

Effect of optical flow in the entire visual field on attentional blink

Shinya TAKAGAWA¹, Ken KIHARA¹, Sakuichi OHTSUKA¹

¹Graduate School of Science and Engineering, Kagoshima University

Abstract

Recently popularized see-through augmented-reality (AR) systems produce optical flow in the entire visual field. It is possible that this optical flow interferes with the visual information given by the AR system. Previous studies have shown that the optical flow generated in a limited background affects the visual attention when stimuli are presented successively at the central visual field [1]. However, the relationship between the optical flow of the entire field and the visual attention is still unclear. To address this issue, we used the attentional blink (AB) phenomenon [2]; with two targets embedded in a rapid stream of stimuli, identification of the second target becomes difficult if it occurs 200-500 ms after the first target (Fig.1A, 1B). We examined the effect of the optical flow induced by moving dots scattered across the entire visual field on AB (Fig.1C). The characteristics of the optical flow were varied by changing the direction, speed and number of moving dots (Fig.1D). The results of experiments revealed that there were no specific differences in AB size regardless of optical flow conditions (Fig. 1E). These results suggest that optical flow in the entire field may not have a significant impact on the visual attention in the environment of see-through AR.

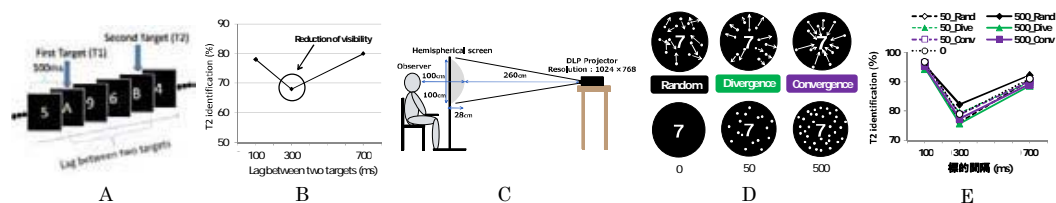


Figure 1. Figures used in the poster.

References

- 1) Arend, I., Stephen, J., & Shapiro, K-L. (2006). Task-irrelevant visual motion and flicker attenuate the attentional blink. *Psychonomic Bulletin & Review*, 13, 600-607.
- 2) Raymond, J-E., Shapiro, K-L., & Arnell, K-M. (1992). Temporary Suppression of Visual Processing in an RSVP Task: An Attentional Blink? *Journal of Experimental Psychology*, 18, 849-860.