
The first section of the book introduces the fundamental concepts of multichannel image processing, including color spaces, color transformations, and color image enhancement. The authors provide a thorough grounding in the mathematical foundations of multichannel filtering and explain how these concepts can be applied to improve the quality of color images.

In the second section, the book delves deeper into specific applications of multichannel filtering, such as color image restoration, color image enhancement, and color image analysis. The authors provide detailed explanations of how to implement these techniques using computer algorithms and provide examples of real-world applications.

The third section of the book focuses on advanced topics in multichannel filtering, such as neuro-fuzzy systems and color image indexing. The authors provide a comprehensive overview of these topics and explain how they can be applied to improve the quality of color images.

Overall, Multichannel Filters for Image Processing is an excellent resource for anyone interested in the theory and practice of multichannel filtering. The authors provide a comprehensive and up-to-date guide to this important field, and their practical guidance will be invaluable to both students and professionals in the field.

The book is well-organized and easy to follow, and the authors provide a wealth of practical examples and case studies to help readers understand how to apply the concepts they have learned. Overall, Multichannel Filters for Image Processing is an excellent resource for anyone interested in the theory and practice of multichannel filtering.
fast and fuzzy logic was initiated in 1983 by Zadeh, and is one of the most developed models in many disciplines and uncertainty. Instead of the classical approach that an object belongs or does not belong to a set, the concept of a fuzzy set allows a gradual transition from non-membership to membership, providing partial degrees of membership. Fuzzy techniques are often complimentary to existing techniques and can contribute to the development of better and more robust methods, as has already been illustrated in numerous scientific branches. The present book resulted from the workshop “Fast Filters for Image Processing” which was organized at the 18th FuzE-Bay Conference in Melbourne, Australia. At this event several speakers have given an overview of the current state-of-the-art fuzzy filters for image processing. Afterwards, the book has been compiled with contributions of other international researchers. The fuzzy filter is a tool to transform a signal into another one more suitable for a given purpose. As such, filters find applications in telecommunications, radar, sonar, remote sensing, geophysical signal processing, image processing, and computer vision. Numerous authors have considered deterministic and statistical approaches for the study of image, audio, digital, multimedia, video, and adaptive filters. Most of the filters considered were linear although the theory of nonlinear filters is developing rapidly, as it is evident from the numerous research papers and a few specialized monographs now available. Our research interest is in this area created opportunity for cooperation and co-authored publications during the past few years in many nonlinear filter families described in this book. As a result of this cooperation and a visit from John Pitas on a research leave at the University of Toronto in 1998, the idea for the book was first conceived. The difficulty in writing such a monograph was that the area seemed fragmented and as general theory was available to encompass the many different kinds of filters presented in the literature. Rather, similarities of some families of nonlinear filters and the need for such a monograph providing a broad overview of the whole area made the project worthwhile. The book is a result of the continuous working in the areas of signal and image processing, and computer graphics, carrying out research and contributing to the development of new applications. The book covers the theory and applications of nonlinear filters for image and video processing. The book is a collection of high-quality peer-reviewed research papers presented in the first International Conference on Signal, Networks, Computing, and Systems (ICSNCS 2016) held at the University of Toronto, Canada, August 29-31, 2016. The 138 papers presented together with 2 invited talks were carefully reviewed and selected from 286 submissions. The papers are organized in topical section on: motion analysis, image and shape models, segmentation and grouping, shape recovery, kernel methods, medical imaging, structural pattern recognition, Biometrics, image and video processing, calibration, and tracking and stereo vision. The book is a collection of high-quality peer-reviewed research papers presented in the first International Conference on Signal, Networks, Computing, and Systems (ICSNCS 2016) held at the University of Toronto, Canada, August 29-31, 2016. The book is organized in two volumes and primarily focuses on theory and applications in the broad areas of communication technology, computer science and information security. The book brings together the latest research in the domain of secure and efficient image and video processing, and provides a comprehensive overview of the state of the art research in image and video processing.