IMOTIONS

MODULE

EDA

Measure Emotional Arousal

Electrodermal Activity
Insights into emotional arousal

The Electrodermal Activity (EDA) module enables users to connect, record, and live-visualize EDA data from Shimmer, BIOPAC, and Empatica EDA devices. A suite of analysis tools are available to advance understanding of emotional responses.

○ Single platform for integrating and implementing EDA into human behavior research

○ Automatic peak detection for Shimmer and BIOPAC devices to easily identify changes in emotional reactions to stimuli

○ Add multiple devices (Shimmer) or multiple modalities (BIOPAC) and synchronize with other sensors
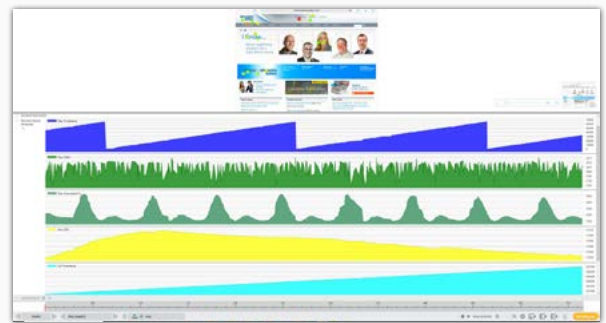
Watch the video below to see how Professor Roger Azevedo from North Carolina State University uses EDA and iMotions in his research.
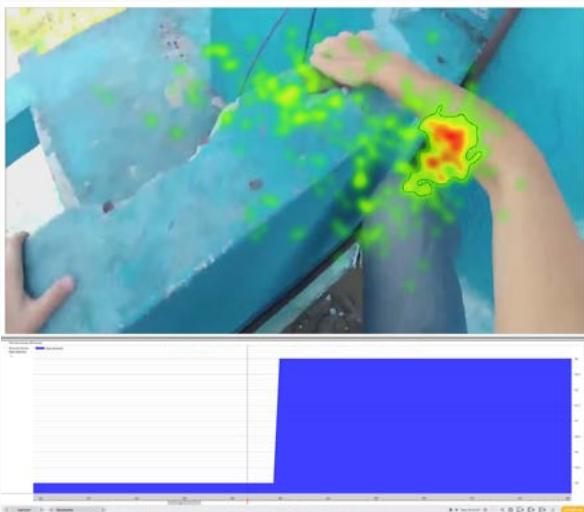
EDA Module Features
## Quickly and easily assess emotional intensity

Add new dimensions to your data

EDA measurements provide information about emotional arousal - the intensity of feelings associated with a stimulus. Use EDA measurements to provide information about physiological arousal, or use it to complement other methods, giving more detail to your data.

Automatic peak detection

Quantifying moments of increased physiological arousal allows you to better identify crucial parts of stimuli presentation. By using iMotions automatic EDA peak detection, you can effortlessly access this data, helping you to full evaluate the effect of the stimulus.

Seamlessly integrated with other biosensors

Integrate and synchronize 50+ different sensors from 20+ independent vendors, across 10+ modalities. Add even more sensors through the Lab Streaming Layer. Forward data in real time and import external sensor / software data and loop it back into the platform via the API.
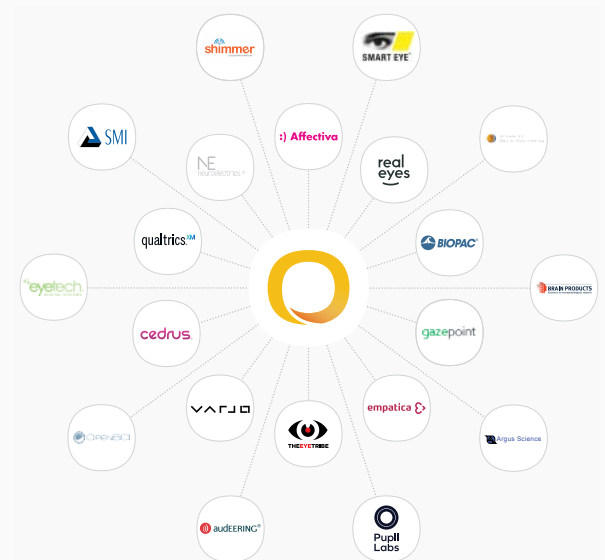
Record in the wild

Fully mobile and non-invasive studies are easily setup with devices from Shimmer or BIOPAC (the latter with BIOPAC's BioNomadix devices). See how participant's physiological arousal changes in natural environments.

Easy and accessible exports

Export raw data, results, and metrics in file formats suited to variety of third party data analysis tools. Export visualizations on top of images, videos, websites, etc.

Data quality checks

Checks for missing data are provided to ensure that experiments are completed to a high standard. Battery level information of wireless devices is also provided to make sure your experiments are never cut short.

EDA Hardware Options
Ideal equipment to meet your needs

iMotions allows the integration of sensors from Shimmer, BIOPAC, and Empatica, to collect high-quality EDA data. The flexible options and additional channels can add further value to your data. Choose the right equipment for your needs with iMotions.

Shimmer 3+

The Shimmer3 EDA+ (Electrodermal Activity) unit provides connections and preamplification for one channel of EDA data acquisition. The EDA+ unit is the ideal solution for wireless measurements of the electrical characteristics or conductance of skin. Up to 5 Shimmers can be connected simultaneously for multiple recordings.

BIOPAC

BIOPAC offers two solutions for research using EDA - a wired system, and the wireless BioNomadix system, both of which run through the MP160 (or the older MP150). The MP160 system is a flexible, proven modular data acquisition system for life science research and is in use in top laboratories around the world. The MP160 is also compatible with ECG (Electrocardiogram), EMG (Electromyogram) and Respiration devices. The BioNomadix system allows high-fidelity, reliable EDA recordings to be made with fully-natural mobility.

Empatica E4

The E4 wristband is a wearable research device that offers real-time physiological data acquisition, with a 3-axis accelerometer. The device permits natural recordings of changes in EDA activity.

Selected Publications

EDA research made possible with iMotions

JAKE® Multimodal Data Capture System: Insights from an Observational Study of Autism Spectrum Disorder

Authors: Ness, S. L., Manyakov, N. V., Bangerter, A. et al.
Institutes: Janssen Research and Development, Duke University School of Medicine, Northeastern University, University of California, University of Washington

View publication

A Classification Model for Sensing Human Trust in Machines Using EEG and GSR

Authors: Akash, K., Hu, W-L., Jain, N., Reid, T.
University: Purdue University

View publication

Transdermal neuromodulation of noradrenergic activity suppresses psychophysiological and biochemical stress responses in humans

Authors: Tyler, W. J. Boasso, A. M., Mortimore, H. M., Silva, R. S., Charlesworth, J. D., Marlin, M. A., Aebersold, K., Aven, L., Wetmore D. Z., Pal, S. K.

University: Thync, Inc

View publication

Psychophysiological responses to short-term cooling during a simulated monotonous driving task

Authors: Schmidt, E., Decke, R., Rasshofer, R., Bullinger, A. C.

Company / University: BMW / Technical University Chemnitz

View publication

The Forensic Biometric Analysis of Emotions from Facial Expressions and Physiological Processes from the Heart and Skin

Authors: Masri, A. A., Shashi, J. K.
University: University of Windsor

View publication

The Effectiveness of Online Cause-Related Marketing Message Framing on Hotel Brand Evaluation

Authors: Kim, H.
University: University of Surrey

View publication

Emotional Journey for an Emotion Provoking Cycling Exergame

Authors: Müller, L., Bernin, A., Kamenz, A., Ghose, S., von Luck, K., Grecos, C., Wang, Q., Vogt, F.

Institutes: Hamburg University of Applied Sciences, University of the West of Scotland, Central Washington University, Innovations Kontakt Stelle (IKS)

View publication

Using sequence mining to reveal the efficiency in scientific reasoning during STEM learning with a game-based learning environment

Authors: Taub, M., Azevedo, R., Bradbury, A. E., Millar, G. C., Lester, J.
University: North Carolina State University

View publication

Dr. Camilla Grane, Senior Lecturer and Researcher at Luleå University, describes her experience of using iMotions with EDA for her research in the video below:

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Want to know more?

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