



Mathematical Problems in Engineering

Special Issue on Computational Intelligence in Image Processing 2014

CALL FOR PAPERS

Vision in general and images in particular have always played an essential role in human life. In the past they were, today they are, and in the future they will continue to be one of our most important information carriers. Recent advances in digital imaging and computer hardware technology have led to an explosion in the use of digital images in a variety of scientific and engineering applications. These applications result from the interaction between fundamental scientific research on the one hand, and the development of new and high-standard technology on the other hand.

Computational intelligence has emerged as powerful tools for information processing, decision making, and knowledge management. The techniques of computational intelligence have been successfully developed in areas such as neural networks, fuzzy systems, and evolutionary algorithms. It is predictable that in the near future computational intelligence will play a more and more important role in tackling several engineering problems.

Image processing is a very important research area. Classical image processing methods often face great difficulties while dealing with images containing noise and distortions. Under such conditions, the use of computational intelligence approaches has been recently extended to address challenging real-world image processing problems. This special issue aims to provide a collection of high quality research articles that address broad challenges in both theoretical and application aspects of computational intelligence in image processing. We invite colleagues to contribute original research articles as well as review articles that will stimulate the continuing effort on the application of computational intelligence approaches to solve image processing problems.

Potential topics include, but are not limited to:

- ▶ The use of computational intelligence techniques such as:
 - ▶ Neural networks
 - ▶ Fuzzy logic
 - ▶ Rough sets
 - ▶ Metaheuristics (evolutionary algorithms, simulated annealing, tabu search, ant colony optimization, particle swarm optimization, harmony search, bee colony optimization, etc.)
 - ▶ Expert systems
- ▶ In/for:
 - ▶ Coding and compression
 - ▶ Sampling and interpolation
 - ▶ Quantization and halftoning
 - ▶ Quality assessment
 - ▶ Filtering and enhancement
 - ▶ Morphology
 - ▶ Edge detection and segmentation
 - ▶ Feature extraction
 - ▶ Indexing and retrieval

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