

CONTENTS

Preface	page ix
Acknowledgements	xi
Part 1: Visual Pyramids and Neural Networks	1
E. Bienenstock & A. Gorea	
Pyramids and multiscale representations	3
E. H. Adelson, E. P. Simoncelli & W. T. Freeman	
Multidimensional pyramids in vision and video	17
A. B. Watson	
Self-similar oriented wavelet pyramids: conjectures about neural non-orthogonality	27
J. G. Daugman	
Issues of representation in neural networks	47
E. Bienenstock & R. Doursat	
Part 2: Visual Cortical Processing: From Perception to Memory	69
Y. Frégnac & A. Gorea	
Recent progress toward an understanding of experience-dependent visual cortical plasticity at the molecular level	73
M. F. Bear	
Synchronous neuronal oscillations in cat visual cortex: functional implications	83
C. M. Gray, A. K. Engel, P. Konig & W. Singer	
How many cycles make an oscillation?	97
Y. Frégnac	
Elements of form perception in monkey prestriate cortex	111
E. Peterhans & R. von der Heydt	
Manipulating perceptual decisions by microstimulation of extrastriate visual cortex	125
W. T. Newsome, C. D. Salzman, C. M. Murasugi & K. H. Britten	
Primal long-term memory in the primate temporal cortex: linkage between visual perception and memory	141
Y. Miyashita, N. Masui & S. Higuchi	
Part 3: Eye-movements and Vision	153
J. Findlay & Z. Kapoula	
The effect of cortical lesions on visuo-motor processing in man	155
C. Kennard	
Binocular eye-movements and depth perception	165
H. Coolewijn, J. van der Steen & L. J. van Rijn	
The parsing of optic flow by the primate oculomotor system	185
F. A. Miles, U. Schwarz & C. Busettini	
Current views on the visuo-motor interface of the saccadic system	201
J. A. M. Van Gisbergen, A. J. Van Opstal & A. W. H. Minken	

viii	Contents	
	Part 4: Tacit Assumptions in Vision Research	217
	A. Gorea & M. Imbert	
	Thoughts on the specific nerve energy	219
	A. Gorea	
	The duality of psycho-physics	231
	S. Klein	
	Some tacit assumptions in visual psychophysics	251
	C. W. Tyler	
	Hidden assumptions in seeing shape from shading and apparent motion	279
	S. Anstis	
	What’s up in top-down processing?	295
	P. Cavanagh	
	Tacit assumptions in the computational study of vision	305
	S. Ullman	
	Vision tells you more than “what is where”	319
	H. B. Barlow	
	Some strategic questions in visual perception	331
	B. Julesz	