<<视觉科学>>

图书基本信息

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内容概要

本书收纳了中科大校友的25篇关于视觉科学的代表性文章。
书的内容主要分为两大部分：Ⅰ，视觉神经科学；Ⅱ，视觉感知与认知。
其中，第一部分中的ⅠA部分（皮层前的处理过程）总共包含六章，分别涉及光感受器退化疾病的恢复、视皮层-顶盖系统的改变、视网膜神经节细胞与外膝体细胞的感受野特性以及视皮层对外膝体的反馈作用；ⅠB部分（皮层中的处理过程）用九章的篇幅涵盖了视皮层对图像和运动的处理、视皮层中视空间的映射和皮层反应特性的关系、注意的作用、知觉学习以及衰老对视皮层处理的影响等内容；ⅠC部分（眼动系统）中的三章内容重点介绍了眼动神经元的反应特性和眼动指令信号的可靠性。
第二部分包括七章，介绍了基本的视觉感知过程，如早期视觉通路中的分辨能力、对距离的感知、对等亮度条件下彩色运动图形的感知、对拓扑结构的感知以及特征分类等。
此外，还涉及计算视觉、视觉工作记忆和蜜蜂的决策制定等主题。

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书籍目录

章节摘录

These authors find a preponderance of LGNdcells preferring horizontal and vertical stimuli and suggest that cortical afferents areinvolved in the generation of LGNd orientation sensitivity （see also Daniels et al.，1977）. Other authors report that the orientation biases of LGNd relay cells strictlyreflect those of their retinal afferents （Soodak et al.，1987）. These authors favorthe idea that the orientation sensitivity of LGNd relay cells originates in the retinaand reflects the anatomically generated （Leventhal and Schall，1983），linear ，orientation-sensitive response （Levick and Thibos，1982）of the retinal ganglioncells providing their afferents. The present study is arguably the most exhaustive to date. We believe thatsome of the disagreements described above are more apparent than real andmay have resulted because previous studies included only relatively smallsamples of cells and，thus，differences in laminar location，eccentricity，polarangle，cell type could not be adequately controlled. For example，our findingsthat relay cells preferring different orientations are clustered and that radialand tangential orientations are overrepresented makes claims regarding theoverall distribution of preferred orientations based upon small samples of cellsespecially hard to interpret. For example，if cells are recorded mainly fromregions of the LGNd subserving the horizontal and vertical meridians，then anapparent preponderance of these orientations should result. Our finding thatthe radial bias is strongest in regions of the LGNd subserving the horizontalmeridian further complicates matters. It should be noted that our results are generally consistent with the ideathat the orientation-sensitive response of most LGNd cells is a direct reflectionof their retinal inputs （Soodak et al.，1987）. Evidence for this stems from ourfinding that the overall distributions of the orientation biases of LGNd cells aresimilar to those reported previously for retinal ganglion cells （Levick andThibos，1982; Leventhal and Schall，1983）and that the receptive fields ofmost of the cells we studied were consistent with the model proposed by Soodaket al.（1987）. Our results do not support the idea （Vidyasagar and Urbas，1982; Vidyasagar，1984）that LGNd relay cells are much more orientationsensitive than their retinal inputs. However，it should be noted that some ofthe most orientation-sensitive cells we studied exhibited "butterfly-shaped"orientation tuning curves even at relatively low spatial frequencies. A number

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编辑推荐

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《Vision Science（视觉科学）（全英文）》适合从事相关研究工作的人员参考阅读。

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