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Nota di contenuto	Cover; Half Title; Dedication; Title; Copyright; Contents; Preface to the First Edition; Preface to the Second Edition; Preface to the Third Edition; Preface to the Fourth Edition; PART I THE PHYSIOLOGICAL BASIS OF VISUAL PERCEPTION; Chapter 1: Light and Eyes; Light and the information it carries; The evolution of light-sensitive structures; The adaptive radiation of the vertebrate eye; Conclusions; Chapter 2: The Neurophysiology of the Retina; The retina of the horseshoe crab; The vertebrate retina; The retina as a filter; Conclusions; Chapter 3: Visual Pathways in the Brain The lateral geniculate nucleusThe striate cortex; Beyond the striate cortex; The human brain: Two visual pathways?; Dynamics and feedback in the visual pathway; Conclusions; PART II VISION FOR AWARENESS; Chapter 4: Approaches to the Psychology of Visual Perception; Marr's theory of visual perception; Connectionist models of visual perception; Chapter 5: Images, Filters, and Features: The Primal Sketch; Light, surfaces, and vision; The primal sketch; Multiple spatial filters; Other routes to the primal sketch; Energy models for feature detection; Some unresolved questions in multi-scale vision Illusory contours and orientation codingSummary; Chapter 6: Perceptual Organisation; Ambiguous pictures; Gestalt laws of organisation; Concealment and advertisement; Perceptual organisation in other species; Why do the Gestalt laws work?; Artificial intelligence

approaches to grouping; Finding texture boundaries; The neurophysiology of texture segmentation; Suppressive surrounds: Psychophysics; Beyond filters: Contours and surfaces; Conclusions; Chapter 7: Seeing a 3-D World; Binocular stereopsis; Pictorial cues to depth; Depth from motion; Integrating depth cues; Conclusions Chapter 8: The Computation of Image Motion First principles: Motion as orientation in space-time; Motion detectors; Encoding local velocity; A hierarchy of processing in the motion energy system: From V1 to MT; Global motion; Second-order and "long-range" motions; The integration of motion measurements; Motion from feature tracking; Spatial variations in the velocity field; Position, motion, and eye movements; Conclusions; Chapter 9: Object Recognition; Simple mechanisms of recognition; More complex recognition processes; Template matching; Feature analysis; Structural descriptions Marr and Nishihara's theory of object recognition Beyond generalised cones: Recognition by components; Viewpoint-dependent recognition; Discriminating within categories of objects: The case of face recognition; Static vs moving forms; Conclusions; PART III VISION FOR ACTION; Chapter 10: Introduction to the Ecological Approach to Visual Perception; J.J. Gibson's theory of perception; The control of human action; Conclusions; Chapter 11: Optic Flow and Locomotion; Optic flow and retinal flow; The visual control of insect flight; Visual control of posture and locomotion; Conclusions Chapter 12: Vision and the Timing of Actions

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### Sommario/riassunto

This comprehensively updated and expanded revision of the successful second edition continues to provide detailed coverage of the ever-growing range of research topics in vision. In Part I, the treatment of visual physiology has been extensively revised with an updated account of retinal processing, a new section explaining the principles of spatial and temporal filtering which underlie discussions in later chapters, and an up-to-date account of the primate visual pathway. Part II contains four largely new chapters which cover recent psychophysical evidence and computational model of early visi

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