

1. Record Nr.	UNISA996547970603316
Autore	Zhu Song-Chun
Titolo	Computer Vision [[electronic resource]] : Statistical Models for Marr's Paradigm / / by Song-Chun Zhu, Ying Nian Wu
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2023
ISBN	3-030-96530-9
Edizione	[1st ed. 2023.]
Descrizione fisica	1 online resource (XIV, 357 p. 192 illus., 109 illus. in color.)
Disciplina	006
Soggetti	Image processing—Digital techniques Computer vision Information visualization Computer science Computer science—Mathematics Mathematical statistics Neural networks (Computer science) Computer Imaging, Vision, Pattern Recognition and Graphics Data and Information Visualization Theory of Computation Probability and Statistics in Computer Science Computer Science Mathematical Models of Cognitive Processes and Neural Networks
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Preface -- About the Authors -- 1 Introduction -- 2 Statistics of Natural Images -- 3 Textures -- 4 Textons -- 5 Gestalt Laws and Perceptual Organizations -- 6 Primal Sketch: Integrating Textures and Textons -- 7 2.1D Sketch and Layered Representation -- 8 2.5D Sketch and Depth Maps -- 9 Learning about information Projection -- 10 Informing Scaling and Regimes of Models -- 11 Deep Images and Models -- 12 A Tale of Three Families: Discriminative, Generative and Descriptive Models -- Bibliography.
Sommario/riassunto	As the first book of a three-part series, this book is offered as a tribute

to pioneers in vision, such as Béla Julesz, David Marr, King-Sun Fu, Ulf Grenander, and David Mumford. The authors hope to provide foundation and, perhaps more importantly, further inspiration for continued research in vision. This book covers David Marr's paradigm and various underlying statistical models for vision. The mathematical framework herein integrates three regimes of models (low-, mid-, and high-entropy regimes) and provides foundation for research in visual coding, recognition, and cognition. Concepts are first explained for understanding and then supported by findings in psychology and neuroscience, after which they are established by statistical models and associated learning and inference algorithms. A reader will gain a unified, cross-disciplinary view of research in vision and will accrue knowledge spanning from psychology to neuroscience to statistics.
