

Vrushank Changawala

changawala.vrushank26.vc@gmail.com | Website | LinkedIn | Github | Blog | +919925139905

Professional Summary:

- 1 year of experience in developing deep learning models using multiple frameworks and libraries.
- Excellent understanding of deep learning & machine learning algorithms such as CNNs, RNNs, LSTMs, GANs, Attention mechanism, Transformers, KNN, SVM, etc.
- Intuitive knowledge of Probability & Statistics, Algebra, and Calculus.
- Well-developed ability to read and implement research papers; ability to rapidly prototype code/APIs for benchmarking.
- Proficient with PyTorch, NumPy and related libraries; limited experience with TensorFlow and Figma.

Education:

C.K.Pithawala College of Engineering & Technology

2018–2022

Bachelor's of Engineering(B.E.) in Computer Engineering

Surat, India

CGPA: 9.42

Relevant Coursework: Data-mining, Data Science using Python, Algebra & Calculus, Probability & Statistics, Software Engineering, Data structures and algorithms, Natural Language Processing, Information retrieval

Skills:

Programming: Python | C | HTML | CSS | JavaScript

Libraries, Frameworks and others: PyTorch | Keras | Scikit-learn | OpenCv | Flask | Tensorboard | NumPy | Heroku

Languages: English | Hindi | Gujarati

Research Project:

Averting from Conventional CNNs for medical image classification

(Under review)

- A comparative study of newly introduced and conventional CNN architectures on a medical image dataset.
- Performed qualitative and quantitative analysis of architectures such as VGG16, ResNets, DenseNet, InceptionNet, MLP-Mixer, and Involution.

Recent Projects:

Generative Adversarial Networks(GANs):

Implementation of ESRGAN, Pix2Pix, ProGAN, DCGAN.

- **ESRGAN:** Performs **Super-Resolution** with **4x upscaling**; achieves **28.4 dB PSNR** on DIV2k dataset's validation set.
- **Pix2Pix:** **Image-to-image translation** model that colors that converts Anime sketches to coloured sketches.
- **ProGAN:** Generates human faces progressively.

Image Enhancement:

Implementation of image deraining and low-light enhancement networks.

- **Image Deraining model:** removes rain from input image; achieves **26 dB PSNR** on Rain100H Dataset; can be used in driver-assistance systems to remove rain.
- **Low-light Enhancement:** "**Night Mode**" model that enhances the lighting in low-light images; achieves **22.97 dB PSNR** on LoL dataset's evaluation set.

Image Segmentation:

Implementation of Vanilla UNet.

- **Nail-segmentation**: segments nails in the images; achieves 93% accuracy even though trained on only 35 images.

Image Reconstruction:

Implementation of image compression/reconstruction using AutoEncoders.

- **Variational AutoEncoders(VAEs)**; benchmarked on CelebA dataset.
- **Vector Quantized Variational Autoencoders(VQVAEs)**; benchmarked on CIFAR10 & MNIST.

Natural Language Processing:

Implementation of NLP projects.

- **Handwriting Generator**: Created a model using LSTMs that generates realistic English handwriting.
- **News extractor and Sentiment-Analysis**: Given a stock name, fetches the top 5 articles from the internet and displays sentiment score.(Group-project)

Activities:

HackBash 2021

- Concept of the project is to digitalize and automate the healthcare ecosystem.
- It proposes PHR (Personal Health Record) and EHR (Electronic Health Record).
- I created ML models that makes,
 1. Future predictions of the diseases based on symptoms.
 2. Prediction of the treatment based upon the past diagnoses.

Smart India Hackathon(SIH 2020)

- Our group created a Virtual Reality app that lets you roam around well-known places.
- I created some terrains of Mount-Everest mountain in Unity3D.