

# 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

- Teaching *Visual Programming, Programming Language and Structures* and *Fundamental of Computer Applications* in Fall 24.

### 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 Experience

### Inha University with Dr. Humayun Kabir, South Korea

November 2023 - Present

Research Assistant (Remote)

- Developing state of the art efficient algorithms for Robot Vision capabilities and medical image processing; occlusion aware object tracking and frame interpolation mechanism. [Link]

### Vinacts, Seoul, South Korea

May 2023 - May 2024

Artificial Intelligence Engineering Lead and Researcher (Onsite Mirpur-11, Dhaka Office)

- Written unique Pose Estimation and Tracking Algorithms with Custom Built YOLO and Deep-Sort for Korean Advanced Computer Vision Projects. [Link]
- Tailored 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

June 2022 - April 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]

### TestJet-AI with Cisscom LLC, California, USA

July 2021 - May 2022

AI-ML Software Engineer and Researcher (Onsite Gulshan-1, Dhaka Office)

- Here I implemented AI-Computer Vision based *Image Comparison* and *OCR Testing* capabilities for *pixel-by-pixel image verification* in TestJet-AI. Also managed large image data annotation and algorithm training for Volvo Autonomous Car.
- Made Solution Architecture for self-healing web testing with *healenium-python* and Django.

### 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

**S. Banerjee**, and H. Kabir. *YOLO/SBHK-Net: Occlusion Aware Robot Vision Neural Network with Compound Model Scaling and Re-parameterized Convolution*. Submitted to the IEEE Transactions on Neural Networks and Learning Systems in 2024. [techRxiv]

**S. Banerjee**, and H. Kabir. *An Introductory Implementation of Breast Cancer Detection from Mammograms and Pixel Intensity with Efficient-Net Other Neural Nets*. Cold Spring Harbor Laboratory.

**S. Banerjee**, and M. K. H. Monir. *CEIMVEN: An Approach of Cutting Edge Implementation of Modified Versions of EfficientNet (V1-V2) Architecture for Breast Cancer Detection and Classification from Ultrasound Images*. Presented in the International Conference on Computing, IoT and Data Analytics, Spain (ICCIDA '23). Published in the Studies in Computational Intelligence, Springer-Nature, Switzerland, 2024. [Paper Link]

**S. Banerjee**, A. N. Jhumur, and M. E. Islam. *Nano Rover: A Multi-sensory Full-Functional Surveillance Robot with Modified Inception-Net*. International Conference of Machine Intelligence and Data Science Applications (MIDAS '21). Published in the Lecture Notes on Data Engineering and Communications Technologies, Springer-Nature, Singapore, 2022. [Paper Link]

**S. Banerjee**, A.N. Jhumur. *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, 2022. [Paper Link]

**Skills**

**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.  
**ML Frameworks:** Pytorch, Tensorflow, Keras, Tiny ML.

**Test Score**

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

**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

**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]