Vrushank Changawala

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Professional Summary

- 1.5 years 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, AutoEncoders, Attention mechanism, Transformers, Diffusion, Regression, 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.
- Currently learning about Neural Rendering, 3D reconstruction, and graphics.

Research Experience

Averting from Conventional CNNs for medical image classification

(Published in IEEE SPICSCON 2021)

- 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.

Professional Experience

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- Took a **lead on the Background removal problem**. Researched and Developed a Background Removal solution across all the categories which led us to discard the dependency on the third-party Background removal services while achieving higher accuracy**. It Increased profits by 20% and throughput by 30%.**
- Developed **a custom algorithm to automate Photoshop's "Liquify" tool** using classical Computer Vision. It usually takes a human editor around 3-5 minutes to liquify a single image while this algorithm outputs the liquified image under a couple of seconds. **Currently used by Amazon India & Walmart to process Grocery & Food Packet images.**
- Worked on custom colour correction algorithm and Image Harmonization for food images. **Currently Used by India's food delivery giant Swiggy.**
- Developed a Shadow-generation model for Ecommerce Products**. Currently used by Walmart & Amazon India.**
- Was in-charge of developing the **POC of Virtual Try-on project**. Experimented with different Human-part Segmentation and Image generators for it, and got promising results.
- Regularly connected with product managers and data team to identify the failure cases and improving the accuracy and efficiency of the models.

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- Worked on mapping NFL player activities on the canvas from the input videos without any sensors, to create a bird's eye view.
- Suggested and developed a method for detecting yard digits and arrows which **Increased the internal metric from 75% to 85%.**
- Generated the suitable dataset to train the Volleyball Action recognition model. Benchmarked various Action Recognition models and **improved the test accuracy from 72% to 87%** using some clever techniques.

Education

Dalhousie University, Halifax, Canada 2023 -Present

Masters in Applied Computer Science (MACS)

C.K. Pithawala College of Engineering & Technology, Surat, India 2018 – 2022

Bachelors in Computer Engineering (BE)

CGPA: 9.41

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 | FastAPI | Docker | AWS S3 | AWS EC2 | AWS Sagemaker | Nvidia Triton Inference Server | GitLab