

MB02

Talk #1 Updated

Title: Gradient Sliding Algorithms for Composite Optimization

Presenting Author: Guanghui Lan, University of Florida, 303 Weil Hall, P.O. Box 116595,
Gainesville FL, United States of America, glan@ise.ufl.edu

Abstract: We present gradient sliding (GS) algorithms for solving composite optimization problems whose objective function consists of the summation of a smooth component with some complicated nonsmooth terms. We show that these GS algorithms can skip the computation of the gradient for the smooth component from time to time while still preserving the overall optimal complexity bounds.

MC23

Late Cancellation Paper # 3

*****LATE CANCELLATION***Data-Driven Distributionally Robust Optimization using the Wasserstein Metric**

Presenting Peyman Mohajerin Esfahani, Dr, EPFL & ETH Zurich, Funkwiesenstrasse 100, Zurich
Author: 8050, Switzerland, peyman.mohajerin@epfl.ch

MD 13

Late cancellation paper # 1

*****LATE CANCELLATION***Convex Optimization Learning of Faithful Euclidean Distance Matrices in Dimensionality Reduction**

Presenting Author: Chao Ding, Assistant professor, Chinese Academy of Sciences, No. 55, Zhong Guan Cun Dong Lu, Haidian District

Paper # 2 new presenter

A Schatten p-Norm Perturbation Inequality and Its Applications in Low-Rank Matrix Recovery
Anthony Man-Cho So

MD 15

New Session Chair

Title: Nonlinear Programming - Contributed III

Chair: Minh Pham, Research Associate, SAMSI / Duke University, 19 TW ALEXANDER DR., DURHAM
NC 27707, United States of America, ptuanminh@gmail.com

Late Cancellation

*****LATE CANCELLATION***On the Design and Implementation of SQP Methods**

Jose Luis Morales

MD19

Late Cancellation paper #2

*****Late Cancellation***Optimal Placement and Trajectories of Sensor Networks under Constraints**

Carlos Rautenberg

MF05

Late Cancellation Paper #1

*****LATE CANCELLATION***In-Network Nonconvex Optimization**

Lead Author: Gesualdo Scutari

MF26

Late Cancellation Paper #3

*****LATE CANCELLATION***A Note on Complexity of Multistage Stochastic Programs**

Marcus Reaiche

TB10

Late Cancellation Paper #3

*****LATE CANCELLATION***Optimal Expectation Inequalities for Structured Distributions**

Lead Author: Bart Van Parys

TD04

Talk #2 updated

Title: Bypassing Gradient Computation Through Randomization

Presenting Author: Guanghui Lan, University of Florida, 303 Weil Hall, P.O. Box 116595, Gainesville FL, United States of America, glan@ise.ufl.edu

Abstract: We present novel randomized prima-dual gradient (RPDG) methods for minimizing a class of convex optimization problems, whose objective function consists of the the summation of m smooth components, possibly together with some other relatively simple convex terms. We show that the total number of gradient evaluations required by the RPDG method can be \sqrt{m} times smaller, in expectation and with overwhelming probability, than those performed by deterministic optimal first-order methods.

TD12

Late Cancellation

*****LATE CANCELLATION***Computing Equilibrium in the Stable Dynamic Transportation Model**

Yura Dorn

TD13

Late cancellation paper #2

*****LATE CANCELLATION***Strong Symmetric Duality and Simplex Type Algorithm for Continuous Linear Programs**

Evgeny Shindin

TD29

New Session Chair

Title: Recent Advances in ADMM I

Chair: Deren Han, Prof., Nanjing Normal University, Nanjing Normal University, Nanjing, China, Nanjing 210023, China, handeren@njnu.edu.cn

Late Cancellation

*****LATE CANCELLATION***Block-Wise Alternating Direction Method of Multipliers for Multiple-Block Convex Programming**

Xiaoming Yuan

WB28

Updated abstract #1

Regularization Vs. Relaxation: A Conic Optimization Perspective Of Statistical Variable Selection
Hongbo Dong

Variable selection is a fundamental task in statistical data analysis. Regularization functions, as approximations to the ℓ_0 norm, are typically used to encourage sparsity in the solution. We show that a popular concave penalty function, namely Minimax Concave Penalty (MCP), can be derived from perspective relaxation. A related minimax problem, which balances the overall convexity and tightness of MCP as an approximation to the indicator function, can be solved by a semidefinite relaxation. In light of these results, we argue that conic optimization can be a useful tool to construct methods for variable selection in regression.

WC08

Hilbert's Nullstellensatz Certificates of Infeasibility for Combinatorial Problems

Susan Margulies, Assistant Professor, US Naval Academy, 303 Chauvenet Hall, Annapolis MD, United States of America, margulie@usna.edu

Systems of polynomial equations can be used to compactly and elegantly model combinatorial problems in such a way that if a given combinatorial property is not satisfied, then the system of polynomial

equations has no solution. If a system of polynomial equations has no solution, there exists a very specific algebraic proof of infeasibility via the famous Hilbert's Nullstellensatz. In this talk we compare and contrast the complexity of Hilbert's Nullstellensatz certificates when the underlying combinatorial problem is NP-complete (such as Partition), as compared to problems known to be in P (such as 2-colorability or Matching).

WC20

New Session Chair

Title: Recent Advances in ADMM II

Chair: Caihua Chen, Dr., Nanjing University, 22 Hankou Road, Nanjing, China, chchen@nju.edu.cn

WC27

Late Cancellation

*****LATE CANCELLATION***A 1.93-Approximation Algorithm for Submodular PCST on Bounded Treewidth Graphs**

WD20

New Session Chair

Title: Recent Advances in ADMM III

Chair: Tingting Wu, Dr., School of Science, Nanjing University of Posts and Telecommunications, #9 Culture Gardens Road, Nanjing, China, Nanjing AI 210023, China, wutt@njupt.edu.cn

ThC01 and FC01

Presentation Swap

Computing B-Stationary Points of Nonsmooth DC Programs - moved from ThC01 to FA01

New presenter **Alberth Alvarado**

A Game-Theoretic Approach to Computation Offloading in Mobile Cloud Computing moved from FA01 to ThC01 Francisco Facchinei

ThC05

Updated abstract #2

Title: Mixed-Integer PDE-Constrained Optimization

Presenting Author: Sven Leyffer, Argonne National Laboratory, 9700 South Cass Ave, Argonne IL, United States of America, leyffer@mcs.anl.gov

Abstract: Many complex applications can be formulated as optimization problems constrained by partial differential equations (PDEs) with integer decision variables. Examples include the remediation of contaminated sites and the maximization of oil recovery; the design of next generation solar cells; the layout design of wind-farms; the design and control of gas networks; disaster recovery; and topology optimization. We will present emerging applications of mixed-integer PDE-constrained optimization, review existing approaches to solve these problems, and highlight their computational and mathematical challenges. We introduce a new set of benchmark set for this challenging class of problems, and present some early numerical experience using both mixed-integer nonlinear solvers and heuristic techniques.

ThC08

Late Cancellation

*****LATE CANCELLATION***Cospase Image Recovery from Few Tomographic Projections**

Stefania Petra

LATE CANCELLATION Sparse Signal Recovery from Nonlinear Measurements

Yonina Eldar

ThC28

New Paper moved from FB28

Optimal Design of Switched Ethernet Networks Implementing the Multiple Spanning Tree Protocol

Presenting **Martim Joyce-Moniz**, Université Libre de Bruxelles - Graphes et Optimisation

Author: Mathématique, Boulevard du Triomphe CP 210/01, Bruxelles 1050, Belgium, martim.moniz@ulb.ac.be

Co-Author: **Bernard Fortz**, Université Libre de Bruxelles - Graphes et Optimisation Mathématique, Boulevard du Triomphe CP 210/01, Bruxelles 1050, Belgium, bernard.fortz@ulb.ac.be

Luis Neves Gouveia, Professor Catedrático, Universidade de Lisboa, Campo Grande, Lisbon 1749-016, Portugal, legouveia@fc.ul.pt

Abstract: We propose and compare different MIP formulations to the Traffic Engineering problem of finding optimal designs for switched Ethernet networks implementing the IEEE Multiple Spanning Tree Protocol. This problem consists in designing networks with multiple VLANs, such that each one is defined by a spanning tree that meets the required traffic demand. Additionally, all the VLANs must jointly verify the bandwidth capacity of the network. Meanwhile the worst-case link utilization (ratio between link's load and capacity) is minimized. Moreover, we propose a binary search algorithm, that produces near-optimal solutions, by solving a sequence of sub-problems, that can be seen as a capacitated, multiple spanning tree versions of the OCSTP (Hu, 74).

ThD13

Updated title and abstract #3

Title: Solving SDP Completely with Interior Point Oracle

Presenting **Author:** **Bruno Lourenco**, Tokyo Institute of Technology, 2-12-1-W8-41 Ookayama, Meguro-ku, Tokyo, Japan, flourenco.b.aa@m.titech.ac.jp

Co-Author: **Masakazu Muramatsu**, The University of Electro-Communications, 1-5-1 Chofugaoka, Chofu-shi, Tokyo, Japan, muramatu@cs.uec.ac.jp

Takashi Tsuchiya, National Graduate Institute for Policy Studies, 7-22-1 Roppongi, Minato-ku, Tokyo, Japan, tsuchiya@grips.ac.jp

Abstract: We suppose the existence of an oracle able to solve any semidefinite programming (SDP) problem having interior feasible points at both its primal and dual sides. We note that such an oracle might not be able to directly solve general SDPs even after certain regularization schemes are applied. We will show how one can use such an oracle to 'completely solve' an arbitrary SDP, including the detection of weak/strong (in)feasibility.

ThD 18

Late Cancellation #3

LATE CANCELLATION A Structured Low Rank Matrix Penalty Method and Applications to Sensor Network

Tianxiang Liu

ThF30

Late Cancellation #3

LATE CANCELLATION An Experimental Analysis of Karp-Karmarkar One-Dimensional Bin Packing Algorithm

Otavio Silva

FB05

Late Cancellation #3

*****LATE CANCELLATION*** Evolution Strategies for Stochastic Optimization Problems**

Soualmi Nacer

FB28

Session Cancelled

Title: *****LATE CANCELLATION*** Combinatorial Optimization in Networks**

Chair Erick Mopreno-Centeno

FC01

FC01 and ThC01

Presentation Swap

Computing B-Stationary Points of Nonsmooth DC Programs - moved from ThC01 to FA01

New presenter **Alberth Alvarado**

A Game-Theoretic Approach to Computation Offloading in Mobile Cloud Computing moved from FA01 to ThC01 Francisco Facchinei

FD02

Late Cancellation

*****Late Cancellation*** First-order Methods for Convex Programming and Monotone Operators**

Osman Guler