

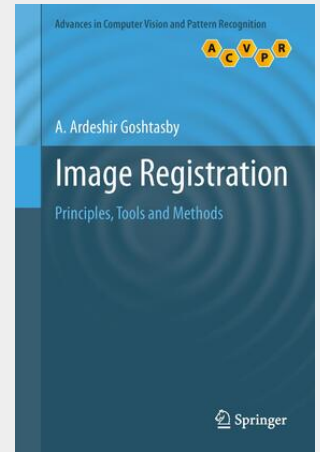
Goshtasby

Image Registration

Principles, Tools and Methods

This book presents a thorough and detailed guide to image registration, outlining the principles and reviewing state-of-the-art tools and methods. The book begins by identifying the components of a general image registration system, and then describes the design of each component using various image analysis tools. The text reviews a vast array of tools and methods, not only describing the principles behind each tool and method, but also measuring and comparing their performances using synthetic and real data. Features: discusses similarity/dissimilarity measures, point detectors, feature extraction/selection and homogeneous/heterogeneous descriptors; examines robust estimators, point pattern matching algorithms, transformation functions, and image resampling and blending; covers principal axes methods, hierarchical methods, optimization-based methods, edge-based methods, model-based methods, and adaptive methods; includes a glossary, an extensive list of references, and an appendix on PCA.

Image registration is the process of finding correspondence between all points in two images of a scene – a process with numerous applications in computer vision and imaging. This comprehensive text/reference presents a thorough and detailed guide to image registration, outlining the principles and reviewing state-of-the-art tools and methods. The book begins by identifying the components of a general image registration system, and then describes the design of each component using various image analysis tools. The text reviews a vast array of tools and methods, not only describing the principles behind each tool and method, but also measuring and comparing their performances using synthetic and real data. Topics and features: discusses a broad range of image analysis tools, including similarity/dissimilarity measures, point detectors, feature extraction and homogeneous descriptors, and feature selection and heterogeneous descriptors; examines robust estimators, point pattern matching algorithms, transformation functions, and image resampling and blending; covers a large number of image registration methods, such as principal axes methods, hierarchical methods, optimization-based methods, edge-based methods, model-based methods, and adaptive methods; provides all images and data used in the book at the website <http://www.imgfsr.com/book2.html>, enabling the reader to reproduce the results; includes a glossary, an extensive list of references, and an appendix on principal component analysis. An excellent reference for courses on image registration, image processing, computer vision, pattern recognition, and image analysis, this unique text/guide is also suitable for image analysis software developers, engineers, and researchers interested in analyzing two or more images of a scene.



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