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   Nota di contenuto   Part I Image Reconstruction from Incomplete Data: 1 Adaptive Regularization for Image Reconstruction from Subsampled Data: M. Hintermüller et al -- 2 A Convergent Fixed-Point Proximity Algorithm Accelerated by FISTA for the l_0 Sparse Recovery Problem: X. Zeng et al -- 3 Sparse-Data Based 3D Surface Reconstruction for Cartoon and Map: B. Wu et al -- Part II Image Enhancement, Restoration and Registration: 4 Variational Methods for Gamut Mapping in Cinema and Television: S. Waqas Zamir et al -- 5 Functional Lifting for Variational Problems with Higher-Order Regularization: B. Loewenhauser et al -- 6

On the Convex Model of Speckle Reduction: F. Fang et al -- Part III 3D Image Understanding and Classification: 7 Multi-Dimensional Regular Expressions for Object Detection with LiDAR Imaging: T.C. Torgersen et al -- 8 Relaxed Optimisation for Tensor Principal Component Analysis and Applications to Recognition, Compression and Retrieval of Volumetric Shapes: H. Itoh et al -- Part IV Machine Learning and Big Data Analysis: 9 An Incremental Reseeding Strategy for Clustering: X. Bresson et al -- 10 Ego-Motion Classification for Body-Worn Videos: Z. Meng et al -- 11 Synchronized Recovery Method for Multi-Rank Symmetric Tensor Decomposition: H. Liu -- Index.

Sommario/riassunto	This volume presents the peer-reviewed proceedings of the international conference Imaging, Vision and Learning Based on Optimization and PDEs (IVLOPDE), held in Bergen, Norway, in August/September 2016. The contributions cover state-of-the-art research on mathematical techniques for image processing, computer vision and machine learning based on optimization and partial differential equations (PDEs). It has become an established paradigm to formulate problems within image processing and computer vision as PDEs, variational problems or finite dimensional optimization problems. This compact yet expressive framework makes it possible to incorporate a range of desired properties of the solutions and to design algorithms based on well-founded mathematical theory. A growing body of research has also approached more general problems within data analysis and machine learning from the same perspective, and demonstrated the advantages over earlier, more established algorithms. This volume will appeal to all mathematicians and computer scientists interested in novel techniques and analytical results for optimization, variational models and PDEs, together with experimental results on applications ranging from early image formation to high-level image and data analysis.