



## A Novel Technique to Palm Vein Recognition

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**Abstract:** The automated human identification has become essential part of many commercial and security agencies. Many approaches are given in this direction. The most secure and convenient way to achieve this goal is the use of biometric traits for identification. In this paper we have proposed an approach for human recognition using palm prints of a being. This approach is very secure for many reasons, firstly it is unique to every person, secondly it does not vary with age, roughness, dryness or any physical injury. As these vein patterns are internal to the body they are not possible to forge. In this paper we have used Gaussian filter for image pre-processing and gabor filter, accompanied by repeated line tracking, and artificial neural networks for the feature detection. The results depict that the given approach gives the promising results with good accuracy.

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### Introduction:

The area of human identification using biometric traits has become more and more critical and challenging to meet the needs of stringent security. The biometrics- based identification methods are now highly popular in a range of civilian applications and has become an effective substitute to traditional identification systems such as passwords [1]. Human palms can be easily presented and they can reveal a lot of data about a being which can be used for identification purpose. Due to this reason, palmprint research has gained a lot of attention for civilian and forensic usage [2]. However, like other biometric features such as fingerprint, iris and, face the palmprint biometric is also prone to sensor level spoof attacks.

Palm vein recognition is better approach than the others as it does not get affected by the dryness or roughness of skin, neither it is affected by any physical injury on surface of the hand however, temperature and humidity can sometimes affect the quality of the captured image. Besides being more expensive than other methods it is highly adaptable because it is highly secure as the veins are hidden inside the body [4].

Like fingerprints and iris, the pattern of palm veins is also unique to every being, even twins have different blood vein patterns in their palm and apart from size, this pattern will not vary with the age. The palm is an ideal part of the body for human recognition; it normally does not have hair that can be an obstacle for photographing the pattern, and it is less susceptible to a change in skin color, unlike a finger or the back of a hand [5]

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