Avishikta Bhattacharjee

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Education

Kalinga Institute of Industrial Technology *Bhubaneswar, India*
Bachelor of Technology - Computer Science and Engineering; CGPA: 8.60 *Aug 2022 – Jul 2026*

The Heritage School *Kolkata, India*
Indian Certificate of Secondary Education, Grade: 91 and Indian School Certificate, Grade: 96 *2019 –2021*

Experience

- Undergraduate Research Assistant Jan 2025 - present
Indian Institute of Science Education and Research, Bhopal *Department of Electrical Engineering Computer Science*

- Working on integrating the **4DOG** manipulator with **critique based image segmentation** method for gripping technology.
- Implementing iterative, collaborative segmentation system through critique consisting of ResNet and SAM exchange and refine their logits until they reach an accuracy above 90.

- Winter School Jan 2025
Indian Institute of Technology, Guwahati *Department of Computer Science Engineering*

- *[GitHub:- Click]* Deep learning for **remote sensing** with focus on **domain adaptation** techniques.A CNN based deraining model was used with a loss below 0.013
- *[GitHub:- Click]* Practical experience in developing and implementing models for **identifying anomalies** using **vision-language** integration methods and **text summarization using** LSTM of loss 0.31.

- Summer Undergraduate Research Assistant May 2024 - Nov 2024
Indian Institutes of Information Technology, Ranchi *Department of Computer Science Engineering*

- Conducted in-depth analysis of the complexities associated with the **English-Dravidian Code-mix dataset.**
- Achieved remarkable accuracy exceeding **90 percent** with the **CNN-BERT** model, significantly surpassing the previous benchmark of 67 percent set by competing teams.
- **Encoder models** performed beyond 90 going upto 96 accuracy while an **ensemble learning** of the top 3 models helped achieve genuine sentiment **accuracy of 93**.
- **Co-authored pape**r on detailed **performance evaluations** of various models, including **machine learning**, **deep learning**, and **transformers**, utilizing the **Hugging Face framework**.

-Member of Several Technical Societies and Research Labs at my University May 2023 – present
KIIT University *Bhubaneswar, India*

- As a **Lead R&D in KIIT Robotic Society**, lead and guide research and development efforts, driving innovation and progress in a team of 110 society members.
- **Teaching assistant** at KIIT Robotic Society and taught over **100+ students** from basic to advanced machine learning.(10hrs/week)
- As a member of the robotics society, made a **prescription summarization** project using NLP techniques that acquired accuracy of 92 by random forest and boosting algorithm.
- Controlled a **swift pico drone** in **Gazebo** using PID to a set point in ROS Humble where the drone lifted off and reached height at a given setpoint for 10 seconds.
- Made an **RC car** with **Arduino UNO** and **Bluetooth Module**.
- Simulation on **Simulink** of a self-balancing robot working on **PID tuning as well as documented the findings of the PID control system** *[GitHub:- Click]* .

Projects

- Scene Detection For Indoor and Outdoor Images [*GitHub:- Click*] Dec 2024 – present

- Implemented a system that accurately **analyzes images** with above 90 accuracy in **fine-tuned Clip** and 20 percent accuracy to generate descriptive text, capturing the **essential semantic information** of the scene.
- Applied **quantization** and **early stopping** to mitigate overfitting and achieved accuracy 90
- Clip delivered biased performance on indoor data.This problem was mitigated by performing **image segmentation using Resnet50** .
- **Tool**: PyTorch,Python, CNN,CLIP,Transformer,GAN, Open3d

- Sentiment Analysis of Intel Processors [*GitHub:- Click*]

- **99 percent accuracy** using **Bert** and provided the trend of reviews using **Gemini API**.
- Handled **imbalanced data** using **SMOTE, K-fold** and used **Bert.**
- Developed a user friendly interface in **Gradio** to display 15+ Intel products.
- **Scrapped data** from **over 30 e-commerce** webpages and created own dataset for sentiment analysis.
- ***Tools****:Python, Bert, Transformer,Gradio,Gemini API,PyTorch*

Publication

- [C]:Upkar Kumar Kedia Vinayak Vijay, **Avishikta Bhattacharjee,** Kirti Kumari **[2024], Detecting Hate Speech in Bangla: A Hybrid Model Using Machine Learning and Lexicon-Based Strategies. HASOC by FIRE**,*arXiv*
- [C]:**Avishikta Bhattacharjee**,Vinayak Vijay, Kirti Kumari **[2024]**,**Detecting Hate Speech in Hinglish: A BiLSTM Neural Network Approach** HASOC by FIRE,*arXiv*
  - *Achievements***:** Our team was selected as a top 6 finalist for the HASOC 2024 shared task, a prestigious event organized by FIRE to advance research in hate speech detection.

Technical Skills

Languages: English, Bengali, Hindi
Programming Languages: **C, Java, Python**,C++(basics)
Frameworks:PythonAnywhere, Flask, Jupyter Notebook, Gradio, Colab, Kaggle
Developer Tools: ngrok , Arduino IDE, Simulink, Google AI Studio, CAD,ArUco marker,Gazebo
Libraries: TensorFlow, PyTorch, OpenCV, sci-kit-learn, pandas, NumPy,open3d,YOLO,SAM 2
Coursework:Python, Computer Intelligence, Machine Learning, Transformers, Computer Vision, Reinforcement Learning, ROS(nodes)
Non-technical skills:Leadership, Public Speaking, Team Management, Communication, Photography