Sayan Acharya

Machine Learning Researcher, Competitive programmer, Backend Developer
Computer Science and Engineering
Bachelor of Engineering
Jadavpur University, Kolkata

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Education

- **Jadavpur University** 2020 - 2024
  Computer Science and Engineering (BEngg) **CGPA: 9.01**

Experience

- **Google** 05/2023 - 07/2023
  Software Engineering Intern Banglaore
  - Worked on **bias analysis** from metadata of movies and tv programs. Developed and implemented an algorithm for **bias removal**.
  - Built a first-of-its-kind pipeline for unbiased data collection for **GoogleTV recommendations systems** that deals with ∼**250 million** requests/week.
  - Skills used: Java, Python, Numpy, Matplotlib, Statistics, Dependency Injection, Colab, Mercurial, gRPC, REST API.
- **Indian Statistical Institute** 05/2022 - 07/2022
  Summer Research Intern Kolkata
  - Worked as an undergrad ML researcher on the topics of **Image segmentation**, and **classification** using vision transformers
  - Built a **DETR**-based **image segmentation** model for the segmentation and classification of various blood cells.
  - Skills used: Pytorch, Numpy, Pandas, Scikit-learn.
- **CMATER Lab, Jadavpur University** 09/2021 - present
  Undergrad Researcher Kolkata
  - Worked as an undergrad ML researcher on the topics of **Optimization**, **Swarm Search algorithms**, **Computer Vision**, and **Graph Neural Networks** under the supervision of Dr. Ram Sarkar
  - **Publication:** Stock Market Prediction using Altruistic Dragonfly Algorithm, PLOS
  - **Publication:** Penalizing Particles in PSO: An Undersampling Approach to Solve Class Imbalance, Elsevier(Submitted)
  - **Publication:** Identification Of Mitosis Stages Using Graph Neural Networks(**ICIP 2024, Collab with RWTH Aachen**), >**98%** accuracy on LiveCellMiner
  - Skills used: Pytorch, PyGeometric, Matplotlib, Numpy, Pandas, Scikit-learn, Colab

Personal Projects

- **Snake AI using State Aggregation and Q Learning** 09/2023 - 10/2023
  - Created a Snake with PyGame and trained it using **Q-Learning** to achieve a stable 5-6 length snake AI within 50k episodes using **State Aggregation**.
  - Tools & technologies used: Pygame, Numpy, RLGlue, Matplotlib
- **Counterfeit product detector using Image processing and NLP** 06/2022 - 08/2022
  - Developed a novel method to identify counterfeit products using **logo detection**, **classification** with a baseline **Faster RCNN** model and **similarity matching** with **SIFT**. Then combined the **NLP** output of the product reviews to flag the product as fake or real(Achieved >**90% accuracy on Flickr logos dataset**).
  - Got selected as the **all India 2nd runner up** in Amazon Hackon with this project
  - Tools & technologies used: Python, Pytorch, Numpy, Flask, SQL, HTML, CSS, AWS
- **Heart rate predictor from J-Peaks using Machine Learning** 12/2021 - 01/2022
  - Implemented an **unsupervised sinusoidal autoregressive** model to find J-Peak location in BCG data. Used those J-Peaks to calculate the subject's heart rate, breathing rate, Bed occupancy, and movement data. Developed during the Enosium Hackathon.
  - Tools & technologies used: Python, Scipy, Numpy, Pandas, Tensorflow
- **Follower-Leader Price Setter Prediction using Machine Learning** 11/2021 - 12/2021
  - Developed an **LCS** based **Polynomial regression** model to find out price setters and price followers against a given dataset which gave >**85% accuracy** with huge latency improvements. Developed during the RedBus hackathon.
  - Tools & technologies used: Python, Scipy, Numpy, Pandas

Technical Skills

Python, C++20, C, STL, Multithreading, Java, Bash, Linux, Tensorflow, Pytorch, PyGeometric, OpenAI Gym, Tkinter, Numpy, Pandas, Matplotlib, Scikit-learn, Computer Vision, Deep Learning, SQL, Django, Git, HuggingFace

Achievements

- **Amazon Hackon S2 Hackathon** 2nd runner up(national finalist) 2022
- **IIT Khragapur RedBus Hackathon** 2nd runner up 2021
- **IIT Indore Enosium Hackathon** 1st runner up 2021
- **IIT Roorkee Productathon Hackathon** Top 10 Finalist 2022
- **KVPY SA scholar** 505 AIR out of 1.5lakh+ candidates 2018
- **JBNSTS Junior Scholar** amongst 250 selected candidates out a huge candidate pool 2018
- **RMO (Regional Mathematical Olympiad)** stood within the 6 selected candidates from West Bengal 2019
- **Board Top 10 ranker** 9th rank Higher Secondary Board Exam & recipient of SVMCM scholarship 2020
- **Google** 404 global ranker (Google Kickstart Round F), 515 rank holder (Google Codejam round 1) 2021
- **Competitive coding Profiles** Codechef(5 star), Codeforces(Specialist), Hackerrank(6 star) 2022

Certificates

- **University of Alberta RL Specialization** Coursera 2023
- **Problem Solving (Intermediate) Certificate** Hackerrank 2021
- **SQL (Intermediate) Certificate** Hackerrank 2023
- **REST API, DSA, DBMS Qualification Certificate** Hackerrank 2023