**Introduction**

We introduce BANDANA, a solution for continuous device-to-device authentication in Body Area Networks. Wearable sensors (including: accelerometer, gyroscope, and magnetometer) are utilised to collect body movement data. This data is used to secure a communication between two or more devices.

We process the continuously-captured signals to extract gait information when users are walking. The proposed method exploits user and time dependent gait fluctuation to generate gait fingerprints. Our experiments show that our protocol can produce secure communication keys for on-body devices.

**Quantization Algorithm**

BANDANA's quantization algorithm compares instantaneous gait acceleration to the mean gait acceleration to derive binary gait fingerprints.

**Experiments**

Experimented with 2 datasets: **Mannheim** (Sztyler et al. in *PerCom* 2016, 15 subjects, 7 sensor locations) & **Osaka** (Ngo et al. in *Pattern Recognition* 2014, 482 subjects, 3 sensors locations).

**Publications**


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