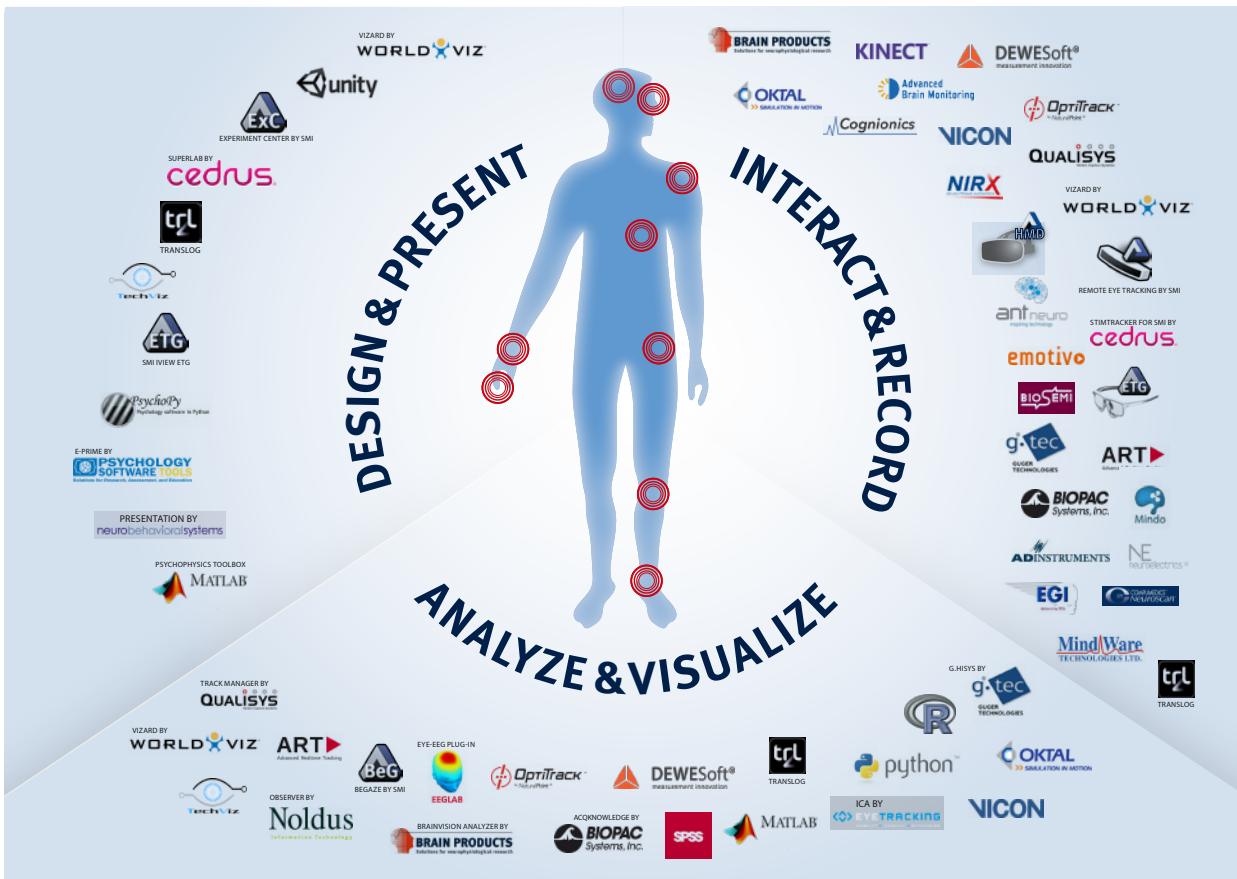


Eye Tracking Connected

with leading partner solutions



- Extend your method set and combine eye tracking with other biometric sensors, VR engines or stimulus and analysis software
- Use established protocols (such as TTL Trigger, LSL, VRPN) and tools like the SMI SDK and StimTracker for SMI to synchronize online and offline
- Benefit from flexible integration options of SMI’s mobile and remote eye tracking solutions

Connecting Leading Partner Solutions for a Broad Range of Applications

SMI Eye Tracking Connected helps you integrate SMI Eye Tracking with biometric sensors, VR engines and stimulus and analysis software of leading partners in fields ranging from multimodal cognition research to virtual reality.

Integrate SMI Eye Tracking Connected partner solutions for your application

- Neuroscientists combine SMI Eye Tracking with biometric data for research on brain functions or neural disorders.
- Computer engineers implement SMI Gaze Control in brain computer interfaces.
- Psychologists add eye tracking to cognition experiments in external stimulus software.
- Virtual reality specialists incorporate real-time gaze interaction in 3D environments.
- Experts in neuromarketing/neurousability study shopper and user engagement.

Combine SMI Eye Tracking with biometric sensors, VR engines or stimulus and analysis software

Connect SMI Eye Tracking with EEG, NIRS, GSR, HR, motion tracking and other biometric data, with VR engines and stimulus and analysis software:

- Analysis software (incl. Matlab, Noldus Observer, R, SPSS ...)
- Biometric systems (incl. AD Instruments, Biopac, NIRx, Mindware ...)
- EEG systems (incl. Brain Products, g.tec, Neuroscan ...)
- Motion tracking solutions (incl. ART, Qualisys, Vicon, WorldViz ...)
- Open source tools / languages (incl. EYE-EEG plug-in for EEGLAB, Lab Streaming Layer, Python ...)
- Stimulus presentation software (incl. NBS Presentation, PST E-Prime, PsychoPy ...)
- Virtual reality engines (incl. TechViz, Unity, WorldViz ...)

Find more partner solutions at:
www.smivision.com/eyetracking_connected



What SMI Users Say

SMI and Matlab: Visual Perception

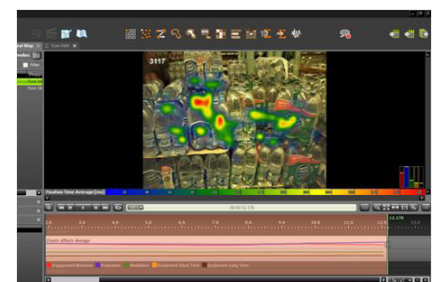
Marcus Nyström, Lund University: „I use the SMI SDK together with PsychoPy (Python) or the Psychophysics Toolbox (PTB, Matlab) to present stimuli and collect data. The SDK makes it very quick and easy to turn your PsychoPy/PTB-script into a full-fledged eye-tracking experiment.“

SMI and g.tec: Brain Computer Interfaces

Dr. Christoph Guger, CEO, g.tec Medical Engineering GmbH: “The new functions of the iView SDK are very helpful. One example: The release enables our customers to easily integrate g.tec EEG and SMI eye tracking data into applications that require 64bit support, e.g. Simulink.”

SMI and Emotiv: Shopper Engagement

Prof. Olivier Oullier, Aix-Marseille University: “I conducted a study for the World Economic Forum using SMI Eye Tracking paired with Emotiv brain response technology to determine how millennials conceptualize “sustainability” and what that means for companies.“



SMI plug&play implementation for Emotiv EEG

Tailored Tools and Protocols for Online and Offline Synchronization

SMI Eye Tracking Connected supports a range of protocols and tools such as LSL, VRPN, the SMI SDK, TTL trigger and StimTracker for SMI hardware. This allows for online and offline data synchronization tailored to your demands – from out of the box solutions to solutions for tight timing requirements.

SMI plug&play modules

With SMI plug&play modules for SMI Experiment Suite software, Emotiv EEG data and the Index of Cognitive Activity (ICA) by Eye Tracking, Inc. are automatically synchronized with SMI Eye Tracking for easy analysis in SMI BeGaze software.

TTL trigger and messages from SMI software

SMI solutions support the sending, receiving and logging of up to eight TTL trigger and of flexible software messages in parallel. This allows for online and offline synchronization of SMI Eye Tracking with other data streams in external software, e.g. in the EYE-EEG plug-in for EEGLAB.

SMI Software Development Kit

All SMI Eye Tracking systems come with a Software Development Kit (SDK) for real-time access of eye movement and pupil size data. The SMI SDK contains an API consisting of several high-level and low-level functions as well as ready-to-go sample code (e.g. for C/C++, C#, Matlab, Python, Unity).

StimTracker for SMI hardware

Timing in the submillisecond precision range can be achieved with the StimTracker for SMI by Cedrus Corporation. The device sets common time stamps for connected physiological devices which makes it an excellent multichannel synchronization tool.

Lab Streaming Layer plug-ins for SMI

The Lab Streaming Layer (LSL) offers plug-ins for many biometric, motion tracking and human interface devices. With the tested LSL plug-ins for SMI, researchers can integrate SMI Eye Tracking data in challenging multimodal experiments and brain computer interfaces.

SMI VRPN interface

A special module allows to combine SMI Eye Tracking Glasses with leading head and motion tracking solutions via the Virtual Reality Peripheral Network (VRPN) standard.

Partner plug-ins

To facilitate the use of SMI Eye Tracking with partner solutions, SMI worked with partners to implement plug-ins in partner software (Biopac, Brain Products, g.tec, Qualisys, WorldViz...)

For more options based on your specific requirements, please contact: sales@smi.de.



SMI and EYE-EEG plug-in for EEGLAB: FRPs in Natural Reading

» **Olaf Dimigen, Humboldt University:** “The high-quality data output of the SMI system, including trigger pulses and messages, allows our EYE-EEG toolbox to synchronize it with EEG data at millisecond precision for the analysis of saccade- and fixation-related potentials, e.g. in natural reading.”

SMI and Qualisys: Eye and Body Movements

» **Prof. Yvonne Delevoeye-Turrell, University of Lille:** “We use SMI Eye Tracking and Qualisys motion tracking to measure the coordination of eye and body movements to understand what visual stimuli triggers certain actions.”

StimTracker for SMI: Eye Tracking & EEG

» **Vasiliki Kosmidou, Information Technologies Institute:** “The StimTracker for SMI is a really useful tool for my research. The special integration with SMI systems helps me efficiently synchronize eye tracking with EEG data.”



StimTracker for SMI synchronization hardware

Flexible Integration Options of SMI's Mobile and Remote Solutions

Extend your set of methods with the flexible integration options of SMI's mobile and remote eye tracking solutions - for multimodal designs in lab, real-life and virtual environments. SMI solutions come with several data outputs and support for TTL trigger and software messages which

allows for efficient synchronization with other data streams and external applications. Latency of SMI Eye Tracking systems has been extensively tested, providing reliable performance measures.

Learn more: www.smivision.com/products

SMI Eye Tracking Devices and Software

SMI Eye Tracking Devices ¹	Description & Compatibility
SMI Eye Tracking Glasses ²	Description: <ul style="list-style-type: none"> - Glasses-type eye tracker - Incoming hardware TTL trigger via parallel port and flexible software messages - SMI BeGaze analysis software with Emotiv EEG and ICA module - SDK with real-time data streaming and sample code (C/C++) Compatibility: <ul style="list-style-type: none"> - Compatible with StimTracker for SMI - LSL plug-in for SMI - VRPN server - Partner plug-ins: Dewesoft, Qualisys, WorldViz
SMI Eye Tracking HMD Upgrade Package - for the Oculus Rift DK2	Description: <ul style="list-style-type: none"> - Mobile eye tracking upgrade for the Oculus Rift head mounted display - SDK with real-time data streaming and sample code (C/C++) - SMI Unity plug-in Compatibility: <ul style="list-style-type: none"> - Partner plug-in: WorldViz
SMI Remote Eye Tracking ¹ (REDn Scientific, REDn Professional, RED25omobile, RED500...)	Description: <ul style="list-style-type: none"> - Contact-free eye tracking with head movement compensation - Incoming and outgoing hardware TTL trigger via parallel port³ and flexible software messages - SMI Experiment Suite software with Emotiv EEG, ICA and Observation module - SDK with real-time data streaming and sample code (Matlab, C/C++, Python, E-Prime, Presentation...) - SMI Unity plug-in Compatibility: <ul style="list-style-type: none"> - Compatible with StimTracker for SMI³ - LSL plug-in for SMI - Partner plug-ins: Biopac, Brain Products, EYE-EEG plug-in for EEGLAB, g.tec

¹ For compatibility with unlisted SMI devices or with your specific remote system, please contact sales@smi.de

² Interfacing with SMI ETG subnotebook or laptop meeting SMI specifications, some options require additional ETG modules

³ Available for scientific remote systems

Tailored Tools & Protocols

Tools & Protocols	Description & Compatibility
StimTracker for SMI	Description: <ul style="list-style-type: none"> - Device for data synchronization and precise stimulus onset marking Compatibility: <ul style="list-style-type: none"> - Compatible with SMI Eye Tracking Glasses, SMI Remote Eye Tracking and SMI Hi-Speed Eye Tracking systems - Connects with leading partner solutions (AD Instruments, Brain Products, ANT Neuro, Biopac Systems, BioSemi, MindWare, Neuroscan, NIRx)
Lab Streaming Layer (LSL) plug-ins for SMI	Description: <ul style="list-style-type: none"> - Open source application for signal transport, time synchronization and data collection for research use Compatibility: <ul style="list-style-type: none"> - Compatible with SMI Eye Tracking Glasses, SMI Remote Eye Tracking and SMI Hi-Speed Eye Tracking systems - Connects with leading partner solutions (BioSemi, EGI, g.tec, Mindo, Neuroscan...)
Virtual Reality Peripheral Network (VRPN)	Description: <ul style="list-style-type: none"> - Unified interface for accessing virtual reality peripherals in VR applications Compatibility: <ul style="list-style-type: none"> - Compatible with SMI Eye Tracking Glasses - Connects with leading partner solutions (ART, Qualisys, Vicon, WorldViz...)

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