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Preface

Special Issue on Clinical Vision Science

Much of what we know about the visual capability of individuals with visual or developmental disorders comes from applying vigorous methodology developed in basic research to the study of clinical patients. Moreover, results from basic research in vision science have formed the basis for the development of many clinical tests that are now routinely used in clinical settings. In this special issue of *Seeing and Perceiving*, we present six articles that cover the breadth and scope of clinical vision science, and demonstrate applications of basic research in a wide range of clinical topics.

We have two articles that address issues related to age-related changes in vision. In the first article, Qian et al. ask the question of how the range of useful stereoscopic depth perception is affected in the presence of monocular blur, which simulates monovision correction, a common option for correcting both distance and near vision for presbyopes. The authors reported that in the presence of monocular blur, D_{max} is reduced and D_{min} is elevated, resulting in a compressed range of useful stereoscopic depth perception. The study has implications for presbyopic patients who wear monovision corrections.

In the second article, Karas and McKendrick compare effects of aging on center-surround suppression in a contrast-perception task and a motion-direction discrimination task. Older adults show a larger surround-suppression effect compared with younger subjects only in the contrast-perception task, but not in the motion task. These results shed important light on the nature of the inhibitory processes in both normal aging and various neurological disorders.

Veridical judgment of object size and distance is important for many daily activities, including navigation and locomotion. Rand et al. explore the perceived distance of off-ground objects under conditions that simulate severely degraded vision. Their findings are relevant to applied research on visually based path planning and locomotion for people with visual impairment.

In relation to visual impairment, Castet and Crossland review and summarize different methods that are commonly used to measure and quantify fixation stability of people with normal vision and low vision. Their discussion of statistical tech-

niques for quantifying fixation stability in multimodal eye-position distributions is especially relevant to research on low vision.

Smith et al. test the hypothesis that patients with bilateral glaucoma, due to their constricted peripheral field, exhibit different eye movements compared with normally sighted individuals when viewing computer-displayed photographs of everyday scenes. Their results provide a new venue into understanding the functional deficits of glaucoma and its impact on everyday life.

Finally, Jeon et al. show that video-game training can improve the vision of adults with bilateral deprivation amblyopia caused by a history of bilateral congenital cataracts. These results add to the growing body of research suggesting that perceptual learning can be used as an effective treatment to improve vision.

We thank all the contributors for their enthusiasm, diligence and patience in working with us to bring this special issue to its fruition. We are indebted to the former Editor-in-Chief, Adam Reeves, and the current Editors-in-Chief, Concetta Morrone and Laurence Harris, and the managing staff at Brill, Michiel Thijssen and Margarita Cuevas Gozalo for their support and assistance. In putting together this special issue, we hope that the articles will stimulate new ideas and interests in clinical vision science.

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Guest Editors