Sanidhya Mangal

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Education

Vanderbilt University *(Nashville,TN)*, MS in Computer Science; *3.9/4.0* **December 2022 (expected)**

Medi-Caps University *(Indore,India)*, B.Tech in Computer Science; *8.4/10.0* **May 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, ECS, 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.
- Assembled DS life-cycle: ideation, opportunity sizing**(SQL)**, modelling, deployment**(AWS)** & exposure in A/B testing.
- Engaged with stakeholders to understand & probe business processes to translate requirements into analytics problems.
- 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.

Maize Zhou Lab, Vanderbilt University **July 2021 – February 2022**

Research Assistant *Nashville, TN*

- Contributed to two research projects facilitating genome filtering on long and short reads by developing a toolkit **(TensorFlow)** leveraging CNNs, forming the framework for several publications.
- Translated research problem into end-to-end MLOps pipeline including data-processing, modeling, and evaluation.

Engineerbabu **June 2020 – June 2021**

Machine Learning Engineer *Indore, India*

- Engineered a CNN **(TensorFlow)** based system to perform prognosis of lung and colon cancer with 0.92 AUC.
- Supervised a team of eight that reduced inference time by 30% for machine learning models by improving ML pipeline.
- Designed and deployed **(Docker)** a web framework **(Django)** in production for performing edge AI operations for object tracking and generating analytical reports.
- Optimized decision-making process by 12% employing EDA including hypothesis testing, statistical inference & analysis.

Greater Kailash Hospitals **January 2020 – April 2020**

Machine Learning Engineer Intern *Indore, India*

- Advised on selecting the best modeling techniques to diagnose lung X-ray images for Pneumonia with 94% precision.
- Deployed **(EC2)** web app that provided a second opinion to physicians and reduced approx. 6% of false negatives.
- Improved baseline performance by 20% using transfer-learning based approach to fine-tune MobileNetV2 **(Tensorflow)**.

Projects

Self-SupervisedGAN | *PyTorch, GAN, Self-Supervised Learning, Computer Vision, Generative Modelling*

- Generated high-fidelity images and improved VanillaGAN's performance using self-supervised pre-training.
- Added self-supervision to prevent forgetful discriminator which aids in better convergence and prevents mode collapse.

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

- Explored a research project on 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*

- Conceptualized and implemented a library for gaussian process regressor and classifier as a part of coursework.
- Implemented variational sparse gaussian process technique to optimize computational performance.

Neural Machine Translation | *Natural Language Processing, Deep Learning, TensorFlow*

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

Publications

- Yunfei Hu, **Sanidhya Mangal**, Lu Zhang, and Xin Zhou. "Automated filtering of genome-wide large deletions through an ensemble deep learning framework." Methods (2022).
- **Sanidhya Mangal**, Aanchal Chaurasia, and Ayush Khajanchi. "Convolution neural networks for diagnosing colon and lung cancer histopathological images." arXiv preprint arXiv:2009.03878 (2020).
- **Sanidhya Mangal**, Poorva Joshi, and Rahul Modak. "LSTM vs. GRU vs. Bidirectional RNN for script generation." arXiv preprint arXiv:1908.04332 (2019).