

# DEEP REPRESENTATION BASED FEATURE EXTRACTION AND RECOVERING FOR FINGER-VEIN VERIFICATION

## ABSTRACT

With the tremendous growth in the demand for secured systems, automatic personal verification using biometrics has drawn increasing attention and has become one of the most critical and challenging tasks. **Finger vein recognition** is a method of biometric authentication that uses pattern-recognition techniques based on images of human finger vein patterns beneath the skin's surface. Finger vein recognition is one of many forms of biometrics used to identify individuals and verify their identity. Finger Vein ID is a biometric authentication system that matches the vascular pattern in an individual's finger to previously obtained data.

## EXISTING SYSTEM

In existing system, extrinsic biometric modalities have been employed for the verification tasks like face, finger-print and iris etc. Extrinsic biometric modalities are susceptible to spoof attacks because fake face images, fingerprints, and iris, can successfully cheat the verification system. Therefore, the usage of extrinsic biometrics generates some concerns on privacy and security in practical applications.

### Disadvantages

- Extrinsic biometrics provides less security.
- They are susceptible to spoof attacks because fake face images, fingerprints and iris can successfully cheat the verification system.

## PROPOSED SYSTEM

In Proposed System, intrinsic modalities have been employed for the verification tasks like finger-vein, hand-vein and palm-vein. Intrinsic biometrics modalities are much harder to forge as they are difficult to acquire without user's knowledge. First, a CNN based approach is developed to predict the probability of pixels to belong to veins or to background by learning a deep feature representation. As a finger-vein consists of clear regions and ambiguous regions,

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several baselines are employed to automatically label pixels as vein or background in the image clear regions, thus avoiding the tedious and prone-to-error manual labeling. Then, a CNN is trained to extract the vein patterns from any image region. Second, to improve the performance, we proposed an original method based on a FCN to recover missing finger-vein patterns in the binary image.

## **Advantages**

- Vein verification provides higher security and privacy for the user.
- They are difficult to acquire without user's knowledge.

## **SOFTWARE REQUIREMENTS**

Front-end	:	JSP
Back-End	:	MySQL
Server	:	Tomcat Server
OS	:	WINDOWS 7/above

## **HARDWARE REQUIREMENTS**

PROCESSOR	:	CORE i3
RAM	:	512MB-2GB
HARD DISK	:	40GB

