LETTER OF RECOMMENDATION

To Whom It May Concern

Following is a recommendation letter for my student, Mr. Dishant Padalia, supporting his graduate admission. Dishant has worked as a research intern under my supervision. Having interacted with him closely for the past two years, I was able to assess his technical knowledge and research work.

Dishant worked on a project to develop a deep learning-based solution for detecting Alzheimer's Disease using Positron Emission Tomography (PET) scan images of the brain. I was very impressed with the 3D convolutional neural network (CNN) that he proposed instead of the standard 2D CNN models used in most previous work. This work resulted in a manuscript 'DeepPET-3D: A Deep Learning Based 3D-CNN Model for Diagnosis of Alzheimer's Disease Using 18-FDG-PET' currently available as a pre-print. The second project on which Dishant worked was an AI-driven system for the detection of breast cancer from mammography scans. He developed several neural network architectures to classify the images as tumorous or benign. Due to many artifacts and redundant pixels in the mammography images, the models produced many false positive results. To overcome this issue, Dishant used several computer vision techniques to remove the artifacts and also proposed Contrast-Limited Adaptive Histogram Equalization (CLAHE) that aided in increasing the model's accuracy from 83% to 97%. This work resulted in 'EEF-Net: An Enhanced EfficientNet for Breast Tumor Classification in Mammograms', a manuscript that is under review in Elsevier's Clinical Breast Cancer journal. Dishant then continued the work on denoising the images. This time he was trying to denoise noisy MRI images using autoencoders and computer vision methods. He developed a U-Net architecture that improved the Peak Signal to Noise Ratio (PSNR) of images from 12 to 31 dB and improved the brain tumor classification accuracy by 23%. The manuscript 'MRI image denoising using U-Net and Image Processing Techniques' resulted from this work is accepted for publication in the 5th IEEE International Conference on Advances in Science and Technology 2022. Currently, he is working on Skin disease diagnosis using Generative Adversarial Networks.

Dishant is an excellent student in the domain of Computer Vision and Deep Learning. I have witnessed his dedication through the four projects that he has been working on with me. He has been resourceful and creative in applying theoretical concepts to solving real-world problems. He is technically proficient as an individual and equally excels in team-oriented environments. I would therefore strongly recommend Dishant to be considered as a potential candidate for a master's at your university. If you need any further information, you can reach out to me.

Regards,

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