# SHAMPA BANIK

Dhaka, Bangladesh

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## RESEARCH INTERESTS

Image Processing, Computer Vision, Natural Language Processing, Deep learning

## 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

1. **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, **S. Banik** , 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. **Presented:**"A Novel Classification Scheme for Early Alzheimer's Disease (AD) Severity Diagnosis Using Deep Features of a Hybrid Cascade Attention Architecture." Presented at The International Conference on Augmented Reality, Intelligent Systems, and Industrial Automation (ARIIA-2024), Manipal Institute of Technology, MAHE, Manipal, Udupi, Karnataka, India. *Second Author(2024)* [**Certificate**]
3. **Accepted:** "Hyperparameter Optimization: Achieving State-of-the-Art Caloric Burn Prediction with Fine-Tuned MLPRegressor" 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)*
4. **In Progress:** Novel CNN-Based Models for Breast Ultrasound Image Classification: Leveraging EEHO, PSO, and BSA Optimizers" Accepted for presentation at International Conference on Knowledge Engineering and Communication Systems (ICKECS - 2025), SJC INSTITUTE OF TECHNOLOGY, Karnataka, India. *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 Complexity of 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.