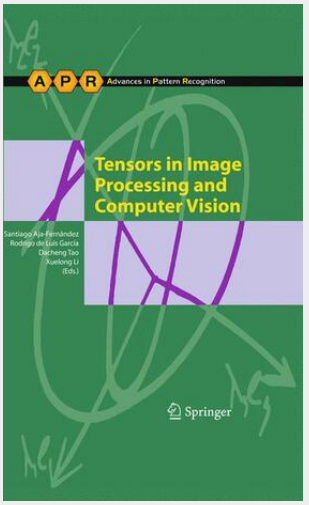
Aja-Fernández / Li / de Luis Garcia

Tensors in Image Processing and Computer Vision

Tensor signal processing is an emerging field with important applications to computer vision and image processing. This book presents the state of the art in this new branch of signal processing, offering a great deal of research and discussions by leading experts in the area. The wide-ranging volume offers an overview into cutting-edge research into the newest tensor processing techniques and their application to different domains related to computer vision and image processing. This comprehensive text will prove to be an invaluable reference and resource for researchers, practitioners and advanced students working in the area of computer vision and image processing.

Tensor signal processing is an emerging field with important applications to computer vision and image processing. However, tensor applications and tensor-processing tools arise from very different areas, and these advances are too often kept within the areas of knowledge where they were first employed. This book presents the state of the art in this new branch of signal processing, offering research and discussion by leading experts in the area. The broad coverage supplies an overview of cutting-edge research into the newest tensor-processing techniques and their application to different domains related to computer vision and image processing. The contents demonstrate how new challenges in computer vision and image processing lead to new procedures for dealing with tensors, which are more related to the tensor nature of the information itself than to a specific application. The book provides a unique perspective on tensor analysis that encompasses concepts from traditionally disparate areas of mathematics, physics and engineering, with a particular focus on practical applications. Topics and features: - Describes the use of tensors and tensor field processing in a number of different applications - Examines spherical tensor calculus for local adaptive filtering and geometric transformations of local structure tensors - Contains contributions by internationally renowned authorities in the field - Discusses the use of tensors in computer vision applications, such as camera models and multilinear applications - Presents an entire section on medical imaging, describing applications from Diffusion Tensor Magnetic Resonance Imaging to strain tensor estimation in cardiac analysis and elastography imaging - Explores issues of storage, visualization and interfaces with tensors This comprehensive text is an invaluable reference and resource for researchers, practitioners and advanced students working in the area of computer vision and image processing. Dr Santiago Aja-Fernández and Dr Rodrigo de Luis García are Associate Professors of Telecommunications Engineering at the Universidad de Valladolid. Dr Dacheng Tao is Nanyang Assistant Professor with the School of Computer Engineering at the Nanyang Technological University. Dr Xuelong Li is Senior Lecturer at Birkbeck, University of London.



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