

Convex Relaxation Methods for Geometric Problems in Scientific Computing

Monday February 11, 2013

- 8:00–8:55 *Check-In/Light Breakfast (Hosted by IPAM)*
- 8:55–9:00 *Welcome and Opening Remarks*
- 9:00 *Session Chair: Xavier Bresson*
- 9:00–9:50 **Francis Bach** (Institut National de Recherche en Informatique Automatique (INRIA))
Structured Sparsity-inducing Norms through Submodular Functions
- 10:00–10:15 *Break*
- 10:15–11:05 **Massimiliano Pontil** (University College London)
Multi-task Learning and Structured Sparsity
- 11:15–11:30 *Break*
- 11:30–12:20 **Gabriele Steidl** (Universität Kaiserslautern)
Constrained image restoration problems
- 12:30–2:30 *Lunch (on your own)*
- 2:00 *Session Chair: Gabriele Steidl*
- 2:30–3:20 **Amir Beck** (Technion - Israel Institute of Technology)
Sparsity Constrained Nonlinear Optimization: Optimality Conditions and Algorithms
- 3:30–4:00 *Break*
- 4:00–4:50 **Yuri Boykov** (University of Western Ontario)
Segmentation with non-linear constraints on geometry, complexity, and appearance
- 5:00–7:00 *Reception and Poster Session (Hosted by IPAM)*

Tuesday February 12, 2013

- 8:00–9:00 *Continental Breakfast*
- 9:00 *Session Chair: Gabriel Peyre*
- 9:00–9:50 **Xavier Bresson** (City University of Hong Kong)
Total Variation Clustering
- 10:00–10:15 *Break*

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- 10:15–11:05 **Thomas Pock** (Technische Universität Graz)
Convex relaxation of a class of vertex penalizing functionals
- 11:15–11:30 *Break*
- 11:30–12:20 **Tom Goldstein** (Rice University)
Fast alternating direction methods for Optimization
- 12:30–2:30 *Lunch (on your own)*
- 2:00 *Session Chair: Thomas Pock*
- 2:30–3:20 **Selim Esedoglu** (University of Michigan)
Threshold dynamics for the mean curvature motion of networks with unequal surface tensions
- 3:30–4:00 *Break*
- 4:00–4:50 **Matthias Hein** (Saarland University)
Nonlinear Eigenproblems and Tight Relaxations of Constrained Fractional Set Programs

Wednesday February 13, 2013

- 8:00–9:00 *Continental Breakfast*
- 9:00 *Session Chair: Yuri Boykov*
- 9:00–9:50 **Daniel Cremers** (Technische Universität München)
Convex Relaxations for the Mumford-Shah Functional
- 10:00–10:15 *Break*
- 10:15–11:05 **Xue-Cheng Tai** (University of Bergen)
Graph cut, convex relaxation and continuous max-flow problem
- 11:15–11:30 *Break*
- 11:30–12:20 **Simon Setzer** (Saarland University)
Optimizing Data for Interpolation and Approximation with Homogeneous Diffusion
- 12:30–2:30 *Lunch (on your own)*
- 2:00 *Session Chair: Daniel Cremers*
- 2:30–3:20 **Stanley Osher** (University of California, Los Angeles (UCLA))
Inverse scale space, linearized Bregman and sparse learning
- 3:30–4:00 *Break*
- 4:00–4:50 **Jan Lellmann** (University of Cambridge)
Convexity and Non-Convexity in Partitioning and Interpolation Problems

Thursday February 14, 2013

- 8:00–9:00 *Continental Breakfast*
- 9:00 *Session Chair: Selim Esedoglu*
- 9:00–9:50 **Antonin Chambolle** (École Polytechnique)
Functional lifting for scalar and vector-valued maps
- 10:00–10:15 *Break*
- 10:15–11:05 **Gabriel Peyre** (Université de Paris IX (Paris-Dauphine))
SURE-based Parameter Selection for Sparse Regularization of Inverse Problems
- 11:15–11:30 *Break*
- 11:30–12:20 **Wotao Yin** (Rice University)
Block multi-convex optimization
- 12:30–2:30 *Lunch (on your own)*
- 2:00 *Session Chair: Antonin Chambolle*
- 2:30–3:20 **Christoph Schnörr** (University of Heidelberg)
Shape, Segmentation and Convex Relaxations in Computer Vision
- 3:30–4:00 *Break*
- 4:00–4:50 **Evgeny Strekalovski** (Technical University of Munich)
Total Cyclic Variation

Friday February 15, 2013

- 8:00–9:00 *Continental Breakfast*
- 9:00 *Session Chair: Xue-Cheng Tai*
- 9:00–9:50 **Mila Nikolova** (École Normale Supérieure de Cachan)
 ℓ_1 -concave versus ℓ_1 - TV energies. Questions and challenges
- 10:00–10:15 *Break*
- 10:15–11:05 **Luminita Vese** (University of California, Los Angeles (UCLA))
Convex and nonconvex variational models for image segmentation and restoration
- 11:15–11:30 *Conclusion*

