CALL FOR PAPERS

IEEE TRANSACTIONS ON PATTERN ANALYSIS AND MACHINE INTELLIGENCE

Special Issue on

Energy Minimization Methods in Computer Vision and Pattern Recognition

(Submission Deadline: April 30, 2002)

Guest editors:

Mario Figueiredo	Instituto Superior Tecnico, Portugal (mtf@lx.it.pt)
Edwin R. Hancock	University of York, UK (erh@cs.york.ac.uk)
Marcello Pelillo	University of Venice, Italy (pelillo@dsi.unive.it)
Josiane Zerubia	INRIA Sophia-Antipolis, France (josiane.zerubia@inria.fr)

Minimization problems and optimization methods permeate computer vision (CV), pattern recognition (PR), and many other fields of machine intelligence. There are two main reasons for this: on one hand, many approaches to some CV&PR problems lead to optimization tasks; on the other hand, at a more fundamental level, many CV&PR problems can be formulated as the minimization of some basic quantity (often called an "energy"). Energy minimization problems are at the heart of research areas such as Bayesian decision theory, Markov random fields, relaxation labeling, neural networks, variational formulations, statistical learning theory, regularization, to mention only a few (not necessarily independent) examples. These topics have roots in basic scientific disciplines such as statistics, physics, and several branches of mathematics (including optimization and game theory, partial differential equations, graph theory, etc.).

The goal of this special issue is to solicit and publish high-quality original papers which, together, will present a clear picture of the state of the art in this topic. Although this is an apparently horizontal subject, crossing many seemingly disparate topics, the goal is to collect papers that focus on the optimization/energy-minimization aspects. We aim to appeal to researchers in computer vision, pattern recognition, machine learning, image processing/analysis, and related areas, who are using/developing nontrivial optimization techniques. We also hope to interest applied mathematicians and statisticians working in optimization methods to the problems that arise in the above mentioned areas.

Papers are solicited that address theoretical as well as practical issues related to the Special Issue's theme. Topics of interest include (but are not limited to):

- Variational formulations
- Markov random fields
- Graph matching
- VC-theory and support vector machines
- Visual perception and psychophysics
- Relaxation labeling
- Evolutionary/genetic algorithms
- Deformable models
- Probabilistic networks/graphical models
- Statistical pattern recognition
- Computational neurobiology
- Neural networks
- Variational and mean-field approximations
- Applications

Submission procedure:

Only electronic (ftp) submissions will be accepted. **Contact Marcello Pelillo for a password to access the ftp site.**

1. Use the corresponding author's name to identify your file and post it to

   ftp://ieeecs@ftp.computer.org/trans/incoming/tpami/emmcvpr

2. Send an e-mail message to emmcvpr@dsi.unive.it notifying the guest editor that you have posted a file on the *TPAMI* site, and clearly specify that the submission is intended for this special issue.

Potential authors should feel free to contact the coeditors concerning their plans for submission, but should not send manuscripts directly to them.

Manuscripts must be received by **April 30, 2002**. All submitted papers will be reviewed according to guidelines and standards of *TPAMI*.