainable Development: Analyzing Environmental Impacts*. 1st edn. Chennai, Tamilnadu: Artificial Intelligence: Machines That Learn (Jun 2025), pp. 1–15. Available at: <https://www.essaypublication.in/chapter/aiml> (Accessed: 2024). [Chapter] [Certificate]

TECHNICAL SKILLS

- **Programming Languages::** Python, Java, C, C++, Javascript, HTML, CSS, MATLAB, Assembly
- **Machine Learning:** PyTorch, Keras, OpenCV, TensorFlow, NLTK, Pandas, NumPy, Matplotlib
- **Developer Tools:** VS Code, CodeBlocks, LATEX, PyCharm, Jupyter Notebook, Eclipse
- **Frameworks:** Linux, Bootstrap, Arduino
- **Version Control:** Git, Github
- **Illustration Tools:** Proficient in Adobe Illustrator, Adobe Photoshop

SELECTED CO-CURRICULAR ACTIVITIES AND SERVICES

- Created hundreds of **digital artwork and logo designs**
- **Member, Sub-Committee (Project), CSE Club, PSTU**
Contributed to organizing and implementing projects, fostering innovation within the club. September 2021 - October 2023
- **Member, Debating Society, PSTU**
Contributed to organizing events, preparing debate topics, mentoring new members, and representing the club in competitions. *January 2019 - October 2023*
- **Member, BADHON, Blood Donation Organization**
Participated in organizing and promoting blood donation drives, contributing to raising awareness and encouraging community involvement. *December 2018 - January 2023*
- **Volunteer, Communication Team – Talk Digital Platform (Way to Dreams):**
Assisted with communication efforts, audience engagement, and content outreach. August 2021 - October 2021
- An Article published in Medium in 2024- **Beyond the Boom: Unraveling the Future of Explainable AI in 2030**

WORKSHOPS

- **International Workshop on Wireless Networking and Cyber Security (WWNCS)**
- **Regional Workshop on Networking Basics and Campus Network Design (WNBCND-1)**
- **Workshop on Skill Development for Mobile Game and Application Project (Android)**

TRAINING AND ONLINE COURSES

- **CCNA: Introduction to Networks, Switching, Routing, and Wireless Essentials, Enterprise Networking, Security, and Automation**, Issued by Cisco.
- **Machine Learning Specialization**, University of Washington, Coursera.