

Tobii Pro Lab
Product Description

1 Introduction

1.1 Overview

This document describes the features and functionality of **Tobii Pro Lab**. It is a powerful, versatile, and comprehensive software to support the entire research workflow for eye trackers from Tobii Pro. The software is comprised of three modules: Designer, Recorder, and Analyzer. Pro Lab is available in four editions: **Full Edition**, **Presenter Edition**, **Analyzer Edition**, and **VR 360 Edition**. The Full Edition contains all three modules, the Presenter Edition contains Designer, Recorder/Stimuli Presentation and a part of Analyzer's functionality, and the Analyzer Edition contains only the Analyzer module.



This document applies to Tobii Pro Lab. The software is continuously being developed and refined. Please visit www.tobiipro.com for the most recent specifications for the software and for the latest version of this document.

1.2 Modules

1.2.1 Designer

In the Designer module you can create experiments based on timelines consisting of different stimuli. You can also edit stimuli presentation settings like display position, background color, presentation time and stimulus advancement methods, (i.e. end on a mouse click or key press to adapt your experiment). Here you also have a preview of what the stimuli will look like on the screen.



The Designer module works with selected screen-based eye trackers from Tobii Pro and with Tobii Pro VR Integration, i.e., an eye tracker integrated into the HTC Vive VR Headset, but not with Pro Glasses 2.

1.2.2 Recorder

In the Recorder module you can configure eye trackers from Tobii Pro and present different stimuli, with high timing accuracy (refer to the document entitled "Timing Guide for Stimulus Display in Tobii Pro Lab"). You can also calibrate, record eye tracking data, mouse clicks and key presses, as well as Galvanic Skin Response (GSR) data from Shimmer3 devices. A Moderator tool is available for live viewing of the track status, stimuli displayed and gaze data.



The Recorder module works with selected screen-based eye trackers from Tobii Pro and with Tobii Pro VR Integration, i.e., an eye tracker integrated into the HTC Vive VR Headset, but not with Pro Glasses 2.

1.2.3 Analyzer

The Analyzer module allows you to replay, visualize and analyze your recorded data. It provides data-filtering features, visualizations and the ability to export data for presentations and for further processing in third-party software. In addition, for Pro Glasses 2 based projects, it also provides manual and automatic fixation mapping.

1.3 License Models

Pro Lab has two different license models; a *perpetual*-based license model and a *subscription*-based license model. A subscription license gives you access to the latest software versions as soon as they become available if you have a valid subscription contract. With a perpetual license you receive one year of free upgrades. One- to four-year upgrade contracts are available for perpetual licenses.



If using the subscription-based model, Pro Lab must connect to the internet at least once every 14 days to validate the license. Failure to do this will result in the software ceasing to function.

1.4 System Requirements

For information about Pro Lab's system requirements, see the document entitled "Tobii Pro Lab and Studio System

Requirements" which is available on www.tobiiipro.com.

2 Software Features and Editions

2.1 Designer

Feature	Presenter	Analyzer	Full	VR 360
Design experiments with multiple Timelines, image, and video stimuli	•		•	•
Batch editing of stimuli settings	•		•	•
Use multiple stimuli advance options, either alone or in combination (advance on time, key press, mouse click)	•		•	•
Configure stimulus onset markers (TTL) for synchronization purposes	•		•	•

2.2 Recorder

Feature	Presenter	Analyzer	Full	VR 360
Scene camera project (support for real world experiments using screen based eye trackers)	•		•	
Configure eye tracker settings	•		•	
Define experiment participants	•		•	•
Calibrate eye tracker (regular and infant calibration)	•		•	•
Numeric calibration results (accuracy and precision values)	•		•	
Present image and video stimuli	•		•	•
Record eye tracking, mouse, and keyboard data	•		•	•
Recording of galvanic skin response data from Shimmer3 GSR+ sensors	•		•	•
Moderator view: track status, stimuli displayed and gaze data live	•		•	•
Send stimulus onset markers (TTL) for synchronization purposes	•		•	•
Receive TTL-in markers and the value for synchronization (available for Pro Spectrum and Tobii Pro TX300 eye trackers only)	•		•	

2.3 Analyzer

Feature	Presenter	Analyzer	Full	VR 360
Replay of recordings	•	•	•	•
Import Tobii Pro Glasses 2 recordings		•	•	
Manual fixation mapping onto Snapshot images (Pro Glasses 2 projects only)		•	•	
Automatic fixation mapping onto Snapshot images (Pro Glasses 2 projects only)		•	•	
Create and edit static and dynamic Areas of Interest (AOIs) on images and videos		•	•	•
AOI Tags and Grouping (static and dynamic AOIs)		•	•	•
Log Events for behavioral coding		•	•	•
Times of Interest: define time intervals based on recording and logged Events		•	•	•
Selecting a frame as background and pairing it with Time of Interest (Screen and Scene camera projects only).		•	•	
Plot gaze x and y coordinates as well as eye movement velocity over time		•	•	•
Plot and visualize galvanic skin response (GSR) data over time (together with gaze video replay and eye movements)		•	•	•
GSR data analysis: noise reduction filters and detection of Skin Conductance Responses (SCRs) and Event Related SCRs		•	•	•
Static Heat Map Visualizations on images		•	•	•
Static Gaze Plot Visualizations on images		•	•	•
Video export of recordings and recording segments	•	•	•	
Export eye tracking metrics		•	•	•
Export Event and time interval based metrics		•	•	•
Export GSR Metrics		•	•	•
Export visualizations as images (.png and .jpg)		•	•	•
Export numeric calibration results (accuracy and precision values)	•	•	•	
Export calibration results as images (.png format)	•	•	•	

2.3.1 Data Export

Feature	Presenter	Analyzer	Full	VR 360
Recording data to text file (.tsv)	•	•	•	•

Currently available data export fields:	Available coordinate systems	Screen-based eye trackers from Tobii Pro	Pro Glasses 2	Scene camera
Project name		•	•	•
Export date		•	•	•
Participant name		•	•	•
Participant variables		•	•	•
Recording name		•	•	•
Recording date		•	•	•
Recording start time		•	•	•
Recording duration		•	•	•
Timeline name		•		•
Recording fixation filter name		•	•	•
Snapshot fixation filter name			•	
Recording software version		•		•
Recording resolution width		•		•
Recording resolution height		•		•
Recording monitor latency		•		•
Calibration results		•	•	•
Recording timestamp		•	•	•
Eye tracker timestamp		•		•
Gaze point X	RCSpx/SCCSpx	•	•	•
Gaze point Y	RCSpx/SCCSpx	•	•	•
Gaze point left X	RCSpx/SCCSpx	•		•
Gaze point left Y	RCSpx/SCCSpx	•		•
Gaze point right X	RCSpx/SCCSpx	•		•
Gaze point right Y	RCSpx/SCCSpx	•		•
Gaze 3D position left X			•	
Gaze 3D position left Y			•	
Gaze 3D position left Z			•	
Gaze 3D position right X			•	
Gaze 3D position right Y			•	
Gaze 3D position right Z			•	
Gaze 3D position combined X			•	
Gaze 3D position combined Y			•	
Gaze 3D position combined Z			•	

Gaze 3D position left X			•	
Gaze 3D position left Y			•	
Gaze 3D position left Z			•	
Gaze 3D position right X			•	
Gaze 3D position right Y			•	
Gaze 3D position right Z			•	
Gaze direction left X	Normalized coordinates	•	•	•
Gaze direction left Y	Normalized coordinates	•	•	•
Gaze direction left Z	Normalized coordinates	•	•	•
Gaze direction right X	Normalized coordinates	•	•	•
Gaze direction right Y	Normalized coordinates	•	•	•
Gaze direction right Z	Normalized coordinates	•	•	•
Pupil position left X			•	
Pupil position left Y			•	
Pupil position left Z			•	
Pupil position right X			•	
Pupil position right Y			•	
Pupil position right Z			•	
Pupil diameter left		•	•	•
Pupil diameter right		•	•	•
Validity left		•		•
Validity right		•		•
Eye position left X	RCSmm	•		•
Eye position left Y	RCSmm	•		•
Eye position left Z	RCSmm	•		•
Eye position right X	RCSmm	•		•
Eye position right Y	RCSmm	•		•
Eye position right Z	RCSmm	•		•
Gaze point left X	RCSmm, RCSpx	•		
Gaze point left Y	RCSmm, RCSpx	•		
Gaze point right X	RCSmm, RCSpx	•		
Gaze point right Y	RCSmm, RCSpx	•		
Eye movement type		•	•	•
Gaze event duration		•	•	•
Eye movement type index		•	•	•
Fixation point X	RCSpx/SCCSpx	•	•	•
Fixation point Y	RCSpx/SCCSpx	•	•	•

Event		•	•	•
Event value		•		•
Presented Stimulus name		•		
Presented media name		•		
Presented media width		•		
Presented media height		•		
Presented media position X	RCSpx	•		
Presented media position Y	RCSpx	•		
Original media width		•		
Original media height		•		
Gaze point X	MCSnorm/ SCCSnorm	•		•
Gaze point Y	MCSnorm/ SCCSnorm	•		•
Gaze point left X	MCSnorm/ SCCSnorm	•		•
Gaze point left Y	MCSnorm/ SCCSnorm	•		•
Gaze point right X	MCSnorm/ SCCSnorm	•		•
Gaze point right Y	MCSnorm/ SCCSnorm	•		•
Fixation point X	MCSnorm	•		
Fixation point Y	MCSnorm	•		
Recording media name			•	
Recording media width			•	
Recording media height			•	
Media width			•	
Media height			•	
Mapped gaze data X			•	
Mapped gaze data Y			•	
Mapped eye movement type			•	
Mapped eye movement type index			•	
Mapped fixation point X			•	
Mapped fixation point Y			•	
Automatically-mapped gaze data score			•	
Automatically-mapped gaze data X			•	
Automatically-mapped gaze data Y			•	
Manually-mapped gaze data X			•	
Manually-mapped gaze data Y			•	
AOI hit			•	
Gyro X			•	
Gyro Y			•	

Gyro Z			•	
Accelerometer X			•	
Accelerometer Y			•	
Accelerometer Z			•	
Galvanic skin response (GSR)		•		•

2.3.2 Metrics Export

Feature

Metrics can be exported to two different formats:

- An Excel report — for easy readability in Excel or compatible applications. (This is the format used in previous versions of Pro Lab.).
- An interval based TSV file — for import into statistical analysis software like R/SPSS/MATLAB.

Currently available metrics:

Interval Duration
Interval Start
Event Count
Event Count (includes zeroes)
Time To First Event
AOI Time-To-First Fixation
AOI First Fixation Duration
AOI Total Visit Duration
AOI Total Visit Duration (includes zeroes)
AOI Average Visit Duration
AOI Visit Count
AOI Visit Count (includes zeroes)
AOI Total Fixation Duration
AOI Total Fixation Duration (includes zeroes)
AOI Average Fixation Duration
AOI Fixation Count
AOI Fixation Count (include zeroes)
GSR Average
ER SCR Amplitude
SCR Count
Total Glance Duration Total*
Glance Duration Average *
Glance Count*
Glance Duration Maximum*
Glance Duration Minimum*



*The five glance metrics are only exported in the interval based TSV file.



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