Sanidhya Mangal

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Education

Vanderbilt University *(Nashville,TN)*, Master of Science in Computer Science; *3.9/4.0* Fall 2021 – Present

Medi-Caps University *(Indore,India)*, Bachelor of Technology in CS; *8.4/10.0* Fall 2016 – Spring 2020

Technical Skills

Development Tools: Python (Pandas, Scikit-Learn, Numpy, Tensorflow, Keras, Pytorch, Django, Flask), Bash
Analysis Tools: SQL (PrestoSQL, MySQL, Django-ORM),MS Excel, MS PowerBI, Matplotlib
Deployment Tools: Docker, Kubernetes, GIT, AWS (Lambda, EC2, EKS, DynamoDB, ECR, S3)

Experience

Asurion **May 2022 – August 2022**
Data Science Intern *Nashville, TN*

- Developed a feature to influence expert behavior in real-time during upsell in a call with 6% improvement in sales.
- Part of DS life-cycle: idedation, opportunity sizing **(SQL)**, modelling, deployment**(AWS)** & exposure to A/B testing.
- Trained adversarial Roberta-BERT **(PyTorch)** to induce robustness in text-classification with small dataset.
- Devised out of the box metrics to measure, compare & analyze **(Python)** performance of different ML models.

Engineerbabu **June 2020 – June 2021**
Machine Learning Engineer *Indore, India*

- Developed CNN **(TensorFlow)** based system to perform prognosis of lung and colon cancer with 0.92 AUC.
- Led a team which reduced inference time by 30% for machine learning models by improving ml-pipeline.
- Designed & deployed **(Docker)** a web framework **(Django)** for performing Edge AI ops for object tracking and generating analytical reports.
- Part of network automation project **(Netmiko)** to reduce human efforts by 40% for end-to-end provisioning of services.

Publications

Automated filtering of genome-wide large deletions through an ensemble dl framework,*Methods* **August,2022**

- Helped in developing a wrapper library **(Keras)** for detecting structural variants using different state-of-art CNNs.
- Improvement of overall F-1 score of 20% on long-reads & 15% on short-reads from our predecessors.

LSTM vs. GRU vs. Bidirectional RNN for script generation,arXiv **August,2019**

- Goal was to compare different seq-to-seq models for text generation in a form of TV scripts.
- Our analysis demonstrated LSTM generated most meaningful scripts followed by GRU then Bidirectional-RNN.

Projects

Self-SupervisedGAN | *Python, GAN, Self-Supervised Learning, Computer Vision, Generative Modelling* **April 2022**

- Generated high fidelity images and improving VanillaGAN's performance using self-supervised pre-training **(PyTorch)**.
- This method is incorporated to prevent forgetful discriminator, aids in better convergence & prevents mode collapse.

Semi-Supervised Domain Adaptation | *Domain Adaptation, Computer Vision, Unsupervised Learning* **December 2021**

- A research project to determine how different pre-training methods affects image-classification in domain adaptation.
- Augmented different representation learning methods described in paper "Surprisingly Simple Domain Adaption".

GaussianProcessPy | *Statistical Machine Learning, Python, JAX, Gaussian Process* **November 2021**

- Progressively worked on development of library for gaussian process regressor and classifier as a part of coursework.
- Implemented variational sparse gaussian process technique to optimize computation performance.

DeepPathoLab | *Computer Vision, Web Development,Flask* **October 2021**

- Developed a web application to diagnose X-ray images for Pneumonia detection using CNNs for image classification.
- This project was developed for VandyHacks VIII, secured 3^{rd} position from pool of 40 teams.

Neural Machine Translation | *Natural Language Processing, Deep Learning* **October 2020**

- Developed a copy of Google's NMT to perform real-time translation from English to Hindi with BELU score of 14.