

Call for Book Chapters



Computational Intelligence Techniques in Handling Image Processing and Pattern Recognition

A Book Edited by

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Introduction

Computational intelligence (CI) techniques involve different methodologies, e.g. fuzzy set theory, artificial neural networks, evolutionary computing and rough set theory. The capability of these techniques is to incorporate imprecision and incomplete information and to model a very complex system which makes them a useful tool in many scientific areas. Image analysis is one of these areas. Computational intelligence (CI) constitutes an umbrella of techniques, has proven to be flexible in decision making in dynamic environment. These techniques typically include Fuzzy sets, rough sets, Machine Learning, Molecular Computing, Neural Computing, Probabilistic Reasoning, Reinforcement Learning, Support Vector Machine, Cellular Automata, and other similar computational models and some basic bio-inspired techniques. In this book, we aim at gathering the latest advances of various topics in using such CI techniques in handling image processing and pattern recognition. Chapters and studies which couple the intelligence techniques and theories with specific image processing and pattern recognition technology problems are cordially invited. Survey articles that emphasize the research and application of CI in solving image and pattern recognition problems are greatly welcome. The primary target audience for the book includes researchers, scholars, postgraduate students and developers who are interested in image processing and pattern recognition research and related issues.

Objectives of this Book

The book will provide reviews of the cutting-edge technologies and insights for image processing and pattern recognition based systems. In particular, the book will be valuable companion and comprehensive reference for both postgraduate and senior undergraduate students who are taking a course in image processing and pattern recognition. The book will be organized in self-contained chapters to provide greatest reading flexibility. This book is interested in using the following techniques for image analysis as well as pattern recognition: Image Fusion, Genetic algorithms, Neural networks, Wavelet Analysis, Fuzzy theory.

Topics

Topics of interest include, but are not limited to, the use of CI techniques for solving image analysis and pattern recognition:-.

- Computational Intelligence for denoising and restoration
- Computational Intelligence for pattern recognition
- Computational Intelligence for digital image processing, and encryption
- Computational Intelligence in computer vision
- Computational Intelligence for video content-based indexing and retrieval
- Applications, i.e. visual surveillance, biometry and medical imaging
- Applications to 3D objects and Face Models
- Human gesture recognition
- Human face detection and tracking
- Obstacle avoidance-Path planing under dynamic environment
- Object recognition-3D sensing and depth measuring systems
- The relevant for robot intelligence, etc.
- Motion estimation from the moving image
- Intelligent image processing system design
- Super resolution and high speed image processing
- Image processor design methodology
- Intelligent compression of massive data
- Intelligent CODEC design and the relevant intelligent computing
- Intelligent object recognition from the motion pictures
- Signal processing theory for the multichannel signal/image processing
- Data, sensor, and spatiotemporal fusion of the different modalities
- Transform domain and subspace techniques – advanced classification and clustering
- Multidimensional and information theoretic approaches
- Applications for brain signal processing (BCI & BMI)

Submission Procedure

Researchers and practitioners are invited to submit on or before **Feb 15, 2010**, a 2-3 page chapter proposal clearly explaining the mission and concerns of his or her proposed chapter. Authors of accepted proposals will be notified by **Mar 05, 2010** about the status of their proposals and sent chapter guidelines. Full chapters are expected to be submitted by **June 20, 2010**. Final minor revision notification by **July 20 2010** and Final submission by **Aug 25, 2010**. All submitted chapters will be reviewed on a double-blind review basis.

Publisher

This book is scheduled to be published by LAP (Lambert Academic Publishing) in Germany. For additional information regarding the publisher, please visit <http://www.lap-publishing.com> . This publication is anticipated to be released in 2010.

Important Dates

<i>Deadline for Proposal Submission (2-3 pages)</i>	: 15 Feb 2010
<i>Notification to Authors</i>	: 05 Mar 2010
<i>Full Chapter Submission</i>	: 20 June 2010
<i>Final Minor Revision Notification</i>	: 20 July 2010
<i>Final Submission</i>	: 25 Aug 2010

Inquiries and submissions can be forwarded electronically (Word document) to:

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