



STRESS OBSERVER

REAL-TIME STRESS MONITORING SYSTEM PROVIDING CUSTOMIZED RECOMMENDATIONS FOR STRESS-FREE TRAVEL

+ WHAT IS STRESS OBSERVER?

The Stress Observer is a data fusion process, based on the user's motion and physiological signals, and analyzes data to monitor stress levels depending on the mode of transport used. User includes both passengers and transportation professionals (pilots, truck drivers etc). The device embodies data fusion processing that:

- Estimates automatically each person's stress levels regardless of activity
- Uses sensors typically integrated into wearables

Automatic identification of stress levels allows:

- Recognition of high stress situations
- Low-power adaptation of mobility services and driving behavior

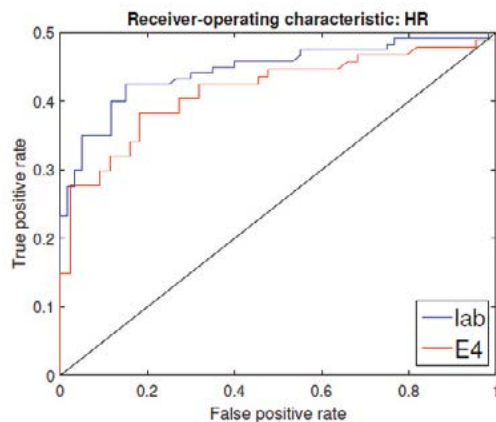
+ APPLICATIONS

Non-invasive, wearable-based stress monitoring measures the emotional state of a person. Designed for transport and mobility, it offers:

- Real-time journey planning specific to each traveler
- Smart emotional surveying to improve transport and mobility comfort and safety
- Awareness of mobility wellness for specific social groups
- Human-centric services and applications
- Professional driver monitoring and biofeedback during training and practice

+ WHAT'S NEW?

- Wearable-based fine measurement of stress levels while on the go
- Recognition of high stress levels
- Reliability ensured by rigorous assessment using real-life usage case databases



Observer performance: a diagnosis that classifies stress based on your heart rate (1. stressed 0. Not stressed). The blue line refers to a lab sensor (the most accurate) while the red E4 line refers to a wearable sensor.

+ WHAT'S NEXT?

The "Bon Voyage" cooperation project, funded by the EU Horizon 2020 research and innovation program (Grant 635867), has successfully developed a traveler stress level monitoring and this will soon enrich a real-time journey planning application.

Data fusion methodology of this type will be applied to developing similar tools for assessing driver vigilance, individual panic detection and better biofeedback for transport users.

2 PATENTS, 3 PUBLICATIONS:

Simon, O., Godin, C., Charbonnier, S., & Campagne, A. (2016). Feature and Sensor Selection for Detection of Driver Stress. In The 3rd International conference on physiological computing systems.

FEATURES:

- Key characteristic extraction by motion and physiological sensor data mining
- Low battery consumption
- Machine learning
- Classification, estimation

INTERESTED IN THIS TECHNOLOGY?

Contact:

Swan Gerome

swan.gerome@cea.fr

+33 438 784 624

Leti, technology research institute

Commissariat à l'énergie atomique et aux énergies alternatives
Minatec Campus | 17 rue des Martyrs | 38054 Grenoble Cedex 9 | France
www.leti-cea.com

