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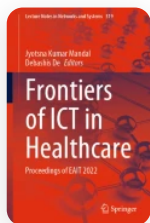
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Restoration and Enhancement of COVID-19 Variants Using CT Images

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Frontiers of ICT in Healthcare

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Abstract

Covid (COVID-19) is an irresistible illness brought about by the SARS-CoV-2 virus. Initially, it was first found in China and began to spread quickly all around the world causing numerous deaths and defeats in practically all fields. Computed tomography (CT) images are popularly being used in the field of computer vision to aid the medical experts to

diagnose various diseases. This work aims to pre-process raw CT images which contain noises and disturbances which need to be filtered and enhanced for various medical applications. In this paper, we propose pre-processing steps (restoration and enhancing) of its variants utilizing CT scan images. Lung computerized tomography (CT) images can be viably utilized for early identification of COVID-19 patients. These CT images are handled utilizing computer aided diagnosis (CAD) procedures by the use of reasonable calculations. The first and fundamental stage for any sort of image is to restore and improve them. In this paper, the restoration algorithms used are a combination of two traditional algorithms (bilateral + anisotropic) thus naming it Improved Anisotropic Diffusion Bilateral Filter (2D IADBF). The efficiency of the proposed techniques is exhibited through comparison between traditional algorithms like 2D median filter, 2D log filter, and 2D frequency domain wavelet filter for restoration. The enhancement algorithm utilized is 2D edge preservation efficient histogram improvement (2D EPEHI) algorithm which is ensemble of Edge preservation and histogram processing which focuses on methods like contrast limited adaptive histogram equalization (CLAHE), 2D adaptive mean adjustment, and image coherence improvement, and the results are efficient.

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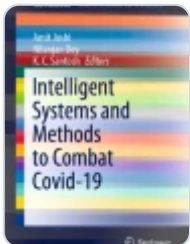| ∨ eBook	EUR 213.99

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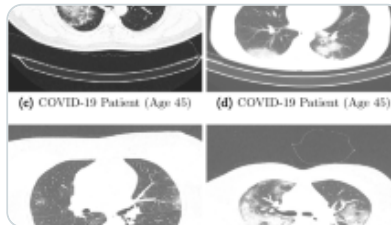
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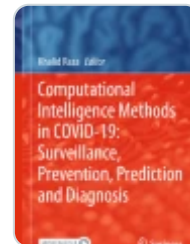Institutional subscriptions →

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