**ScienceDirect**

# Statistical Independence of ECG for Biometric Authentication

Ranjeet Srivastva �[a], Ashutosh Singh [b], Yogendra Narain Singh [b]

Show more ⌄

☰ Outline        ⟨ Share     🗨 Cite

Get rights and content

- Derived an expression that estimates the false resemblance of two ECG samples.

- Three classes of features such as interval, amplitude and angle are used.

- The cumulative probability of false ECG resemblance with 14 features is reported as $1.3 \times 10^{-20}$.

- Compared empirical and theoretical performance of ECG independence.

- Successfully prove the admissibility of ECG to use as biometrics with scientific evidence.

## Abstract

The biometric authentication system using electrocardiogram (ECG) may protect individuals' privacy and prevent identity frauds. Researchers have demonstrated that ECG is suitable for biometrics use due to its pervasiveness, immutability, measurability, acceptance, and individuality. However, ECG's statistical independence for biometric authentication has yet to be substantiated. Thereby, this paper proposes a novel model to evaluate the statistical