



Proposal for a Book Project

ICSES Transactions on Image Processing and Pattern Recognition (ITIPPR)

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Book Title: Image Segmentation: A Guide to Image Mining

Main Subject: Digital Image Processing

Three up to five brief Highlights about this Book:

1. First of all, this book will prove as a center of knowledge for recent image segmentation and image mining techniques and their advancement and contribution in the field of Image Processing.
2. Secondly, few methods are provided with their in-depth working and simulations. Rigorous analysis is done on them and each and every happening is thoroughly explained.
3. Thirdly, exhaustive literature review is done and detailed knowledge of various important and noteworthy contributions in the image processing field is mentioned.

Book Type:

1. Edited Book (You as Editor-in-Charge write the Introduction Chapter, and the rest is gathered by other Authors via a Call-for-Paper and Review process just like a Special Issue)

Abstract: Today, the medical industry, astronomy, physics, chemistry, forensics, remote sensing, manufacturing, and defense are just some of the many fields that rely upon images to store, display, and provide information about the world around us. The challenge to scientists, engineers and business people is to quickly extract valuable information from raw image data. This is the primary purpose of image processing - converting images to information.

This book explains how to segment images using discreet tools from graph theory. Image segmentation is usually the first step towards image mining. For mining, the problem is modeled in terms of creating a dataset of images and extracting the features of each image. Then graphs are generated for each image based on these features. There are many possible ways to obtain features of images from a graph. The substructure of query image is matched with the substructure of the dataset and the identified images are concluded to be related with the query image.

In this book, each chapter introduces image processing topics and includes information regarding when one method may be preferred over another to enhance specific image features. Numerous step-by-step examples illustrate image processing and analysis routines, allowing you to quickly understand how to get the desired results when working with your own image data. This book is not intended to

be a complete source for image processing knowledge, an advanced image processing manual or an image processing reference guide. This book is designed to teach people how to segment images to perform basic image mining, and does not assume that they are already experts in the field of image processing.

Keywords: Deep Neural Networks; Graph Theory; Image Mining; Image Analysis; Image Processing; Image Segmentation; Medical Imaging

Significance Justification: This is a very important book if you are willing to start researching in the field of image processing. Stepwise discussion, exhaustive literature review, detailed analysis and discussion, rigorous experimentation results are demonstrated and encouraged.

Related Works:

Vikramsingh R. Parihar, "Graph Theory Based Approach For Image Segmentation Using Wavelet Transform", International Journal of Image Processing (IJIP), Volume 8, Issue 5, pp 255-277, Sept 2014

Vikramsingh R. Parihar, "Image Analysis and Image Mining Techniques: A Review", Journal of Image Processing and Artificial Intelligence (MAT Journals), June 2017

Vikramsingh R. Parihar, "An Approach to Image Segmentation based on Graph Theory and Threshold", International Journal of Advanced Engineering and Technology, Volume 2, Issue 2, May 2018.

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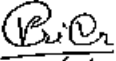
Any other Remarks or Comments to the Editorial Board: This book is intended to give basic and detailed knowledge of image processing techniques, especially image segmentation and image mining, to those who are willing to understand, study and contribute in digital image processing. The book will be conducted in three basic Sections:

Section 1: Recent trends in image segmentation

Section 2: Deep neural networks for image segmentation

Section 3: Medical image segmentation

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Date: 2018-06-22