

Title: ECG-Based biometrics: a real time classification approach

Author(s): Lourenço, André¹; Silva, Hugo; Fred, Ana

Source: 2012 IEEE International Workshop on Machine Learning for Signal Processing

Published: 2012

Conference: 22nd IEEE International Workshop on Machine Learning for Signal Processing (MLSP)
Location: Santander, Spain **Date:** Sep 23-26, 2012

Sponsor(s): IEEE; IEEE Signal Proc Soc

Document Type: Proceedings Paper

Language: English

Abstract: Behavioral biometrics is one of the areas with growing interest within the biosignal research community. A recent trend in the field is ECG-based biometrics, where electrocardiographic (ECG) signals are used as input to the biometric system. Previous work has shown this to be a promising trait, with the potential to serve as a good complement to other existing, and already more established modalities, due to its intrinsic characteristics. In this paper, we propose a system for ECG biometrics centered on signals acquired at the subject's hand. Our work is based on a previously developed custom, non-intrusive sensing apparatus for data acquisition at the hands, and involved the pre-processing of the ECG signals, and evaluation of two classification approaches targeted at real-time or near real-time applications. Preliminary results show that this system leads to competitive results both for authentication and identification, and further validate the potential of ECG signals as a complementary modality in the toolbox of the biometric system designer.

Author Keywords: Biometric Systems; ECG signal; Real Time Recognition Systems; SVM classifiers

KeyWords Plus: Identification

Reprint Address: Lourenco, A (reprint author), Inst Super Engrn Lisboa, Inst Telecomunicações, Lisbon, Portugal.

Addresses:

1. Inst Super Engrn Lisboa, Inst Telecomunicações, Lisbon, Portugal.

Publisher: IEEE

Publisher Address: 345 E 47TH ST, New York, NY 10017 USA

ISBN: 978-1-4673-1026-0

Citation: Lourenço, André; SILVA, Hugo; FRED, Ana - ECG-Based biometrics: a real time classification approach. 2012 IEEE International Workshop on Machine Learning for Signal Processing. ISBN 978-1-4673-1026-0. (2013).