Vinayak Nayak

elisonsherton.github.io
Linkedin

nayakvinayak95@gmail.com
+91-8652380100

Experience

- **Perfios Software Solutions Pvt. Ltd** — Remote
  Data Scientist - Computer Vision — *October 2023 - Present*
  - **Face Recognition**: Developed & Finetuned models for 1:1 Face Match; increased accuracy of existing system by 1.8%
  - **Face Augmentation**: Employed different augmentation techniques to effectively retrain the Face Recognition models & make it more robust to occlusions and also to poor illumination/sharpness (image quality) conditions.
  - **Face Match: Large Age Gap Problem**: Experimented and came up with an algorithm to make the 1:1 Face Match solution more robust across Large Age Gap Pairs (upto 30 years of age difference)
  - **Face Image Quality Analysis**: Collaboratively developed Face Image Quality Analysis model to make Face Match results more meaningful

- **Okkular** — Remote
  AI Developer — *March 2020 - September 2022*
  - **Tag-Gen**: Codeveloped Okkular's flagship offering using CNNs; improved it iteratively to get 5%-15% jump in accuracy across 15+ attributes. The product enhanced online presence of retailers with SEO tags generated by our classifiers.
  - **Visual-Search**: Experimented with numerous Metric Learning techniques and devised a Content based image retrieval system for suggesting similar items. The recommendations helped retailers increase their conversion rate-lift by 10%-30%
  - **Description Gen**: Devised the pre-processing and post-processing pipelines of Description Gen which generated a description given the product image. Used NER for extraction of attributes and Spacy's phrase and pattern matchers with regex to ensure the veracity of descriptions and also reduced annotation and verification man-hours.
  - **Image Annotation Toolkit**: Built an internal web application with streamlit for image annotation. It facilitated fast effective in-house labelling and also computed inter-annotator statistics along with several indicators of quality of annotation that subsequently enabled us to improve model performance across attributes.

- **INSOFE** — Remote
  Data Science Intern — *Dec 2019 - March 2020*
  - **Image Captioning**: Built an Image captioning model using CNN encoder with LSTM decoder. Created an interactive UI and deployed the same using Flask

- **Doshaheen Solutions Pvt. Ltd** — Pune, India
  Intern — *Nov 2018 - Jan 2019*
  - **Data Annotator**: Annotated images of electric meters with bounding boxes to extract meter readings. Worked on Image Augmentation techniques using opencv & p5.js for performing rotation, noising, color shifts etc.

Skills Summary

- **Languages:** Python, C++, R
- **Frameworks:** Pytorch, git, docker, jupyter
- **Libraries:** keras, fastai, scikit-learn, numpy, pandas, matplotlib, NLTK, spacy, flask, streamlit
- **Platforms:** Linux, Windows, AWS

Projects

- **Time Series Analysis of Indian Stocks (TSA, CNN, Data Processing, Data Visualization)**: Extract data from NSE servers, wrangle it and engineer features, train a 1-D convolutional network for forecasting prices of Indian Equities and deployed it using streamlit. Tech: pandas, PyTorch, streamlit, matplotlib, (October '21)

- **Semantic Human Segmentation (Image Processing, Deep Learning)**: Modelled a python script to accept a video stream and isolate human pixels from the rest and subsequently blur the background or overlay a custom image of choice. Tech: opencv, PyTorch (December '20)

- **Stock Alpha Signal Prediction (Text Classification, Tabular data mining, INSOFE Hackathon)**: Modelled a system to predict alpha signal of NYSE stocks using tweets as sentiment indicators and historical stock info. Tech: keras, pandas, sklearn, xgboost (November '19)

- **PVD Simulation (Monte Carlo modelling, Physics)**: Simulated a system to estimate mass rate of deposition of vapors in a low pressure gas chamber for BARC. Tech: C++ (June '17)

Education

- **Birla Institute of Technology and Science** — Pilani, India
  Master of Technology - Data Science and Engineering; CGPA: 9.38 — *October 2021 - November 2023*
- **International School of Engineering** — Mumbai, India
  Post Graduate Program in Data Science; Grade: 80% — *June 2019 - November 2019*
- **Veermata Jijabai Technological Institute** — Mumbai, India
  Bachelor of Technology - Mechanical Engineering; CGPA: 9.04 — *June 2013 - June 2017*

Honors and Awards

- Awarded INR 1.5 lac for securing first place in INSOFE Hackathons (October '19)
- Awarded INR 20k annually for 4 years of excellent academic performance by ACC (June '14 to June '17)