

## **Triangle and trapezoid area features for gait authentication**

*Tasriva Sikandar, Wan Nur Azhani W. Samsudin, Kamarul Hawari Ghazali, Mohammad Fazle Rabbi*

Faculty of Electrical and Electronics Engineering, Unviersiti Malaysia Pahang, Pekan, 26600, Malaysia

### **ABSTRACT**

This paper presents two gait authentication features based on geometric shape for gait analysis. Specifically, triangle and trapezoid based features are proposed for gait authentication. The features are based on the geometric pattern extracted from a particular gait cycle of a gait model. These features use four points from hip-knee-toe joints and construct a triangle and a right trapezoid. The area of the triangle and trapezoid are calculated using geometric formula as well as image processing methods. Later two areas are compared to validate the model free approach. The results show that, the proposed feature can be used as the features in model free gait analysis.

### **KEYWORDS**

Feature extraction; Legged locomotion; Shape; Muscles; Authentication; Hip; Knee

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