

## Towards a refined understanding of comfort in workspaces

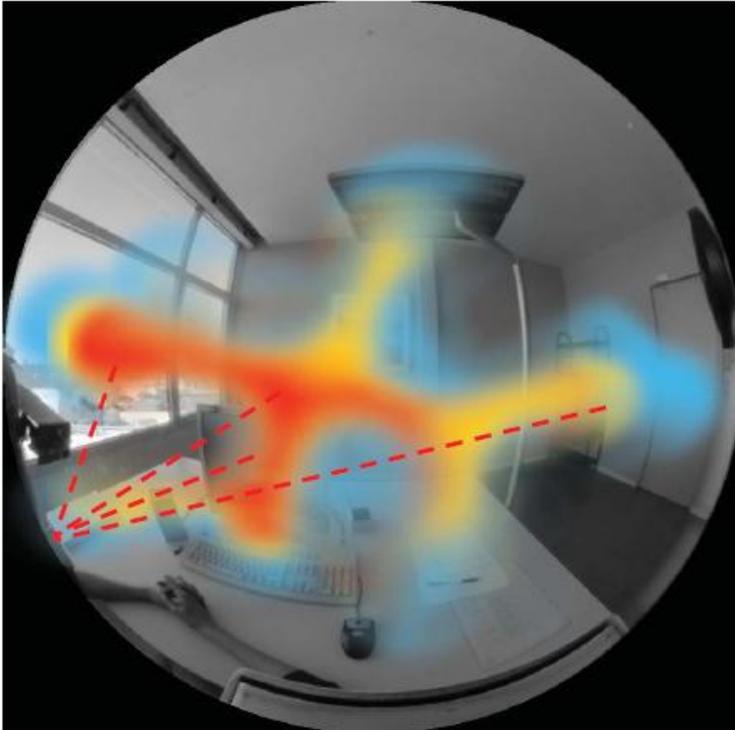
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### Abstract

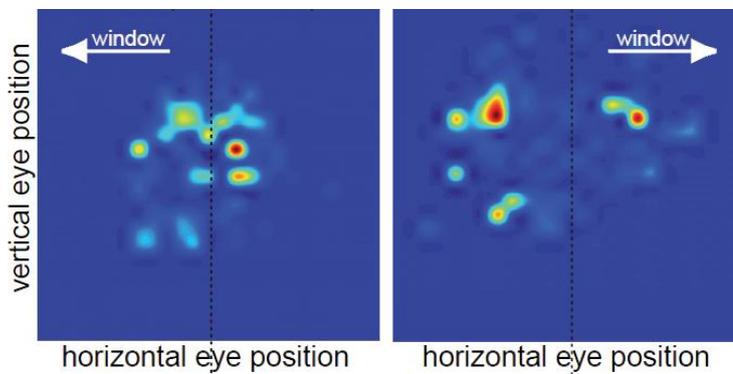
This interdisciplinary research aims at addressing a question common to the fields of architecture, building technology and psychophysics: are there objective relationships between perceived comfort, occupant response patterns and lighting conditions? The prospect of getting a grasp on these relationships immediately opens up new opportunities for improved workspace design – towards higher productivity and performance – and for further investigations on well-being in built spaces and a deeper understanding of people’s visual response to their environment.

The intent is to advance the state of the art in visual and thermal comfort assessment in interior spaces by including two new components: the relationship between lighting conditions and gaze patterns, and the impact of critical socio-cultural factors on perceived comfort. We will compare findings in two identical setups but that belong to very different overall contexts: one in Central Europe (Lausanne, Switzerland), one in the Middle East (Ras-Al-Kaimah, U.A.E.), so as to assess socio-cultural and climate-induced differences.

We will thus extend the objectification of comfort criteria beyond environmental factors and beyond geographical or climatic boundaries. With lighting – and more specifically visual and thermal comfort - being a key issue for workplace-related health and productivity, our results are critical for workplace design, ergonomics and architecture in a sustainable world.



**Figure 1: Investigating correlation of gaze patterns and light distribution will lead to better understanding of visual comfort in indoor environment.**



**Figure 2: Gaze data obtained in a non-standardized setting. Results are shown as heatmaps of gaze position while resting the eye after a normal visual task in an office setting.**