Pradipto Mondal

+91 9635762296 | pravsman111@gmail.com | linkedin.com/in/pradiptom/ | github.com/pradipto111

EDUCATION

Indian Institute of Technology Kharagpur Kharagpur, WB
B.Tech+M.Tech Electronics and Electrical Comm Engineering, Financial Engineering, CGPA: 8.28 *2020 – Present*

DAV Model School IIT, Kharagpur
Higher Secondary - CBSE, Percentage: 98.6 *June 2018 – April 2020*

DAV Model School IIT, Kharagpur
Secondary Education - CBSE, Percentage: 98.6 *– May 2018*

PUBLICATIONS

DeiT-LT: Distillation Strikes back for Vision Transfer training for Long Tailed Datasets. Harsh Rangwani, **Pradipto Mondal**, Mayank Mishra, Ashish Asokan, Venkatesh Babu R. Computer Vision and Pattern Recognition (**CVPR**) 2024 Proceedings.

[Re] From Goals, Waypoints and Paths to Long Term Human Trajectory Forecasting. ReScience Journal, Volume 8, Issue 2 - Machine Learning Reproducibility Challenge. Poster at **NeurIPS** 2022 Journal Showcase Track. Shukla A., Roy S., Chawla Y., Amalanshu A., Pandey S., Agarwal R., Uppal A., Viswesh N., **Mondal P.**, Dasgupta A., Chakravarty D.

EXPERIENCE

Research Intern - Adobe May 2024 – August 2024
Balaji Vasan Srinivasan, Principle Scientist, Adobe Research, India *Bangalore, KA, India*
- Worked on personalised generation for fashion usig diffusion models, NDA applicable.
- Attention map manipulation for virtual try-on of clothing apparel without a human image prior.

Undergraduate Researcher - VAL, IISc May 2022 – March 2024
Prof. Venkatesh Babu R, Vision and AI Lab (VAL), IISc Bangalore *Bangalore, KA, India*
- Worked on leveraging vision transformers for long tailed image recognition tasks through knowledge distillation with sharpness aware teachers and out of distribution augmentations. (Accepted at CVPR 2024)
- Worked on effect of concept imabalance in LAION dataset and its effect on Stable Diffusion for zero shot image recognition, and investigating remedies for the same.

Research Intern - CBR, IISc May – July 2023
Prof. Jonas Sundarakumar Centre of Brain Research, IISc Bangalore *Kharagpur, WB, India*
- Trained 3D-UNet on ADNI dataset for classification of Normal, MCI & Dementia, reached 92% accuracy.
- Implemented covariance-base connectivity analysis for classifying MCI, Dementia and CN using f-MARI and achieved 96% accuracy.

Undergraduate Researcher - AGV, IIT Kharagpur May 2021 – October 2022
Prof. Debashish Chakraborty, Autonomous Groung Vehicle Research Group *Kharagpur, WB, India*
- Worked on the reproduction of a paper based on human trajectory prediction and published a review paper selected for NeurIPS poster 2022.
- Worked on Indy-Autonomous, in the SLAM module, for localisation of vehicle using odometric and point cloud data and implemented oct-tree search on OpenGL and ROS.

TECHNICAL SKILLS

Languages: Python, C/C++, Matlab, Javascript
Developer Tools: Git, Google Cloud Platform, VS Code, PyCharm, IntelliJ, Google Colab, Linux
Libraries and Frameworks:PyTorch, Tensorflow, ROS, Sklearn, Timm, Wandb, Diffusers, MySQL, CUDA

Fake detection and Artifact identification, Adobe
IIT, Kharagpur

November 2024 – December 2024
Gold

* Proposed a benchmark dataset SIREN-63K for real/fake detection problems as an extension to CIFAKE.
* Implemented a GAN based method - ATop for increasing adversarial robustness of the classification
* Leveraged CLIP similarity metric to supervise a multihead artifact classifier, and detailed descriptor identification.
* Developed an overall 150X faster and 14X lighter pipeline as compared to the state of the art approaches.

Behavior Simulation Challenge, Adobe
IIT, Kharagpur

November 2023 – December 2023
Gold

· Used CLIP embeddings, Graph Neural Networks and a hybrid of ViT-B and BERT models to accurately predict tweet popularity in a tweet corpus of 300,000.
· Fine-tuned mPLUG-Owl2 and Llama-2 models for generating personalized tweets, leveraging user-specific data and media inputs, to enhance online engagement and audience interaction.
· Implemented policy-based reinforcement learning for fine-tuning language models, focusing on maximizing engagement metrics like likes.

Vital Extraction Challenge, CloudPhysician
IIT, Kharagpur

January – February 2023
Gold

· Trained a segmentation model to mask out screens of health monitors, achieved an IoU score of 0.92 with FPNet.
· Trained SSD, ISD object detection model for vitals detection with a VGG-16 CNN backbone and achieved an mAP score of 99.3 & 99.4.
· Digitized HR Graphs obtained from health monitor screens using object detection, and extracted QRS complex using image processing techniques.
· Experimented with Gaussian Mixture Models to cluster percepted colors of individual data fields in vital monitors for assiting OD model in case of confusing labels.

Age & Gender Prediction Challenge, BOSCH
IIT, Kharagpur

March 2022
Gold

· Implemented an end-to-end pipeline for face detection and accurate age and gender prediction from CCTV footage on a real time basis for surveillance purposes.
· Finetuned EDSR, BSR and WDSR networks for super-resolution of low-resolution of human faces paired with Frequency aware reconstruction losses to preserve high and low frequency details in the images, achieved a balance between PSNR and inference speed.
· Trained VGG-Face on open source datasets, to achieve 98% acc on gender prediction task on unseen test set.
· Ensembled MLP, NDF, & VGG models for age estimation with outlier aware weight assignment, achieved 2.9 MAE score on unseen test dataset.

RELEVANT COURSEWORK

Deep Learning Specialisation, Natural Language Processing, Computer Vision, Data Analysis, Algorithms, Algorithms Laboratory, Programming and Data Structures, Probability and Statistics, Linear Algebra & Optimisation, Calculus, Digital Signal Processing, VLSI Engineering, Time Series Modelling, Foundations in Learning Theory, Pattern Recognition & Machine Intelligence, Digital & Analog Electronics, Embedded systems.

HONORS

· 4x gold winner in Inter IIT Tech Meet editions 10.0 to 13.0 representing IIT Kharagpur.
· Awared the Summer Research Fellowship by the Indian Academy of Sciences in Summer'2022 at IISc.
· Awarded the KVPY-SA 2019 Fellowship by Dept. of Science and Technology, under GoI with an AIR 271.
· Secured an AIR of 1118 (0.1 percentile) at JEE Advanced 2020, and 16 (0.01 percentile) at WBJEE 2020.
· Qualified RMO 2017 and appeared for INMO - Indian National Mathematics Olympiad 2018, equivalent to USAMO.