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Pre-trained based CNN model to identify finger vein (Article)

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Abstract

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In current biometric security systems using images for security authentication, finger vein - based systems are getting special attention in particular attributable to the facts such as insurance of data confidentiality and higher accuracy. Previous studies were mostly based on finger -print, palm vein etc. however, due to being more secure than fingerprint system and due to the fact that each person's finger vein is different from others finger vein are impossible to use to do forgery as veins reside under the skin. The system that we worked on functions by recognizing vein patterns from images of fingers which are captured using near Infrared (NIR) technology. Due to the lack of an available database, we created and used our own dataset which was pre-trained using transfer learning of AlexNet model and verification is done by applying correct as well as incorrect test images. The result of deep convolutional neural network (CNN) based several experimental results are shown with training accuracy, training loss, Receiver Operating Characteristic (ROC) Curve and Area Under the Curve (AUC). © 2019 Institute of Advanced Engineering and Science. All rights reserved.

Author keywords

[Alexnet](#) [Biometric identification](#) [Convolutional Neural Network \(CNN \)](#) [Finger - vein recognition](#)
[Transfer learning](#)

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