Call for Book Chapters

Hybrid Intelligent Techniques for Pattern Analysis and Understanding

Editors

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Important Dates

Proposal Submission: 30th April 2016
Notification of Acceptance of Proposals: 15th May 2016
Full Chapter Submission: 31st August 2016
Chapter Review Notification: 31st October 2016
Interim Version Due: 31st December 2016
Final Notification: 15th January 2017
Final Revised Chapter Due: 15th February 2017
Final Acceptance: 28th February 2017

Purpose

Many real life problems suffer from uncertainty, imprecision, vagueness to name a few. Conventional computing paradigms often fall short of offering solutions to them. Even the latest intelligent computing paradigms are not too robust to handle the situations. Hybrid intelligent computing is a paradigm which addresses these issues to a considerable extent.

An intelligent machine inherits the boon of intelligence by virtue of the various methodologies offered by the Soft Computing paradigm encompassing fuzzy and rough set theory, artificial neurocomputing, evolutionary computing, as well as approximate reasoning. At times, situation demands in reality where any of the techniques listed

above does not provide any comprehensible and/or convincing solution but an effective symbiosis of more than one of the above techniques offers a formidable and/or robust solution. This is because any of these above soft computing techniques suffer from limitations in respect, its strength notwithstanding. This gives rise to the advent to several hybrid methodologies, the spirit of which is to exploit the strength of one technique to supplement the limitation of another. Of late, there is enormous growth of research exploration of injecting elements of intelligence using efficient hybrid techniques. All these initiatives indicate that the individual soft computing techniques do not behave in conflicting manner rather behaves complimentary to one another, as has already been indicated. Hybrid intelligent systems stem from the synergistic integration of the different soft computing tools and techniques. The fusion of these techniques towards achieving enhanced performance and more robust solutions can be achieved through proper hybridization. In fact, recent reports reveal the inherent strength of such hybridization of computational methods.

Pattern analysis and understanding have been a daunting task in the computer vision research community given the vast amount of uncertainty involved therein. Proper analysis of patterns plays a key role in many real life applications. Traditional applications include pattern recognition, image processing, image mining, object recognition, video surveillance, and intelligent transportation systems to name a few. As an example, albeit ageing mitigates the glamour in human beings, wrinkles in face images can often be used for estimation of age progression in human beings. This can be further utilized for tracing unknown or missing persons. Images exhibit varied uncertainty and ambiguity of information and hence understanding an image scene is far from being a general procedure. The situation becomes even graver when the images become corrupt with noise artifacts.

Description and Scope of the Book

Since there has been a dearth of books on the subject matter, the editors of the present treatise aim at bringing out some latest findings in the field of hybrid Intelligence applied to faithful analysis and understanding of patterns so that the readers can grasp the essence of the upcoming computing paradigm and apply to the field of pattern analysis and understanding, which in turn find use in a wide variety of applications ranging from defence, medical image processing, surveillance, computer vision, robotics to name a few.

The proposed volume intends to bring together researchers to report the latest results or progress in the development of hybrid intelligent techniques for faithful pattern analysis and understanding. As such, the focus of this volume is the methods of computational intelligence, with a focus on hybrid intelligent methods applied to pattern analysis and understanding. Needless to state, the field of pattern analysis and understanding encompass a wide range of pattern recognition, object recognition, object localization and image processing applications.

Recommended Topics:

This book solicits contributions that also include the basics, fundamentals of the field of pattern analysis and understanding addressed by hybrid intelligence supported by case studies and practical examples. Each chapter is expected to be self-contained and cover an in-depth analysis of real life applications of hybrid intelligence to pattern analysis and understanding. Moreover, each chapter should be supplemented with coding examples, algorithms and video demonstrations as is applicable to the content of the chapter.

Submissions are solicited on the following topics, but not limited to:

- **Feature extraction**
- **Pattern recognition**
- **Object extraction**
- **Object tracking**
- **Object recognition**
- **Character recognition/ Handwriting recognition**
- **Pattern Analysis**
- **Image thresholding**
- **Image analysis**
- **Image understanding**
- **Image preprocessing and enhancement**
- **Image segmentation**
- **Image mining**
- **Age estimation based on face recognition**
- **Medical image processing**
- **Remote sensing imagery**
- **Video processing**
- **Gesture analysis**
- **Human mind analysis**
- **Survey and/or review on pattern analysis and understanding**

Submission Deadlines

The book is to be published by CRC Press, Taylor & Francis Group. It is expected to be published in the second half of 2017.

PROPOSAL SUBMISSION: Prospective authors should submit a 2-3 page proposal by **30th April 2016** clearly explaining the mission and concerns of the proposed chapter. Authors will be notified by **15th May 2016** about the status of their proposals.

FULL CHAPTER SUBMISSION: Chapters have to be 30-35 pages length and will be reviewed by two/three expert reviewers to ensure the quality of the volume. The deadline of submission is **31st August 2016**.

CHAPTER REVIEW NOTIFICATION: Authors of submitted chapters will be notified by **31st October 2016** about their acceptance/rejection.

INTERIM VERSION DUE: Interim version of the accepted chapters is expected to be submitted by **31st December 2016**.

FINAL NOTIFICATION: A second round of review of the chapters along with plagiarism check will be carried out and the authors of the accepted chapters will be notified on **15th January 2017**.

FINAL REVISED CHAPTER DUE: Camera-ready version of the accepted chapters incorporating revisions (if any) is expected to be submitted by **15th February 2017**.

FINAL ACCEPTANCE: The final acceptance notification of the chapters will be sent to the contributing authors by **28th February 2017**.

Inquiries and submissions can be forwarded to:

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