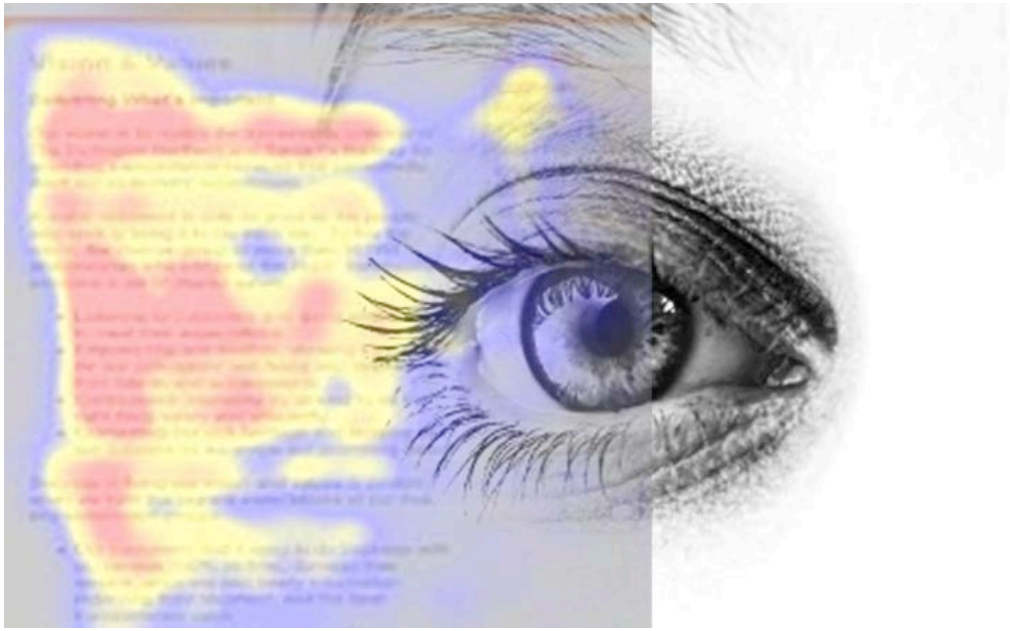
CYPRUS INTERACTION LAB

Eye – tracking



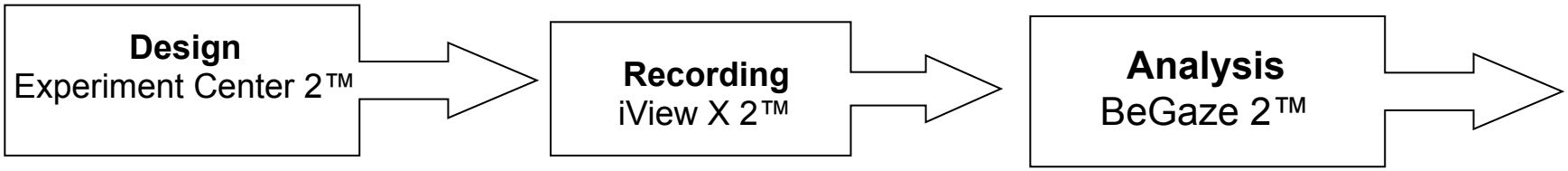
SMI Eye-trackers

SMI Eye-Tracking

SMI Eye-Tracking Glasses

SMI Eye - Tracking

Procedure



The SMI Experiment CenterTM, the accompanying SMI iView XTM system and the SMI BeGazeTM software are a versatile suite designed to address the various requirements in the eye tracking world. Designed particularly for researchers working in the fields of marketing research, usability testing, psychology, neurology and cognitive neuroscience, this platform supports a broad range of studies. It is ideal for evaluating interactive media such as web sites, software, images, print and online advertising.

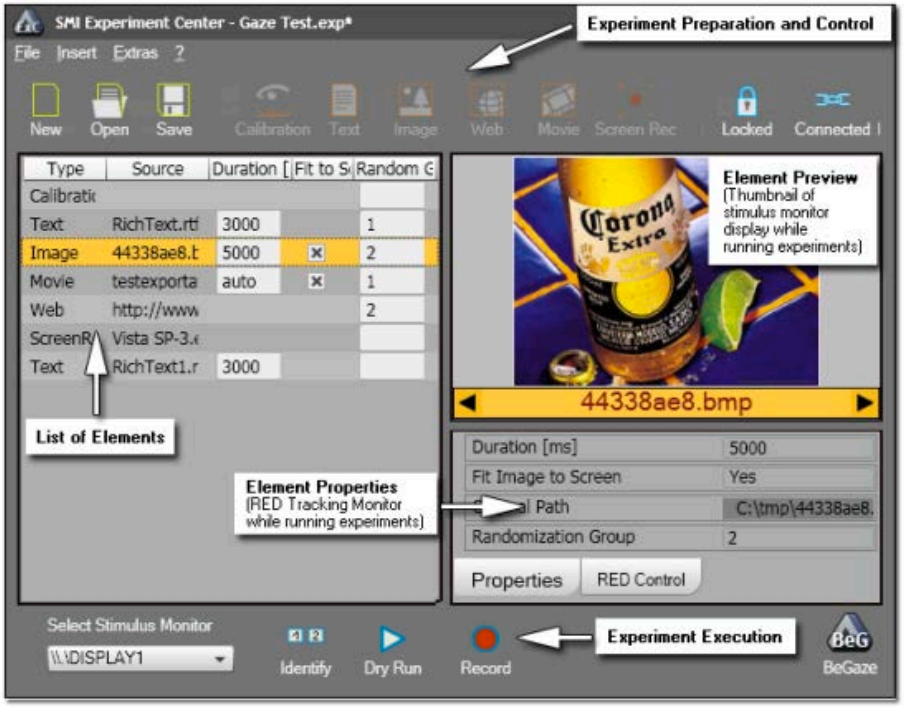
SMI Eye - Tracking

Experiment Center

SMI Experiment Center is designed to make gaze tracking experiments and visual stimuli creation a snap.

Experiment Center features a user friendly intuitive interface. All steps for preparing, testing and running an experiment are executed in the Application window. In the following you find a description of its three working areas:

- At top: Experiment preparation and control area
- In the middle: Experiment setting and preview area
- At bottom: Experiment execution area

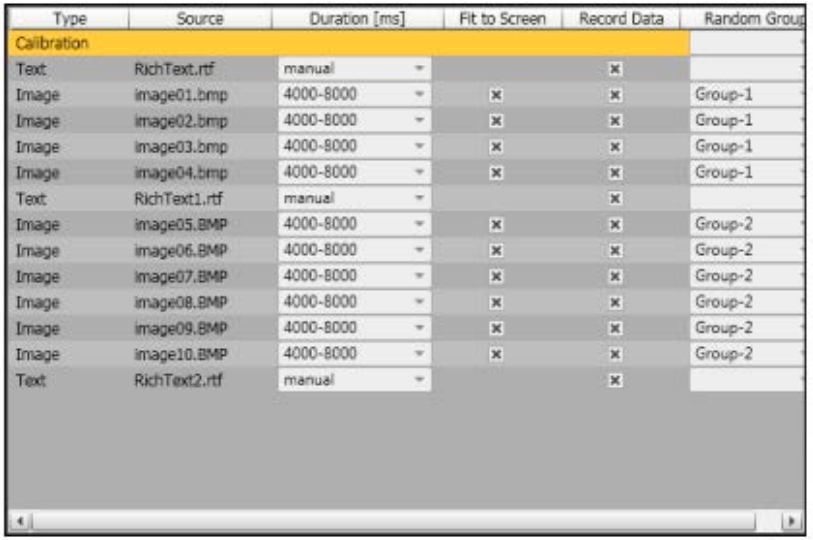


SMI Eye - Tracking

Experiment Center

SMI Experiment Center is designed to make gaze tracking experiments and visual stimuli creation a snap.

- New
  - Text
  - Images/pictures
  - Websites
  - Video/movie
  - Screen recording with gaze cursor
- All stimuli can be presented in any order
- Grouping and randomization of stimuli
- Precision timer or user controlled duration
- Preview and dry run experiments



Type	Source	Duration [ms]	Fit to Screen	Record Data	Random Group
Calibration					
Text	RichText.rtf	manual		✕	
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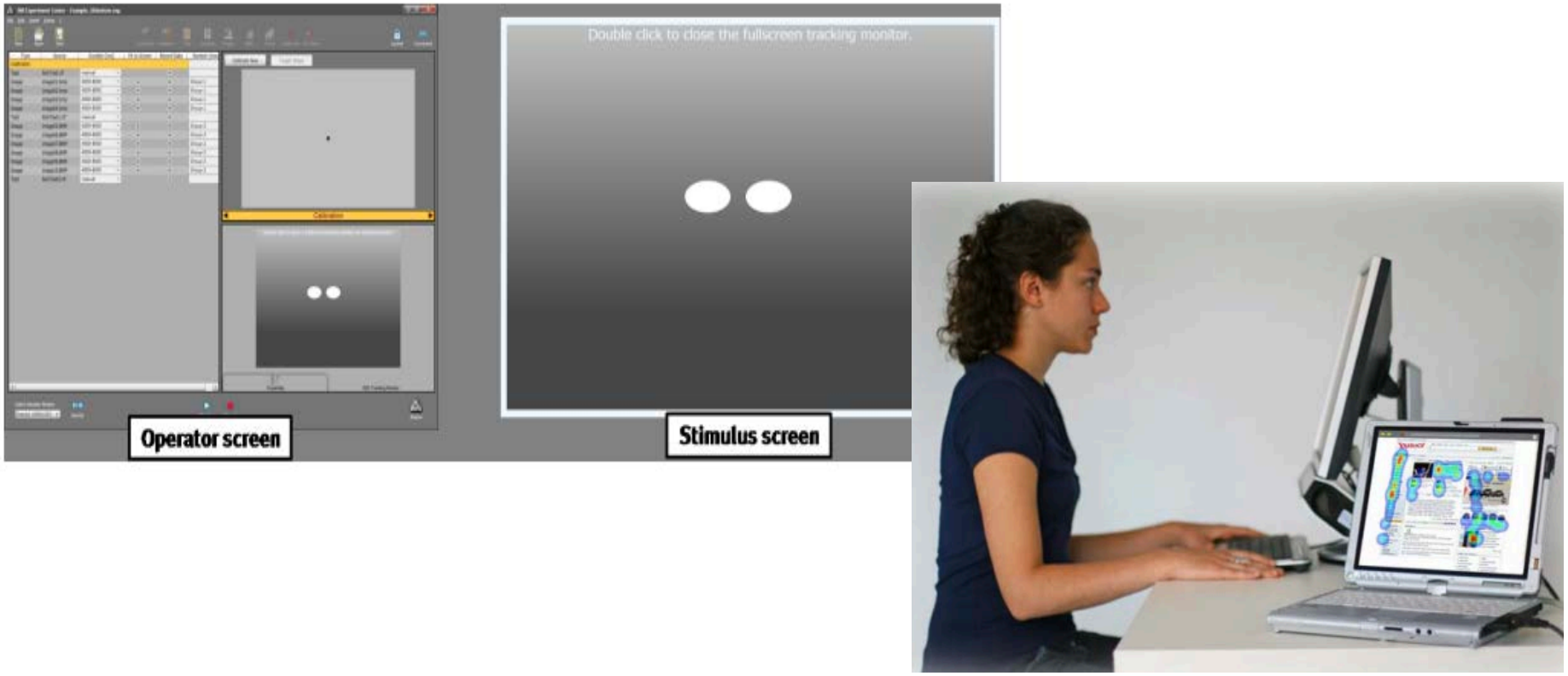
Image	image02.bmp	4000-8000	✕	✕	Group-1
Image	image03.bmp	4000-8000	✕	✕	Group-1
Image	image04.bmp	4000-8000	✕	✕	Group-1
Text	RichText1.rtf	manual		✕	
Image	image05.BMP	4000-8000	✕	✕	Group-2
Image	image06.BMP	4000-8000	✕	✕	Group-2
Image	image07.BMP	4000-8000	✕	✕	Group-2
Image	image08.BMP	4000-8000	✕	✕	Group-2
Image	image09.BMP	4000-8000	✕	✕	Group-2
Image	image10.BMP	4000-8000	✕	✕	Group-2
Text	RichText2.rtf	manual		✕	

SMI Eye - Tracking

Experiment Center



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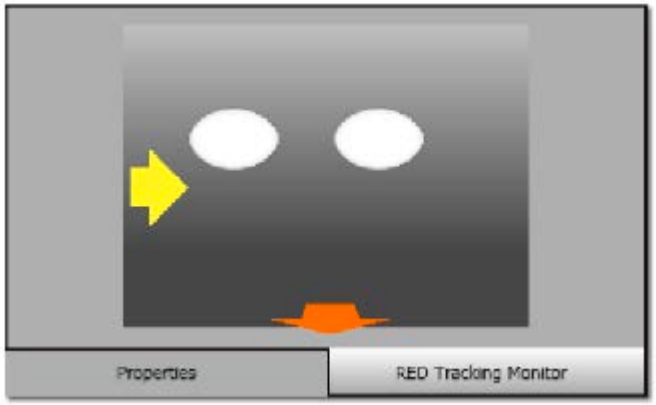
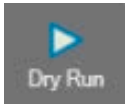
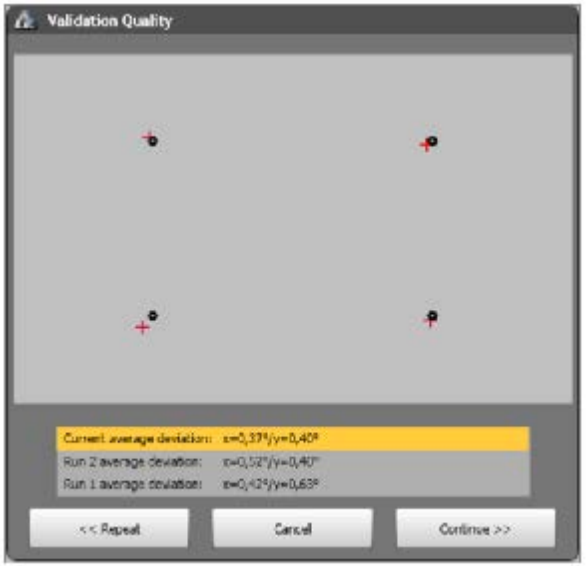
Experiment Center - User Testing

Check for eye-position → Dry run → User Calibration







SMI Eye - Tracking

Data analysis – BeGaze

BeGaze provides quick and comprehensive analysis and visualization on eye tracking data and stimuli. BeGaze greatly simplifies monocular and binocular tracking data analysis by structuring the information on stimuli and subjects, as well as displaying the results as meaningful graphs and visuals – all in one advanced application.

Results:

- Visual attention analysis with scan path, bee swarm, heat map and focus map diagrams on still and dynamic stimuli.
- Visual search pattern analysis based on user-defined areas of interest, also dynamically changing or video.
- KPI (Key Performance Indicator) Highlights.
- Quantitative analysis of saccades, fixations, blinks and reaction times to user-defined events.
- Video and bitmap export of scanpath and attention maps.
- Fully configurable statistics export with grouping and sorting functions.
- Grouped analyses of subjects.

SMI Eye - Tracking

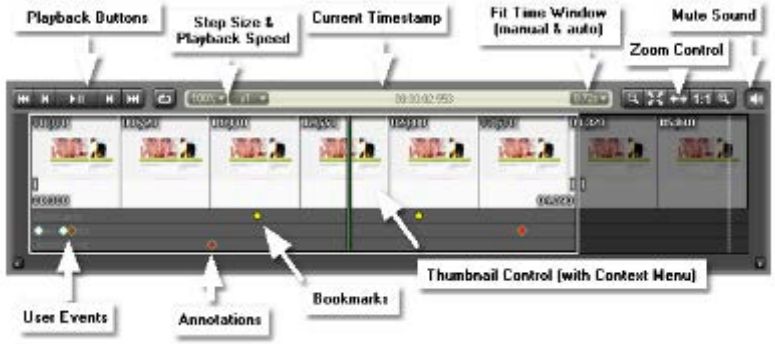
Data analysis – BeGaze

Data selection view: On the left side of the screen, you find the views toselect and restrict the data to eavluate. In the AOI editor the left view serve to create and edit AOIs.

Subject Usercam and audio: if the user videos (recorded with a webcam in Experiment Center 2.4) are available , the video corresponding to the selected subject is shown here. this view can be minimized to ignore the user video and audio completely. When the view is visible, the recorded audio is played back as well.

Main view: On the upper right, the main view displays the corresponding diagram, the AOI preview or the statistics.

Control view: On the lower right, a control viewoffers individual commands for operating the displayIn the main view. When the webcam view is present and its panel is not minimized the subject audio is played instead of any sound the stimulus might have.



SMI Eye - Tracking

BeGaze 2.4 provides various data views to analyze gaze data:

In the AOL editor you define the AOLs (Areas of Interest) that should be evaluated for the stimulus

The Gaze Replay displays a quick overview of all stimuli associated to a subject, wit ha visualization similar to the scan path one

The Bee Swarm displays a raw gaze data overlay over the stimulus image/stimulus video

The Scan Path displays a gaze data (raw or eye events) overlay over the stimulus image/stimulus video

The focus map shows gaze patterns over the stimulus image visualized as a transparent map

The heat map shows gaze pattern over the stimulus image visualized as a colored map

SMI Eye - Tracking

BeGaze 2.4 provides various data views to analyze gaze data:

The Key Performance Indicators displays relevant statistical data for each defined AOI over the stimulus image.

The Gridded AOIs displays relevant statistical data for an automatically defined grid of rectangular AOIs over the stimulus image

The AOI Sequence Chart displays the AOI hit order over time

The Binning Chart gives a statistical overview of AOIs hits per binning frame

The Event statistics computes diverse statistics based on events and AOIs hits

The Reading Statistics computes statistics for reading experiements based on automatic generated AOIs

The Line Graph displays x and y directions of gaze data plotted as graphs over time and events displayed in a timeline

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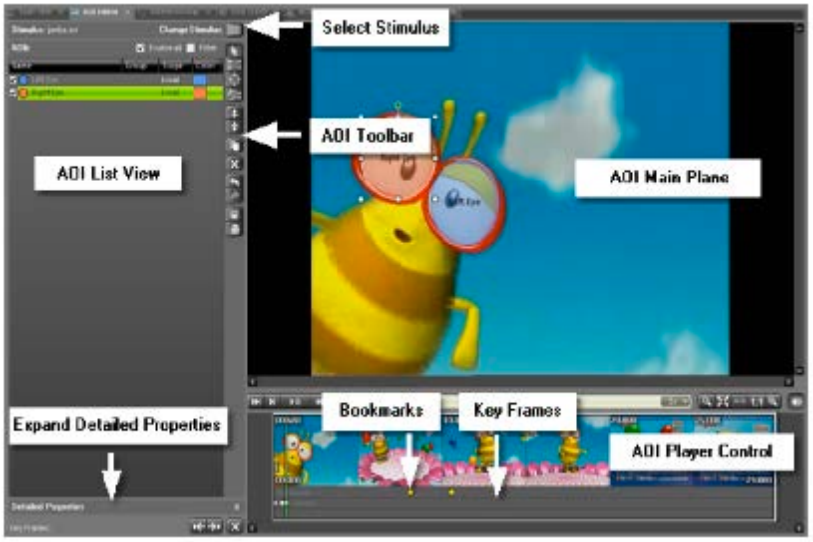
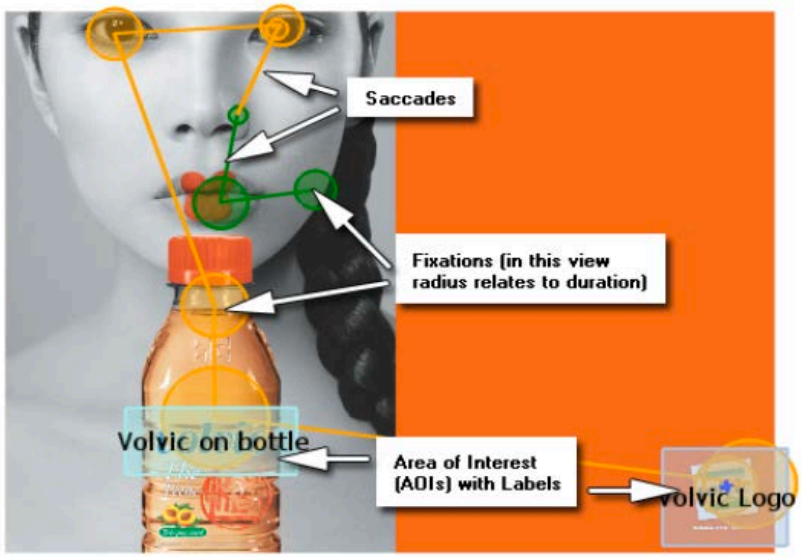
Data analysis – BeGaze

Area of Interest (AOI)



Scan Path



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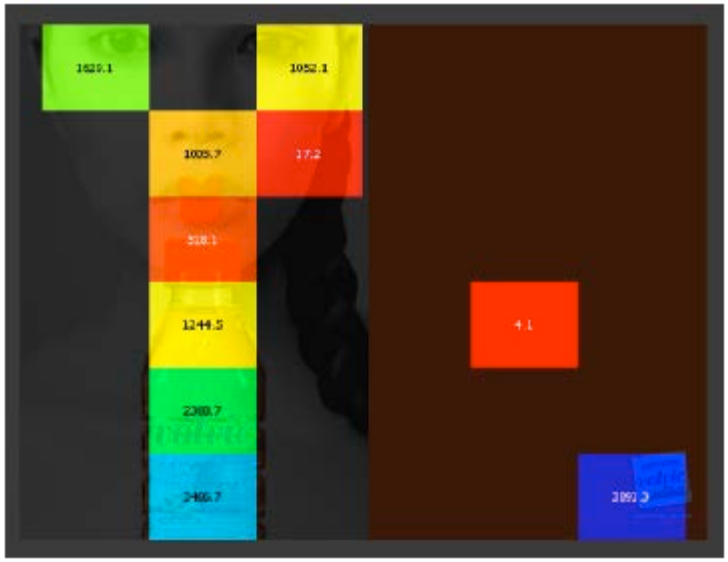
Data analysis – BeGaze

Key Performance

Gridded AOIs



SMI Eye - Tracking

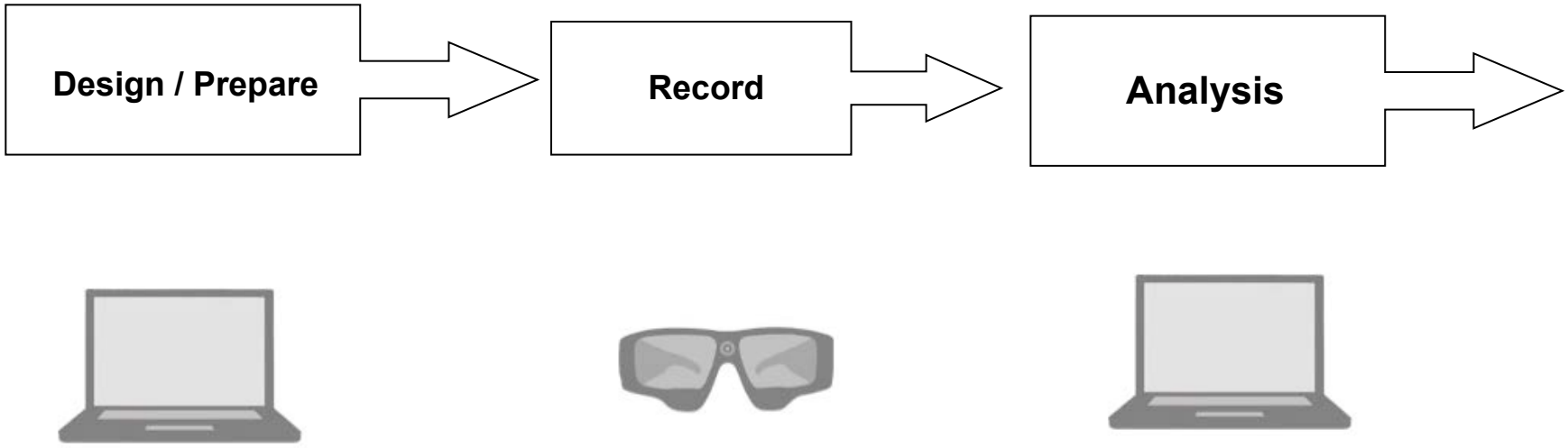
Data analysis – BeGaze

Export Raw Data (csv, xls)

SMI Eye-Tracking Glasses

Whether you are a market research professional, usability expert or academic researcher who analyzes visual perception in real-world and virtual environments, discover the power of SMI Eye Tracking Glasses, the new mobile gaze tracking device by SMI SensoMotoric Instruments.

SMI Eye-Tracking Glasses



The eye tracking glasses are unobtrusive, robust and designed for a broad range of mobile eye tracking studies, such as shelf-testing, out-of-home research, usability studies on mobile devices, driving research, visual perception research or analysis of training methods in professional sports.

SMI Eye-Tracking Glasses

Design / Prepare

When designing your experiment, determine participant properties and questionnaires to collect during your study and choose calibration and hardware settings. Set up the SMI Eye Tracking Glasses with your participant and perform a calibration/validation.

Record

You have three options to record the scene video and eye tracking data with SMI Eye Tracking Glasses. Use the Recording Unit for fully mobile data collection. Choose the SMI-ETG Laptop for live observation and real-time data access via the SMI SDK, or combine the advantages of the SMI-ETG Laptop and the Recording Unit for full flexibility

Analysis

Watch your scene videos with gaze overlay in SMI BeGaze analysis software. Use SMI Semantic Gaze Mapping to efficiently quantify and visualize consolidated eye tracking data taken from multiple participants on target areas. Export statistics and visualizations like heat maps and key eye tracking metrics (KPIs).

SMI Eye-Tracking

Research Projects

- Information Interaction of Academics During their Document Triage Activities
- Interacting with Information on small screen displays
- Observing User's Gaze Interaction During First Person Adventure Games
- Tracking Consumer's Visual focus when Interacting with Advertisement Attachments
- Usability of Cyprus University of Technology with specific target (Erasmus and Bus stations)
- Facial recognition
- User focus during fast poster scanning

SMI Eye - Tracking

References

- http://www.eyetracking-glasses.com/fileadmin/user_upload/documents/smi_etg_flyer.pdf
- http://www.smivision.com/fileadmin/user_upload/downloads/product_flyer/prod_smi_experiment_suite_360_.pdf
- http://www.smivision.com/fileadmin/user_upload/downloads/product_flyer/prod_smi_begaze.pdf
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