



think sustainable | test virtually

# ViSUS PRO – The Potential of XR-Technologies

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# Motivation



Who likes taking  
measurements at  
night?

# How to Accelerate and Change our Way of Working?

→ The Virtual Environment  
**ViSUS PRO**



# What is ViSUS PRO?



# The Potential of XR-Technologies

ViSUS PRO Core Technology: Varjo XR-3

→ Ultra-high-resolution XR for perceptual and physiological studies  
(up to 200Hz,  
46 Eyetracking Parameter)



# The Potential of XR-Technologies

## Methodology

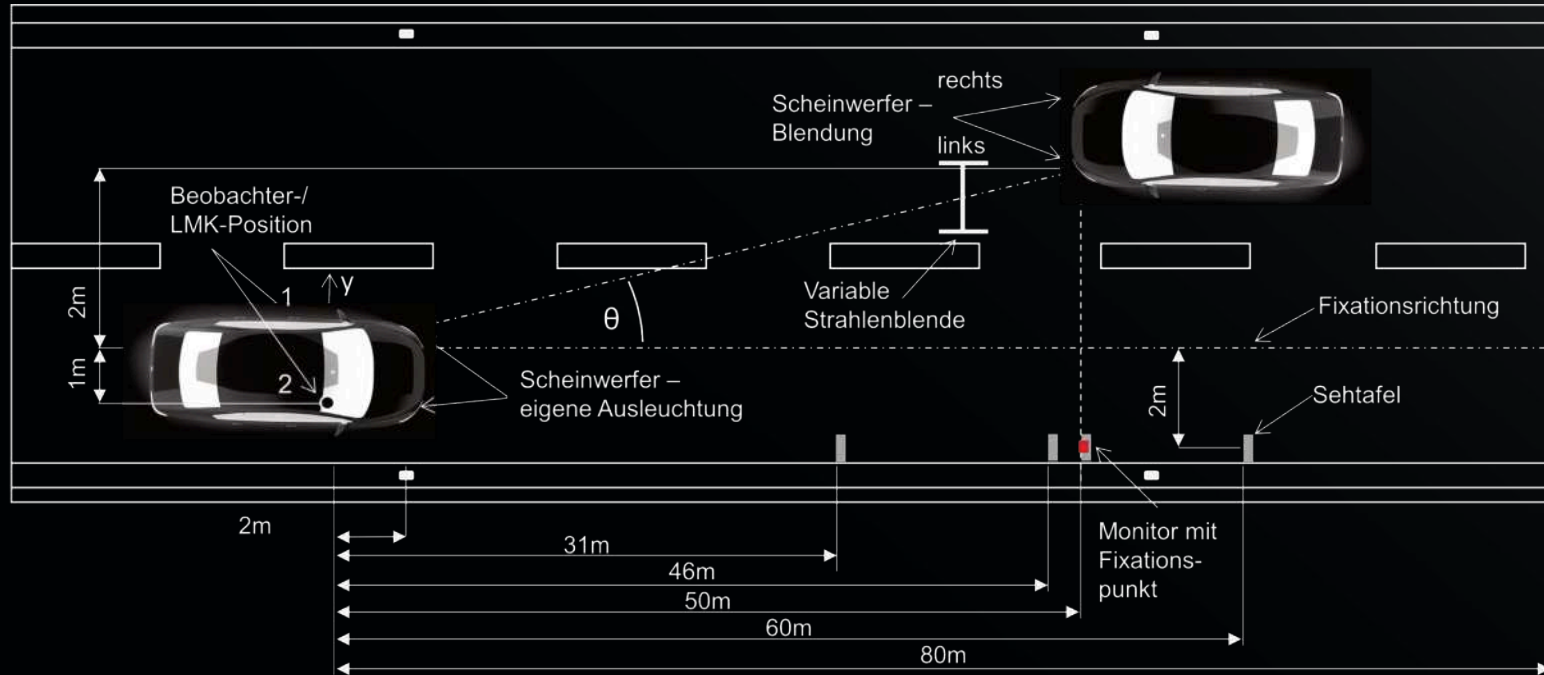


Figure 1: Test setup of the real and virtual study [1]



## Transfer of a Real-World Test Setup into a Virtual Environment for Validation

# The Potential of XR-Technologies

## Preliminary findings – Discomfort Glare and Pupil Diameter

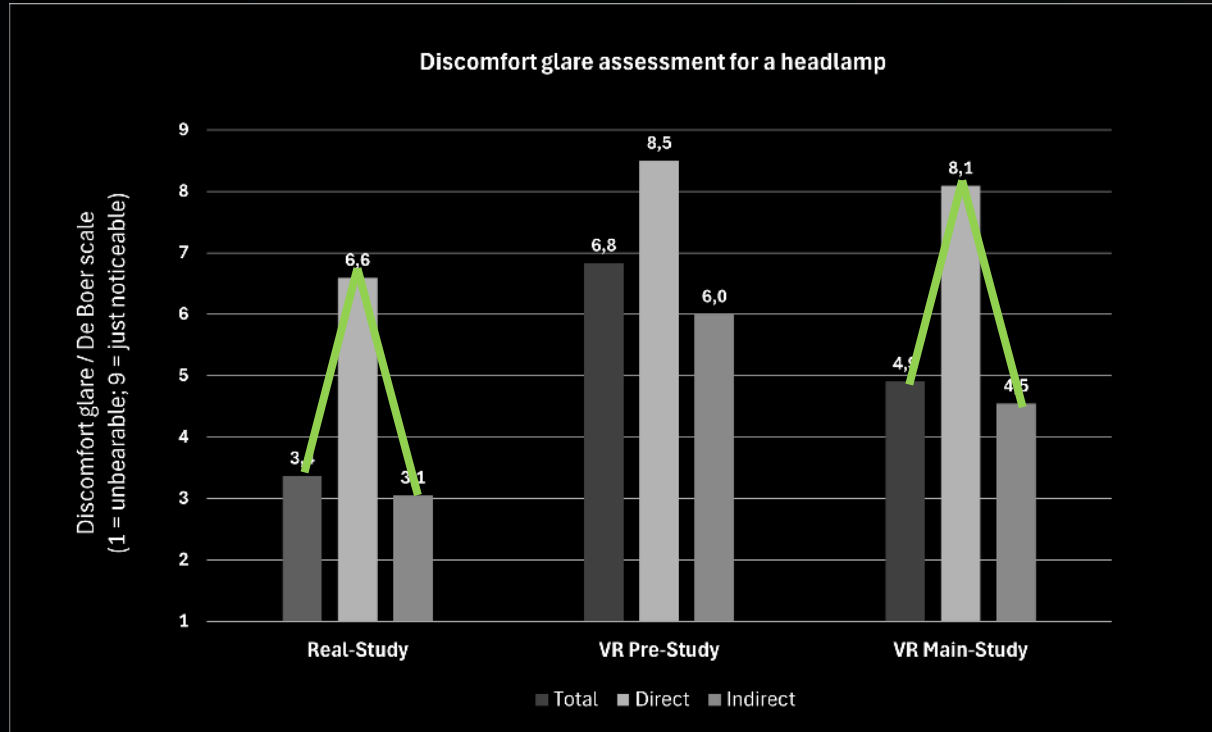


Figure 2: Comparison of the De Boer rating mean values of the real test vs. VR test (real test results of [1])

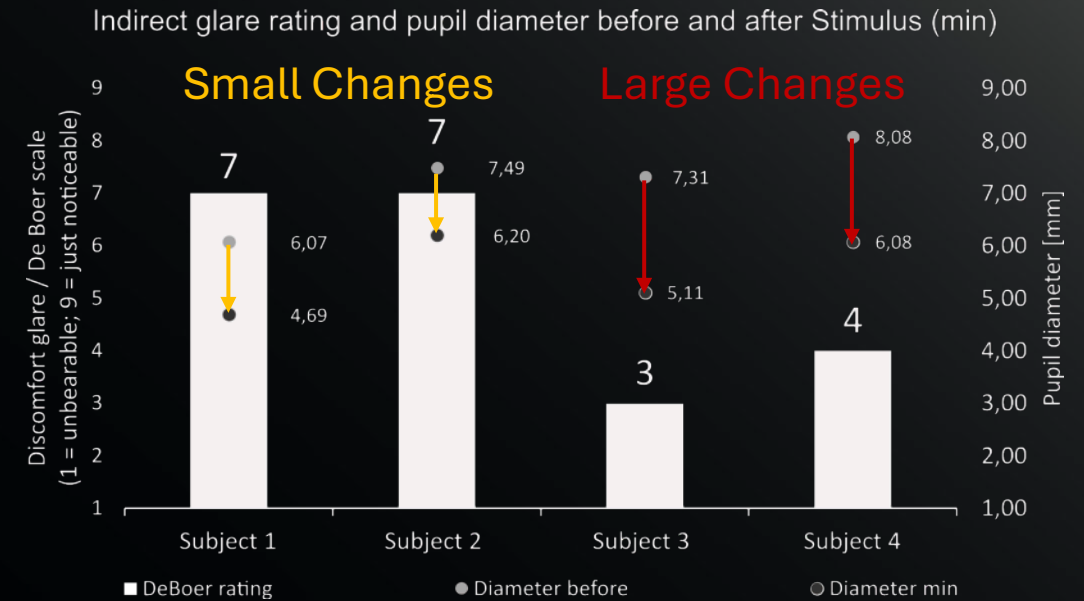
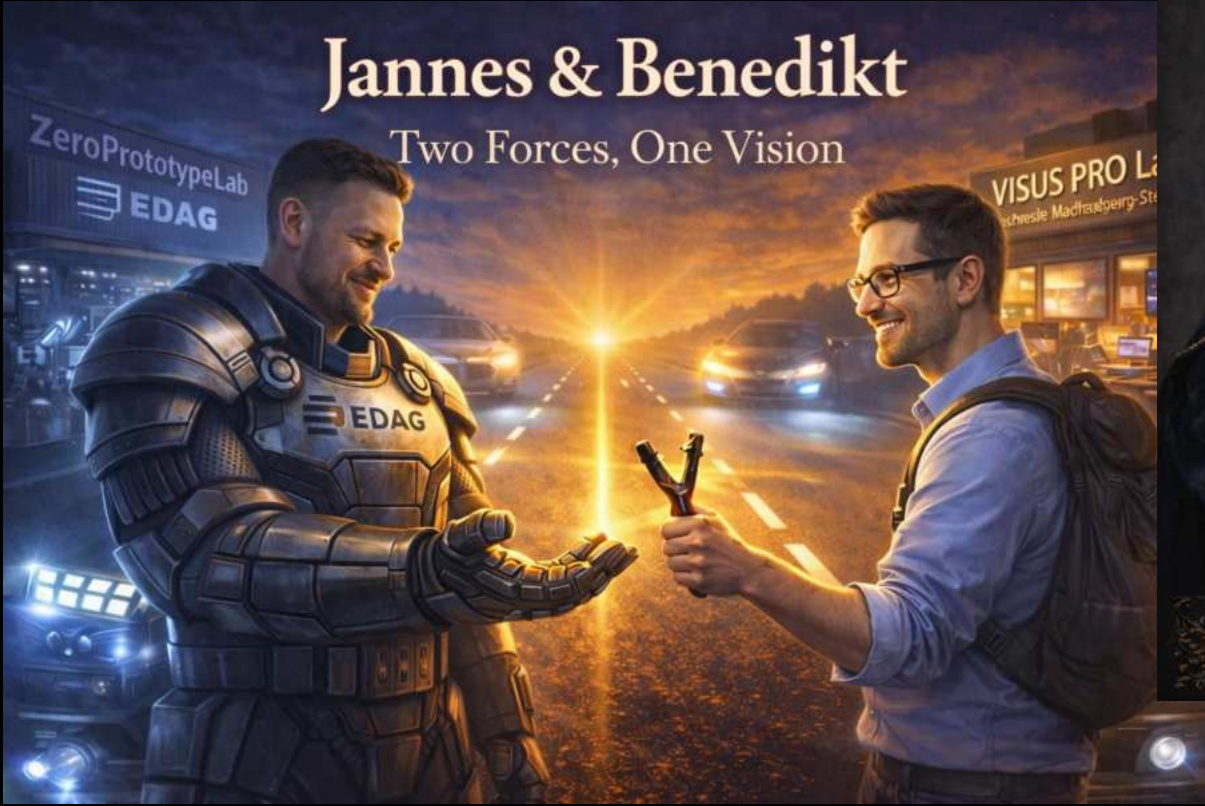


Figure 3: Observed Correlation between subjective rating and changes in pupil diameter (see also [2])

## High Potential for Evaluating Innovative Lighting Functionalities and User Experiences

# How to Unfold the Full Potential – Together



AI-generated images (ChatGPT)

## Building Strong Industry–Academia Collaborations

# From Study Results to Lighting Concept Visualization

Remote Phosphor Rearlamp Concept – Collaborative Project with EDAG GmbH



**Meet us at  
Booth S17**

# TakeAways

Preset and upcoming **CHALLENGES**:

- Lighting systems become increasingly complex
- The Challenge of Designing and Validating User Experience
- The Need of shorter Design Loops

Our Scientific Contribution: **ViSUS PRO**

- Virtual Environment for Collaborative Design between Industry and Academia
- 24/7 Availability | Flexibility | Reproduceability



## Contact

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# Literature

- [1] **B. Kleinert**; *Anforderungen und Bewertungsmethoden für ein adaptives blendfreies Abblendlicht bei spiegelnden Fahrbahnoberflächen*, Dissertation, TU Ilmenau, 2016
- [2] **M. Robra, et. al.**; *EyeTracking of XR-Headsets and its Potential to Access Glare Virtually*; in ISAL 2025 Proceedings, Darmstadt, 2025