Yash Vadi

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Education

- **Université de Montréal - MILA**
  MSc. in Computer Science with specialization in Machine Learning — *2023 – 2025*
- **Indian Institute of Information Technology, Surat**
  B.Tech in Electronics and Communication Engineering; CGPA: 8.59/10 — *2019 – 2023*

Programming Skills

- **Languages**: Python, C, C++ , SQL **Skills**: Deep Learning, Computer Vision, Natural Language Processing
- **Machine Learning**: Pytorch, Tensorflow, Keras **Data Wrangling**: Pandas, Seaborn, Matplotlib, Numpy

Publications

- S. D. Das, **Y. Vadi**, A. Unnam, and K. Yadav, **"Unsupervised Out-of-Distribution Dialect Detection with Mahalanobis Distance,"** in *Proceedings of **INTERSPEECH***, 2023.

Experience

- **SHL** Gurgaon, India
  Research Intern *January 2023 – July 2023*
  - Conducted study on detecting AI-written content detection and published the insights to the blog. link .
  - Integrated the Personalized Follow-up Question Generation module into the AI-based virtual interviewing platform.

  Research Intern *May 2022 – July 2022*
  - Implemented and evaluated transformer-based off-topic essay detection techniques for the writing assessments.
  - Created the adversarial attack strategy for the transformer-based assessment grading model to evaluate robustness.

  AI Intern *December 2021 – March 2022*
  - Developed a BERT-based intent classifier model for conversational chatbots and used hidden layer embeddings to calculate Mahalanobis distance to detect out-of-domain intents.
  - The model achieved appreciable results for in-domain intent classification (97% Weighted F1-score) and out-of-domain intent detection (98% AUROC).
- **IIRS – ISRO (Indian Space Research Organization)** Dehradun, India
  Research Intern *September 2020 – November 2020*
  - Developed data and Training pipeline for Single Shot Detector model for high dimensional and high spatial resolution TIFF image data to detect infrastructure and vegetation.
  - Implemented MPCM fuzzy clustering algorithm for pixel-wise soft classification in NumPy.

Research Collaboration

- **ViT-Prisma** https://github.com/soniajoseph/ViT-Prisma
  A library for mechanistically interpret Vision Transformers (ViTs).
  - Implemented the pipeline on multi-GPU for parallel training the Vision Transformers for classification and patch reconstruction tasks.
  - Conducted extensive experimentation and training with diverse configurations of Vision Transformers, subsequently contributing to the research community by open-sourcing various checkpoints.

Projects

- **Fuzzy C-means Image-Segmentation in PyTorch :** Defined an FCM clustering algorithm for image segmentation. Reduced time complexity by 3x time with the only CPU. Also, support GPU, which additionally diminishes execution time.
- **Face Landmarks Detection using CNN :** Trained a CNN to recognize face landmarks. Used DLib dataset, which had 6666 face pictures and 68-point landmarks for each face. Streamlined PyTorch data augmentation pipeline to enhance variance in input images, allowing the model to generalize more effectively.

Awards and Achievements

- **Mind to Market Innovation Challenge :** Awarded a grant of **1,47,499 INR(2000 USD)** for our proposal on Drone-based surveillance in the Creek Area in the Defense sector.
- **Kaggle - RSNA-MICCAI Brain Tumor Radiogenomic Classification :** Won Silver medal and secured **52nd** position globally across more than 1500 participants.