NOHAYO

Smart Solutions for Wearables

Activity and Sports Library

Physical Activity Classification

Human activity information can be used in a lot of applications such as fitness monitoring, wellness quality improvements, diet plans etc.

This algorithmic solution is allowing a continuous classification of user's activity, and can be integrated into wearables such as watches, rings, and earbuds.

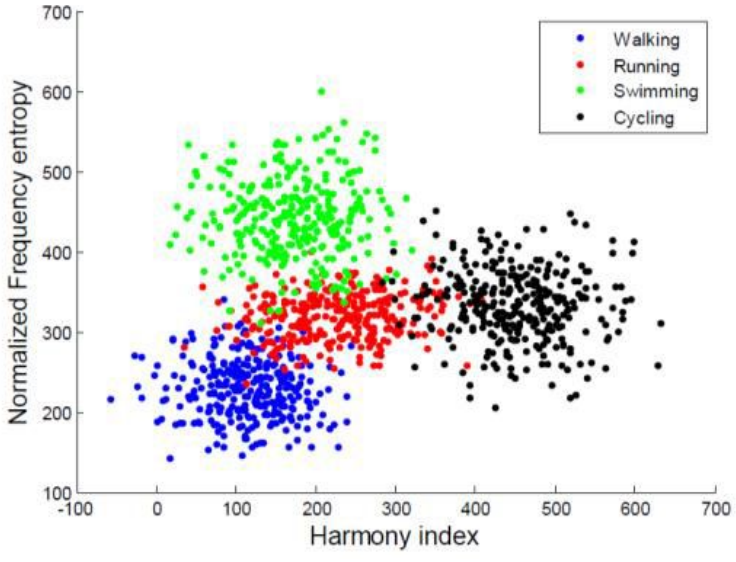
How does it work?

We've collected a large number of sessions of users performing different physical activities, and developed a machine-learning algorithm that detects in real time what is the performed activity. The machine-learning algorithm is based on both time domain and frequency domain features extracted from the 3D accelerometer sensor.

Supported classes: Standing, Sitting, Walking, Running, Cycling, Sleeping, Office work, Gym, Swimming.

How can it be used?

Except of knowing what the user is doing all day, and offering daily journaling, knowing user's activity type is a great input for our high-level AI-based decision making machines. The correlation of activity type with physiological parameters such as HR, RR, Stress can distinguish between normal and abnormal scenarios.



Activity Classification algorithm performance

The algorithm is implemented in embedded C and can run on wearables like a smartwatch, ring, and earbuds that has a 3D accelerometer, and a DSP unit.

	Accuracy
Standing	0.921
Sitting	0.913
Walking	0.929
Running	0.922
Cycling	0.899
Sleeping	0.951
Office work	0.923
Gym	0.891
Swimming	0.943

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