

CALL FOR PAPERS

International Journal on Computer Vision

Special Issue on Sparse Coding

Aims and Scope

Sparse models have gained a tremendous success during the last years in various scientific fields. In statistics and machine learning, the sparsity principle is used to perform model selection—that is, selecting a simple model among a large collection of them. This is interpreted as automatically selecting a few predictors that explain the observed data. In signal processing, sparsity is used for approximating signals as a linear combination of a few dictionary elements, imposing a union-of-subspaces model on the true data. Not surprisingly, similar formulations and algorithms have been developed in statistics and signal processing, from different point of views, and are now extremely popular in both disciplines.

The image processing and computer vision communities are a dominant part of this trend, and we have seen a growing interest in sparse models and their deployment to applications in these fields. In particular, methods where the dictionary is learned from data have been successfully used for a wide range of computer vision and image processing tasks, such as feature and codebook learning, image restoration, super-resolution, compression, visual tracking, and many others. This special issue of IJCV welcomes submissions developing novel sparse coding techniques for computer vision and image processing problems, novel applications of sparse coding, as well as theoretical contributions that are relevant to computer vision.

Topics of Interest

The topics of interest include, but are not limited to

- **sparse coding and visual recognition:** feature learning; scene and object classification; action recognition; scene parsing; image description; face recognition;
- **sparse coding for image processing:** denoising; deblurring; inpainting; super-resolution; inverse problems; image enhancement; multispectral imaging; medical imaging; interpolation; compression;
- **other computer vision applications:** tracking; segmentation; 3D-reconstruction; pose estimation; image matching; computational photography; image retrieval; contour estimation; optical flow;
- **methodological and theoretical contributions relevant to computer vision:** dictionary learning; optimization for sparse estimation; hierarchical models, compressed sensing.

Submission Process

Authors are encouraged to submit high-quality, original work that has neither appeared in, nor is under consideration by, other journals. All open submissions will be peer reviewed subject to the standards of the journal. Manuscripts based on previously published conference papers must be extended substantially. Manuscripts should be submitted to: <http://visi.edmgr.com>. Detailed instructions are available on the IJCV website. Please select “S.I. : Sparse Coding” in the menu “Choose Article Type” after clicking on “Submit new manuscript”.

Important Dates

Paper submission deadline: **January 31st, 2014.**

Final manuscript due: July 30th, 2014.

Guest Editors

Francis Bach, francis.bach@inria.fr, INRIA, Paris, France;

Miki Elad, elad@cs.technion.ac.il, Computer Science Department, The Technion, Haifa, Israel;

Julien Mairal, julien.mairal@inria.fr, INRIA, Grenoble, France.