Immersive VR Research

Why run eye tracking studies in VR environments?

- You have full control over your study and know exactly where the participants' visual attention is at every moment of the experience.
- Any type of simulated environment can be designed, and research scenarios can be easily and quickly repeated - all in a timely, cost-efficient manner.
- Dangerous, inaccessible, or distressing scenarios, that cannot be studied in reality, can now be recreated in a virtual world.
- Eye tracking in VR adds the possibility of creating more immersive research scenarios by enabling natural interactions based on gaze.

tobii pro/vr integration

Tobii Pro VR Integration

The Tobii Pro VR Integration is a retrofitted version of the HTC Vive head-mounted display (HMD) with fully-integrated eye tracking technology from Tobii. With our solution, you will have:

- Seamless and unobtrusive eye tracking integration that does not interfere with the user experience of VR
- Robust and high-performing eye tracking of a majority of the world population at 120 Hz, through most prescription glasses
- Advanced slippage compensation to ensure consistent calibration and data quality even when the HMD moves
- Eye tracking data can be accessed both live and for post analysis to create interactive scenarios using the Tobii Pro SDK

Technical Specifications

Eye tracking specifications	
Gaze data output frequency (binocular)	120 Hz
Estimated accuracy	0.5°
Calibration procedure	5 point
Trackable field of view	110° (Full HTC Vive field of view)
Slippage compensation	Yes
Pupil measurement	Yes, relative pupil size
Data output (for each eye)	Timestamp (Device and system) Gaze origin Gaze direction Pupil position Absolute pupil size
Interface	Tobii Pro SDK (.Net/Matlab/ Python/C)
3D engine compatibility	Unity, WorldViz Vizard

> "In my psychology research with eye tracking inside of VR, I know exactly what my study participants are looking at and what emotional responses are triggered by the visual stimuli."
>
> William Hamilton, researcher and developer at Stockholm University

Application Areas

The Pro VR Integration opens up entirely new opportunities for behavioral studies with scenarios that were not possible to recreate before. Here are a few examples:

Psychology – treat anxiety disorders, phobias, and PTSD in fully-controlled and safe environments, while knowing exactly how your visual stimuli trigger certain emotional responses.

Professional Performance – train workers in high-risk industries or safety-critical roles to see how they perform under pressure and make operational decisions - all without putting your team in harm's way.

Market and Shopper Research – get insights into how consumers respond to brand messaging, packaging, and store environments, without having to bring participants into the store or physically produce materials.

Usability – test 3D-models of products in the development stage, without the need to build the actual expensive and time-consuming prototypes, all while capturing visual responses and engagement.

Integration Specifications	
Hardware integration	HTC Vive Business Edition with Tobii Eye Tracking retrofitted hardware, no external devices or connectors needed
Eye tracking processing	Tobii EyeChip™ASIC
PC requirement	HTC Vive-ready PC

Tobii Pro provides eye tracking research solutions and services designed to deepen understanding of human behavior. Headquartered in Sweden, with local teams active on six continents, we help business and science professionals to further their research.

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