

# Palm Vein Recognition using Scale Invariant Feature Transform with RANSAC Mismatching Removal

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**Abstract.** Palm vein recognition has getting more attention and popular among all other biometrics methods. In order to apply this type of recognition system to society, obtain an accurate reading robustly and effectively become the most popular research topic in this field. However, there are still an unsolved issues on accurate palm vein recognition although there are several research done. In this paper, impact of Random Sample Consensus (RANSAC) point mismatching removal and different wavelength spectrum to the recognition rate will be discussed. CASIA Multi Spectral Palm Print Image database is used for this research. Scale Invariant Feature Transform (SIFT) and RANSAC mismatching removal will be adopted for vein extraction and point feature matching with Euclidean Distance. The results shows that SIFT algorithm with RANSAC mismatching point removal achieved better recognition rate than without mismatching point removal technique used. It can be proved that RANSAC mismatching point removal are able to remove outlier with preserving the correct point by improving the Equal Error Rate (EER) in recognition systems. In palm vein recognition system, higher wavelength spectrum of palm vein image will achieved higher verification rate. This can be shows that vein pattern are able and successfully extract on the image with higher wavelength spectrum.

**Keywords:** Vein Recognition, Scale Invariant Feature Transform, Random Sample Consensus