

Robust Subspace Learning and Computer Vision (RSL-CV 2015)

Santiago, Chile, December 2015

Workshop in conjunction with ICCV 2015 (<http://pamitc.org/iccv15/>)

Call for papers

Recent research on robust subspace learning and tracking by decomposition into low-rank plus additive matrices provides a suitable framework for computer vision applications such as video coding, key frame extraction, hyper-spectral video processing, dynamic MRI, motion saliency detection and background/foreground separation. In this context, decomposition into low rank plus sparse matrices has been developed in different types of problem formulation such as robust principal component analysis, robust non-negative matrix factorization, robust matrix completion, subspace tracking, and low-rank minimization. These different approaches differ from the decomposition, the corresponding optimization problem and the solvers. The optimization problem can be NP-hard in its original formulation, and it can be convex or not following the constraints and the loss functions used. Thus, the key challenges concern the design of efficient relaxed models and solvers which have to be with iterations as few as possible, and as efficient as possible.

Practically, the advances in these in different types of problem formulation are fundamental for computer vision. A representative example concerns computer vision applications such as dynamic MRI and the background/foreground separation in video surveillance. Up to now, many efforts have been made to develop methods that perform well visually with reduced computational cost. However, no algorithm has emerged that is able to simultaneously address all of the key challenges that accompany real-world videos.

The aim of RSL-CV 2015 (<http://rsl-cv2015.univ-lr.fr/workshop/>) are three-fold: 1) proposing robust subspace learning and tracking for computer vision applications, 2) proposing new adaptive and incremental algorithms for robust subspace learning and tracking to reach the requirements of real-time applications such as background/foreground separation, motion saliency and video coding, and 3) proposing robust algorithms to tackle key challenges in applications such as dynamic backgrounds and illumination changes for background/foreground separation.

Papers are solicited to address robust subspace learning and tracking based on matrix/tensor decomposition, to be applied in computer vision, including but not limited to the followings:

Robust Principal Component Analysis (RPCA)	Compressive Sensing
Decomposition in low-rank plus additive matrices	Robust Matrix Factorization (RMF)
Solvers (ALM, ADM, etc...)	Robust Matrix Completion (RMC)
Efficient SVD algorithms	Subspace Tracking (ST)
Incremental RPCA	Low rank minimization (LRM)
Real time implementation on GPU	Structured Sparsity, Dynamic Group Sparsity
Embedded implementation	Dictionary Learning

We encourage authors to evaluate their approach on at least one of the reference datasets for each application (Please see at <http://rsl-cv2015.univ-lr.fr/workshop/>)

IMPORTANT DATES

Full Paper Submission Deadline: September 5, 2015 (for papers not submitted at ICCV)
September 10, 2015 (for papers that are awaiting for ICCV decisions)

Decisions to Authors: October 1, 2015

Camera-ready Deadline: October 16, 2015

MAIN ORGANIZERS

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PUBLICATIONS

Accepted papers will be published in the ICCV 2015 Workshop Proceedings. Selected papers, after extensions and further revisions, will be published in a special issue in an international journal.

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