Optical coherence tomography latent fingerprint image denoising

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Abstract

Latent fingerprints are fingerprint impressions left on the surfaces a finger comes into contact with. They are found in almost every crime scene. Conventionally, latent fingerprints have been obtained using chemicals or physical methods, thus destructive techniques. Forensic community is moving towards contact-less acquisition methods. The contact-less acquisition presents some advantages over destructive methods; such advantages include multiple acquisitions of the sample and a possibility of further analysis such as touch DNA. This work proposes a speckle-noise denoising method for optical coherence tomography (OCT) latent fingerprint images. The proposed denoising technique was derived from the adaptive threshold and the normal shrinkage. Experimental results have shown that the proposed method suppressed specklenoise better than the adaptive threshold, NormalShrink, VisuShrink, SUREShrink and BayesShrink.