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Sommario/riassunto

A central issue in computer vision is the problem of signal to symbol transformation. In the case of texture, which is an important visual cue, this problem has hitherto received very little attention. This book presents a solution to the signal to symbol transformation problem for texture. The symbolic description scheme consists of a novel taxonomy for textures, and is based on appropriate mathematical models for different kinds of texture. The taxonomy classifies textures into the broad classes of disordered, strongly ordered, weakly ordered and compositional. Disordered textures are described by statistical measures, strongly ordered textures by the placement of primitives, and weakly ordered textures by an orientation field. Compositional textures are created from these three classes of texture by using certain rules of composition. The unifying theme of this book is to provide standardized symbolic descriptions that serve as a descriptive vocabulary for textures. The algorithms developed in the book have been applied to a wide variety of textured images arising in semiconductor wafer inspection, flow visualization and lumber processing. The taxonomy for texture can serve as a scheme for the identification and description of surface flaws and defects occurring in a wide range of practical applications.
