Open Bachelor/Master Thesis

Background

The use of eye movements and pupil dilation for eye-based human-computer interaction is a broad field of research. Different kinds of applications reaching from consciously using the eyes as input modality (e.g. by leveraging smooth pursuit eye movements) to passively observing the user’s eye behaviour to infer different cognitive or emotional states (e.g. evaluating fixations and saccades) have been developed and investigated. Yet, eye vergence, the simultaneous movement of both eyes in opposite directions to obtain focus, has only scarcely been used for eye-based HCI.

Research Goal

The aim of this thesis is an extensive/broad literature research to find and evaluate possible interaction scenarios for eye vergence movements for eye-based HCI. Additionally, depending on bachelor/master level, example applications that use eye vergence, e.g. as explicit input modality or passive indicator for attentive user interfaces, have to be developed and implemented.

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