1.	Record Nr.	UNISA996466511603316
	Autore	Caselles Vicent
	Titolo	Geometric Description of Images as Topographic Maps [[electronic resource] /] / by Vicent Caselles, Pascal Monasse
	Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 2010
	ISBN	1-280-39159-6 9786613569516 3-642-04611-8
	Edizione	[1st ed. 2010.]
	Descrizione fisica	1 online resource (XVII, 192 p.)
	Collana	Lecture Notes in Mathematics, , 0075-8434 ; ; 1984
	Classificazione	68U1094A0805C05
	Disciplina	003.54
	Soggetti	Coding theory Information theory Topology Discrete mathematics Artificial intelligence Combinatorics Coding and Information Theory Discrete Mathematics Information and Communication, Circuits Artificial Intelligence
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Note generali	Bibliographic Level Mode of Issuance: Monograph
	Nota di bibliografia	Includes bibliographical references and index.
	Nota di contenuto	The Tree of Shapes of an Image -- Grain Filters -- A Topological Description of the Topographic Map -- Merging the Component Trees -- Computation of the Tree of Shapes of a Digital Image -- Computation of the Tree of Bilinear Level Lines -- Applications.
	Sommario/riassunto	This volume discusses the basic geometric contents of an image and presents a tree data structure to handle those contents efficiently. The nodes of the tree are derived from connected components of level sets of the intensity, while the edges represent inclusion information. Grain filters, morphological operators simplifying these geometric contents, are analyzed and several applications to image comparison and

registration, and to edge and corner detection, are presented. The mathematically inclined reader may be most interested in Chapters 2 to 6, which generalize the topological Morse description to continuous or semicontinuous functions, while mathematical morphologists may more closely consider grain filters in Chapter 3. Computer scientists will find algorithmic considerations in Chapters 6 and 7, the full justification of which may be found in Chapters 2 and 4 respectively. Lastly, all readers can learn more about the motivation for this work in the image processing applications presented in Chapter 8.