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Diptarko Choudhury

Education

2020–2025 **National Institute of Science Education and Research(HBNI)**,
Integrated Masters in Physical Sciences(major),Computer Sciences(minor),
Medium of instruction: English.

2017–2019 **St Lawrence High School**,
West Bengal Board of Higher Secondary Education,
Medium of instruction: English.

2017 **St Paul's Academy**,
Indian Council of Secondary Education,
Medium of instruction: English.

Research Experience

June 2022–October 2022 **Vision Transformers for End-to-End Particle Reconstruction for the CMS Experiment**,
Google Summer Of Code 2022, ML4Sci.

- The project was associated with CMS(CERN) and Google Summer of Code 2022. The project aimed to apply machine learning techniques on the CMS Open Data to classify high-energy particle collisions.
- State-of-the-art Vision Transformer-based models were built and implemented. Tested new training and optimisation techniques to see which works the best for the problem.
- New significantly higher State-of-the-art scores and performances were recorded.
- Repository link
- Certificate of completion and Letter of Verification

Nov-Dec 2021 **Deep Learning Techniques to classify Higgs Bosons from Background Noise in Detector**,
ML4SCI Hackathon.

- This project was associated with the ML4SCI Hackathon in which we secured the fist position.
- An ensemble architecture was built to classify Higgs Boson samples from Background Noise.
- 5 neural network architectures and 1 XGBoost-based architecture were used.
- Achieved a ROC-AUC of 0.88.
- Repository link

Achievements

2021 **1st Prize in ML4SCI 2021 Hackathon**, *Hackathon*.

2020 **DISHA (DAE Incentive Scheme for Holistic Science Education and Augmentation) Scholarship, Govt. of India**, *Scholarship*.

Online Courses

May 2022 **Deep Learning Specialization**.

- Neural Networks and Deep Learning
- Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization
- Structuring Machine Learning Projects
- Convolutional Neural Networks
- Sequence Models

May 2022 **TensorFlow Developer Specialization**.

- Introduction to TensorFlow for Artificial Intelligence, Machine Learning, and Deep Learning
- Convolutional Neural Networks in TensorFlow

May 2022 **Generative Adversarial Networks (GANs) Specialization**.
- Build Basic Generative Adversarial Networks (GANs)
- Build Better Generative Adversarial Networks (GANs)

Computer Skills

Languages	Python, C/C++, JAVA
Frameworks	Keras, PyTorch, Tensorflow
Utilities	Anaconda, Git, Jupyter Notebook, WandB
Libraries	Numpy, Cupy, PyArrow,Panda, Sklearn,Scipy, Matplotlib, einops

Communication Skills

English	Full Professional Proficiency
Hindi	Native or Bilingual Proficiency
Bengali	Native or Bilingual Proficiency

Extra Curricular

2020 - Current **RoboTech Club, NISER**, *Core-Member*, Mentor.
I am a Core-member and Mentor(Machine Learning Wing) in the RTC club NISER. I work on Computer Vision and Machine Learning related activities in the Club. I am also mentoring some students under the club umbrella to understand and learn more about machine learning. I am also working on the AMAR(Autonomous Rover) project under the Club.

2020 - Current **Coding Club, NISER**, *Member*.
I am a member of the Coding Club in NISER. I often participate in various competitive coding competitions. Under the guidance of the Club, I also teach some high school and middle school students the fundamentals of coding and motivate them to learn more about it.