Sheekar Banerjee

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Education

IUBAT - International University of Business Agriculture and Technology
Dhaka, Bangladesh
Bachelor of Computer Science and Engineering — May 2016-October 2020

- *CGPA: 3.86/4.00 (Class Rank: 3/236)*
- Thesis: An Integral Effort of Optimizing the Major Information Retrieval Chatbot Algorithms within a University Automation Platform *[Paper]*

Teaching Experience

Department of Computer Science and Engineering, IUBAT — October 2024 - Present
Lecturer (On campus, Dhaka, Bangladesh)

- Taught CSC 439, 440 - *Visual Programming and Lab*,
  CSC 465, 466 - *Data Communications and Computer Networks*,
  CSC 461 - *Programming Language and Structures*,
  CSC 215 - *Engineering Ethics*,
  CSC 103, 104 - *Fundamental of Computer Applications and Lab*.
- Leading the Robotics Wing of my Department by combining my research aptitude through Computer Vision enabled Amphibious Robotics (Aerial, Ground and Naval)

Best Tutors Online - London — October 2020 - June 2021
AI-Robotics and IOT Engineer and Instructor (Remote)

- Remotely conducted classes and delivered virtual practical training about IoT, Smart Sensors (Gas, Smoke, Environmental, Gravitational, Flex, Color), Robotics and Programming to the international students around the world (mostly in United Kingdom).

Research and Industry Experience

Harvard Medical School, Boston, Massachusetts, USA — August 2025 - Present
Visiting Researcher (Remote)

- Investigated a large complex 4D CTP Dataset for an efficient medical image synthesis project under *Dr. Mohammad Arafat Hussain*, who is a Postdoctoral Research Fellow at the Harvard Medical School.
- Successfully integrated Swin-Transformer mechanism to track CT Perfusion with the 4D CTP data. This leads us towards a globally unique rate of efficiency based on the metrics of image reconstructions (PSNR, SSIM, LPIPS, FID); which we are aspiring to publish in a top venue.

Vinacts, Seoul, South Korea — July 2023 - July 2024
Artificial Intelligence Engineering Lead and Researcher (Onsite Mirpur-11, Dhaka Office)

- Designed and implemented novel algorithms for Pose Estimation and Tracking; with Custom Built YOLO and DeepSort for Korean Advanced Computer Vision Projects. *[Link]*
- Developed algorithms for Audio Processing, Automatic Speech Recognition (ASR) and Conversational AI for training Meta Human Characters for triggering Metaverse with Ethical AI and Responsible AI. *[Link]*

KaleidoSoft, Zagreb, Croatia — July 2022 - June 2023
Senior AI and ML Engineer and Researcher (Remote)

- Implemented core Deep Learning Models for Breast Cancer Melanoma Detection with Computer Vision Algorithms and modified Efficient-Nets-V1-V2 with 97.79% of accuracies. Converted AI models as APIs for the utilization of other micro-services (Kubernetes). *[Link]*

Cisscom LLC, California, USA — July 2021 - June 2022
AI-ML Software Engineer and Researcher (Onsite Gulshan-1, Dhaka Office)

- Led a large image data annotation process and supervised deep learning algorithm training for Volvo 360c Self-Driving Car.
- Designed the Solution Architecture for self-healing web testing with *healenium-python* and Django. Implemented AI-Computer Vision based *Image Comparison* and *OCR Testing* capabilities for *pixel-by-pixel image verification* in TestJet-AI.

Jahangirnagar University CSE Lab with Dr. Md. Ezharul Islam — March 2021-December 2021
Research Assistant

- Worked as a *Research Assistant* on *Multi-Sensory Vision Enabled Surveillance Robot*. We named the project as "Nano Rover", where I worked as the lead researcher and first author. Achieved unprecedented performance in Detection Speed and Average Detection Accuracy for 6 different types of weapons; having approximately 92.23% of overall accuracy. *[Paper Link]*

Selected Publications

Chowdhury, M.S., Tanzim, S.F., **Banerjee, S.**, Mamoon, I.A. and Islam, A.K.M.M., 2025. Squeezed-Eff-Net: Edge-Computed Boost of Tomography Based Brain Tumor Classification Leveraging Hybrid Neural Network Architecture. Scientific Reports, Nature. [Under review]

Mamoon, I.A., Pinky, M.A., Setu, S.S. and **Banerjee, S.** (forthcoming) 'A Novel Approach for a Smart IoMT-Based BAN for an Old Home Healthcare Monitoring System Using Starlink'. To be presented at the IEEE Conference on Biomedical Engineering, Computer and Information Technology for Health, 2025. [Accepted]

Rana, M.M., **Banerjee, S.**, Akash, M.M.H., Mridula, A.T., Akter, J. and Hanif, M.A., 2025. Robotics, Artificial Intelligence, and Computer Vision in Dental Implant Surgery: Computer Vision and Artificial Intelligence in Robotic Orthopedic Surgeries: A Systematic Review of Precision, Efficiency and Future Surgical Innovations. Journal of Surgical Robotics (Springer). **Q1**. IF: 3.0 [Accepted]

Banerjee, S., Rana, M.M., Akash, M.M.H., Mridula, A.T., Mamoon, I.A. and Rahman, Q.B., 2025. Robotics, Artificial Intelligence, and Computer Vision in Dental Implant Surgery: A Systematic Review of Accuracy, Efficiency, and Future Directions. Journal of Surgical Robotics (Springer). **Q1**. IF: 3.0 [Accepted]

Banerjee, S. and Monir, M.K.H., 2023, July. CEIMVEN: An approach of cutting edge implementation of modified versions of efficientnet (v1-v2) architecture for breast cancer detection and classification from ultrasound images. In International Conference on Computing, Intelligence and Data Analytics (pp. 310-323). Cham: Springer Nature Switzerland. *[Paper Link]*

Banerjee, S., Jhumur, A.N. and Islam, M.E., 2022. Nano Rover: A Multi-sensory Full-Functional Surveillance Robot with Modified Inception-Net. In Machine Intelligence and Data Science Applications: Proceedings of MIDAS 2021 (pp. 707-720). Singapore: Springer Nature Singapore. *[Paper Link]*

Banerjee, S. and Jhumur, A.N., 2022. A novel approach of marine ecosystem monitoring system with multi-sensory submarine on robotic platform for visualizing the climate change effect over oceanic environment. Trends in Sciences, 19(10), pp.4205-4205. **Q2**. IF: 1.33 *[Paper Link]*

Skills

ML Frameworks: Pytorch, Tensorflow, Keras, Tiny ML.
Programming Languages: Python, C++, C.
Tools: LateX, VS Code, Pycharm, MATLAB, Arduino.
Python Libraries: Numpy, Pandas, Matplotlib, Scikit-Learn, Cirq (Basic), Pennylane (Basic).
Computer Vision Libraries and Tools: OpenCV, Scikit-Image, Tesseract-OCR, Google Cloud-Vision API, AWS Rekognition, Azure-Vision.

Test Score

IELTS - Academic
Overall Band: 7.5 November 2023
Listening: 8.5, Reading: 7.0, Writing: 6.5, Speaking: 8.0 *[Test Report]*

Leadership Experience

IUBAT CSE Robotics Club March 2017-March 2020
Co-Founder and Chief Trainer

- Established IUBAT CSE the Robotics Club under the Department of Computer Science and Engineering, IUBAT in March 2017 along with five other senior undergraduate students.
- Launched campaigns and organized 3 (three) Robotics Competitions.
- Trained about 200 students on Robotics and AI Systems, mentored teams which ended up winning 5 (five) National Technological Project Competitions in Bangladesh within 3 years upon its establishment.
- Arranged 34 hours of Basic to Advanced Robotics Workshops in 14 days and the trained juniors took the responsibility for the future execution and success.

Voluntary Involvement	**Springer Nature - Computer Science**, *Peer Reviewer*	February 2023-Present
	Neural Computing and Applications, *Peer Reviewer*	February 2023-Present

Relevant Courses

PySpark and AWS: Master Big Data with PySpark and AWS *[16.5 Hours].* Issued by Udemy, 2022 *[Credential]*

Deep Learning with PyTorch- Zero to GANs . Issued by Udemy, 2022 *[Credential]*

Workshops Attended

NASA Young Scientist Meetup: Rocket Design Workshop. Issued by NASA, Held in City University, Dhaka, Bangladesh, 2019. *[Credential]*

Microsoft Student Partners: Cloud Camp (Azure). Issued by Microsoft, Held in Jahangirnagar University, Dhaka, Bangladesh, 2019. *[Credential]*

Awards

2021 **Best Paper Award** from International Conference of Machine Intelligence and Data Science Applications (MIDAS '21) by Springer *[Credential]*

2020 **Runner-Up** at National Tech Idea Contest at Mujib Borsho IT Carnival, held in Dhaka International University (ranked 2 out of 17 selected top projects) *[Credential]*

2019 **First Runners-Up** at National Tech Idea Competition, JU CSE Fest '19, held in Jahangirnagar University (ranked 2 out of 11 selected top projects) *[Credential]*

2019 **Second Runners-Up** at Innovation Competition '19, powered by iLab innovation, Bangladesh ICT Ministry, held in IUBAT (ranked 3 out of 21 selected top projects) *[Credential]*

2018 **Vice Chancellor's Award** for Academic Excellence, IUBAT (top 1%) *[Credential]*

2016 **Chair's Award** for Academic Excellence, IUBAT (Topper in the class of 236 Students) *[Credential]*

References

Prof. Dr. Utpal Kanti Das
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