# The Multi-Modal Automotive Experience

What is the future of smart automotive technology? Smart Eye & iMotions believe that the next-generation car experience will go beyond skin-deep to empower the vehicle's ability to support the user. Just as doctors use different tools to diagnose different conditions, new car systems will need to accept and interpret more than one type of data to gain a deeper understanding of human experience.

**Multi-modality means gathering information about human states and behaviors from various types of sensor technologies such as multispectral cameras, radar and HMI events.**

## How Does Our CES 2023 Demo Work?

Smart Eye's demo at CES 2023 gives visitors an opportunity to see how multi-modal data collection unlocks new insight into human behavior in a car.

In the demo, you will get to perform a driving task while information about your physiological and behavioral responses is collection from contact sensors and through remote sensing. The data is then analyzed using the iMotions biometric research platform.

Examples of data gathered:

Eye Tracking

Facial Expression Analysis

EDA / GSR

EEG

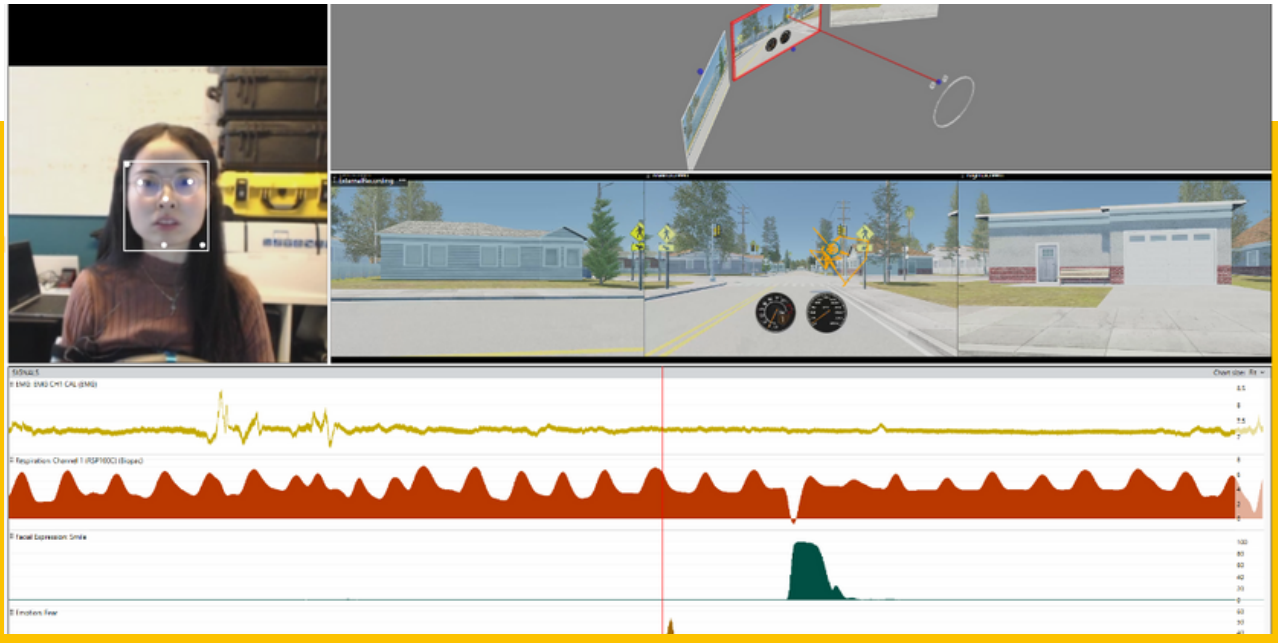
ECG

EMG

## Applying Multi-Modal Data Fusion in Automotive

Using sensors, such as multi-spectral camera technologies, and the iMotions biometric research platform, tomorrow's cars will be able to remotely detect the vital signs, emotions and behaviors of the people in the cabin. This insight can then be used to adapt the vehicle's features and functions, improving road safety and enhancing the mobility experience for all passengers.

In Automotive Research and Development, the multi-modal approach shown in our CES 2023 demo will offer a deeper understanding of human behaviors, reactions and instincts — providing actionable insights in the research and development phase of automotive solutions.



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