

1. Record Nr.	UNINA9910337576903321
Autore	Michaelsen Eckart
Titolo	Hierarchical Perceptual Grouping for Object Recognition : Theoretical Views and Gestalt-Law Applications // by Eckart Michaelsen, Jochen Meidow
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2019
ISBN	3-030-04040-2
Edizione	[1st ed. 2019.]
Descrizione fisica	1 online resource (XI, 195 p. 100 illus., 9 illus. in color.)
Collana	Advances in Computer Vision and Pattern Recognition, , 2191-6586
Disciplina	006.4
Soggetti	Pattern perception Remote sensing Architecture Group theory Pattern Recognition Remote Sensing/Photogrammetry Architecture, general Group Theory and Generalizations
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Introduction -- Reflection Symmetry -- Good Continuation in Rows or Frieze Symmetry -- Rotational Symmetry -- Closure – Hierarchies of Gestalten -- Search -- Illusions -- Prolongation in Good Continuation -- Parallelism and Rectangularity -- Lattice Gestalten -- Primitive Extraction -- Knowledge and Gestalt Interaction -- Learning -- Appendix A: General Adjustment Model with Constraints.
Sommario/riassunto	This unique text/reference presents a unified approach to the formulation of Gestalt laws for perceptual grouping, and the construction of nested hierarchies by aggregation utilizing these laws. The book also describes the extraction of such constructions from noisy images showing man-made objects and clutter. Each Gestalt operation is introduced in a separate, self-contained chapter, together with application examples and a brief literature review. These are then brought together in an algebraic closure chapter, followed by chapters

that connect the method to the data – i.e., the extraction of primitives from images, cooperation with machine-readable knowledge, and cooperation with machine learning. Topics and features: Offers the first unified approach to nested hierarchical perceptual grouping. Presents a review of all relevant Gestalt laws in a single source. Covers reflection symmetry, frieze symmetry, rotational symmetry, parallelism and rectangular settings, contour prolongation, and lattices. Describes the problem from all theoretical viewpoints, including syntactic, probabilistic, and algebraic perspectives. Discusses issues important to practical application, such as primitive extraction and any-time search. Provides an appendix detailing a general adjustment model with constraints. This work offers new insights and proposes novel methods to advance the field of machine vision, which will be of great benefit to students, researchers, and engineers active in this area. Dr.-Ing. Eckart Michaelsen is a researcher at the Object Recognition Department of Fraunhofer IOSB, Ettlingen, Germany. Dr.-Ing. Jochen Meidow is a researcher at the Scene Analysis Department of the same institution.
