10th VOCAL Optimization Conference: Advanced Algorithms
5-7 June 2024

Corvinus University of Budapest, Hungary
http://vocal.p-graph.org/

Conference Program

Wednesday, June 5

Time	Event	Room
8:00 – 8:40	Registration	Hall of building C
8:40 – 9:00	Opening session	C V-VI
9:00 – 10:00	**Plenary: Daniel Kuhn**	C V-VI
10:00 – 11:30	Parallel sessions	C103-105
11:30 – 12:00	Coffee break	C101-102
12:00 – 13:30	Parallel sessions	C103-105
13:30 – 14:45	Lunch break	Faculty Club (building E)
14:45 – 16:15	Parallel sessions	C103-105
16:15 – 16:45	Coffee break	C101-102
16:45 – 18:15	Parallel sessions	C103-105

Thursday, June 6

Time	Event	Room
8:30 – 9:00	Registration	Hall of building C
9:00 – 10:00	**Plenary: Máté Matolcsi**	C V-VI
10:00 – 11:30	Parallel sessions	C103-105
11:30 – 12:00	Coffee break	C101-102
12:00 – 13:30	Parallel sessions	C103-105
13:30 – 14:45	Lunch break	Faculty Club (building E)
14:45 – 16:15	Parallel sessions	C103-105
16:15 – 16:45	Coffee break	C101-102
16:45 – 18:15	Parallel sessions	C103-105
19:00 – 22:00	Conference dinner	Vörös Postakocsi Restaurant

Friday, June 7

Time	Event	Room
8:30 – 9:00	Registration	E III
9:00 – 10:00	**Plenary: François Glineur**	E III
10:00 – 10:15	Break	
10:15 – 11:45	Parallel sessions	C103-105
11:45 – 12:15	Coffee break	E III
12:15 – 13:15	**Plenary: Merve Bodur**	E III
13:15 – 13:30	Closing session	E III
13:30 –	HORS meeting	E III

Session talks are 30 minutes long.

The address of the conference dinner:
  Vörös Postakocsi Restaurant
  Budapest, Ráday utca 15.

Wednesday, June 5, 9:00-10:00

Room: C V-VI (ground floor)
Plenary Chair:

Daniel Kuhn: *Distributionally Robust Linear Quadratic Control*
───

Wednesday, June 5, 10:00-11:30

Room: C103 (first floor)
Session: Game Theory – Algorithms Chair: *Giancarlo Bigi*

David Bartl: *A new nucleolus-like method to compute the priority vector of a pairwise comparison matrix*
Márton Benedek: *Optimization framework of a two-sided auction based logistical coordination platform*
Giancarlo Bigi: *Projected solutions for quasi-equilibria*
─────────────────────────────────

Room: C104 (first floor)
Session: Mixed Integer Programming I Chair: *Markó Horváth*

Bogdan Zavalnij: *LP reformulation of combinatorial optimization problems aided by combinatorial methods*
László Kálmán Trautsch: *Constraint Programming formulation for a real-world final exam scheduling problem with parallel sessions based on short time intervals*
Péter Naszvadi: *Maximal Hamming packing search: contact graph-based model MILP improvements*
─────────────────────────────────

Room: C105 (first floor)
Session: Large scale optimization and applications I Chair: *Nataša Krklec Jerinkić*

Nataša Krklec Jerinkić: *Spectral Stochastic Gradient Method with Additional Sampling for Finite and Infinite Sums*
Mahsa Yousefi: *A Simple Stochastic Trust-Region Method for Training Neural Network Classification Models*
Marko Hajba: *Neural Network Models for Eigenvalue Problems*
───

Wednesday, June 5, 12:00-13:30

Room: C103 (first floor)
Session: Game Theory – Applications Chair: *Attila Tasnádi*

Attila Tasnádi: *Limitations of the MedRank algorithm*
Laszló Csató: *Voting power in the Council of the European Union: A sensitivity analysis*
Stéphan Sémirat: *Convergence of a Two-Player Version of Macqueen's k-means Algorithm*
─────────────────────────────────

Room: C104 (first floor)
Session: Mixed Integer Programming II Chair: *Ambros Gleixner*

Mihály Gencsi: *Complex geometrical test for optimality conditions in Interval Branch and Bound method*
Péter Dobrovoczki: *Piecewise linear modeling of head-dependent hydropower function on non-grid triangulation*
Ambros Gleixner: *A proof system for certifying symmetry and optimality reasoning in integer programming*
─────────────────────────────────

Room: C105 (first floor)
Session: Large scale optimization and applications II Chair: *Greta Malaspina*

Luka Rutešić: *Probabilistic Trust Region Method for solving Multi-Objective Problems*
Mateja Đumić: *Evolving relocation rules for the Container Relocation Problem using Genetic programming*
Greta Malaspina: *Randomized Gauss-Newton methods for large scale nonlinear least squares*
───

Wednesday, June 5, 14:45-16:15

Room: C103 (first floor)
Session: Combinatorial Optimization I   Chair: *Márton Benedek*

Meike Neuwohner: *Passing the Limits of Pure Local Search for Weighted k-Set Packing*
Martin Rónai-Kovács: *Optimizing schedules by the aspect of fairness*
―――――――――――――――――――

Room: C104 (first floor)
Session: Interior-Point Methods for Linear Complementarity Problems I   Chair: *Petra Renáta Rigó*

Petra Renáta Rigó: *New class of algebraically equivalent transformations for predictor-corrector interior-point algorithms*
Roland Török: *Implementation of predictor-corrector interior-point algorithms for sufficient linear complementarity problems*
Zsolt Darvay: *New class of algebraically equivalent transformations for predictor-corrector algorithms solving symmetric cone horizontal linear complementarity problems*
―――――――――――――――――――

Room: C105 (first floor)
Session: P-graph Algorithms   Chair: *Márton Frits*

Mihály István Sümegi: *Direct Calculation: A Novel P-graph Based Method for Determining Reliability*
Ákos Orosz: *Extension of P-graph Framework to Simultaneously Cover Directed and Nondirected Elements*
András Éles: *Combining the multi-periodic and flexible input modeling techniques in the P-Graph framework*
―――

Wednesday, June 5, 16:45-18:15

Room: C103 (first floor)
Session: Combinatorial Optimization II   Chair: *Lilla Tóthmérész*

Tamás Schwarcz: *Problems on Group-labeled Matroid Bases*
Eszter Csókás: *On the selection of an initial set of conditions for submodular function maximization for fully connected graph instances*
Lilla Tóthmérész: *Relationships between the geometry of graph polytopes and graph structure*
―――――――――――――――――――

Room: C104 (first floor)
Session: Interior-Point Methods for Linear Complementarity Problems II   Chair: *Anita Varga*

Marianna E.-Nagy: *Bounding the handicap of a matrix*
Anita Varga: *An Ai-Zhang-type interior-point framework for linear complementarity problems*
Goran Lesaja: *Simplified Analysis of Kernel-Based Interior-Point Methods for Linear Complementarity Problems*
―――――――――――――――――――

Room: C105 (first floor)
Session: P-graph Applications I   Chair: *Zsolt Ercsey*

Márton Frits: *Optimal Trajectory and Route Planning for Free Navigation of Automated Guided Vehicles*
Anikó Zseni: *Learning Path Optimization by P-graph Algorithms for Curriculum Development in Higher Education*
Károly Kalauz: *Comparison of PNS and TCPNS formulations of production scheduling for furniture manufacturing*
―――

Thursday, June 6, 9:00-10:00

Room: C V-VI (ground floor)
Plenary   Chair: *Botond Bertók*

Máté Matolcsi: *Linear programming bounds for problems in discrete geometry*
―――

Thursday, June 6, 10:00-11:30

Room: C103 (first floor)
Session: Strategic games   Chair: *Miklós Pintér*

Raimundo Saona: *Value-Positivity for Matrix Games*
Imre Balog: *Continuous generalized games*
Miklós Pintér: *Games with partial control*
―――――――――――――――――――――――――

Room: C104 (first floor)
Session: Topics in nonlinear programming   Chair: *Sándor Bozóki*

Hedvig Gal: *Convergence of semi-convex functions in CAT(1) spaces and refelction on Douglas Rachford Operator Splitting Algorithm*
József Dombi: *Different types of feasibility problems via special membership functions*
Sándor Bozóki: *Homogeneous convex polyhedra with one unstable equilibrium have at least 7 vertices*
―――――――――――――――――――――――――――

Room: C105 (first floor)
Session: Modeling, Simulation and Optimization   Chair: *Kristian Sabo*

Zoran Tomljanovic: *Solving sequences of parametrized Lyapunov equations for efficient simulation of parameter influence*
Ivan Papić: *A two diffusions stochastic model for epidemic of the SARS-CoV-2 virus*
Manojlo Vukovic: *Nonlinear distributed estimation in correlated heavy-tailed noise*
―――

Thursday, June 6, 12:00-13:30

Room: C103 (first floor)
Session: Game Theory – Allocations   Chair: *Péter Csóka*

Péter Csóka: *An Axiomatization of the Pairwise Netting Proportional Rule in Financial Networks*
Zsófia Dornai: *TU-games with utility: characterization sets for the u-prenucleolus*
Tamás Solymosi: *Nucleolus-type allocations in hierarchies when cooperation is costly*
―――――――――――――――――――――――――

Room: C104 (first floor)
Session: Approximation algorithms for graph problems   Chair: *Gyula Pap*

Gergely Csáji: *On the Complexity of Finding Maximum Size Properly Colored Trees and Forests in Edge-Colored Graphs*
Kitti Varga: *Color-avoiding connected spanning subgraphs with minimum number of edges*
Gyula Pap: *Approximation of disjoint A-paths via fractional matroid matching*
―――――――――――――――――――――――――

Room: C105 (first floor)
Session: P-graph Applications II   Chair: *Botond Bertók*

Boglárka Eisinger Balassa: *Innovations in Public Service Process Management: Enhancing University Enrollment Through P-Graph Methodology*
Zsolt Ercsey: *Process Network Solution of a Sport Shooting Event Scheduling Problem*
―――

Thursday, June 6, 14:45-16:15

Room: C103 (first floor)
Session: Conic and polynomial optimization   Chair: *Miguel Anjos*

Immanuel Bomze: *Shor convexity, min-max QCQPs and application to min-max regret of nonconvex QPs*
Monse Guedes Ayala: *Random Projections for Semidefinite Programming and Polynomial Optimization*
Miguel Anjos: *Semidefinite liftings for the complex cut polytope*
———————————————————————

Room: C104 (first floor)
Session: Stochastic optimization and applications I   Chair: *Csaba Fábián*

Tamás Kegyes: *Improvements of the Q-compression method for constrained stochastic graph traversal problems*
Edith Kovács: *New algorithms for probability bounds with cherry trees*
Edit Csizmás: *Applying random coordinate descent in a probability maximization scheme*
———————————————————————

Room: C105 (first floor)
Session: Application of integer programming   Chair: *Gábor Galambos*

Gábor Galambos: *Total Earliness-Tardiness problems for Coupled of Tasks scheduling*
Markó Horváth: *A cost function approximation method for dynamic vehicle routing with LIFO and docking constraints*
Zakaria Zine El Abidine: *Analysis of the Workload of Assembly Stations when the Makespan is Minimized in the Presence of Learning Effects*
——

Thursday, June 6, 16:45-18:15

Room: C103 (first floor)
Session: Network Optimization   Chair: *Miklós Krész*

Daniel Szabo: *Directed k-way Cut and Sparsest Set in Bipartite Graphs*
Péter Madarasi: *Heuristics for finding largest (k,l)-sparse subgraphs*
Miklós Krész: *Approximation algorithm for the weighted connected p-median problem*
———————————————————————

Room: C104 (first floor)
Session: Stochastic optimization and applications II   Chair: *Edit Csizmás*

Achim Koberstein: *Plant-wide master production scheduling in the automotive industry: A MILP-approach and a simulation study*
Rajmund Drenyovszki: *Strategic Demand-Side Management: A Probability Maximization-Based Optimization Approach*
———————————————————————

Room: C105 (first floor)
Session: OR applications   Chair: *Zoltán Bánhidi*

David Hartman: *Complex network approximate symmetries motivated by brain studies*
Zoltán Bánhidi: *Quantifying the impact of outlier management techniques on digital country rankings*
——

Friday, June 7, 9:00-10:00

Room: E III (ground floor)
Plenary   Chair: *Marianna E.-Nagy*

François Glineur: *Performance estimation of optimization methods: a guided tour*

Friday, June 7, 10:15-11:45

Room: C103 (first floor)
Session: Decision theory   Chair: *Sándor Bozóki*

Kristóf Ábele-Nagy: *Estimating army effectiveness using pairwise comparison matrices*
Zsombor Szádoczki: *Allocations based on pairwise comparisons*
Kolos Ágoston: *Aggregation of pairwise comparison matrices: A clustering approach*

Room: C104 (first floor)
Session: Approximation algorithms for scheduling problems   Chair: *Tamás Kis*

József Békési: *Analysis of an Approximation Algorithm for Coupled Task Scheduling with Equal Lengths of Tasks for Minimizing the Sum of Completion Times*
Nóra Büki: *Improving bounds on approximation algorithms for the Triangle Scheduling problem using Mixed Integer Quadratic Programming*
Tamás Kis: *Joint replenishment meets scheduling*

Room: C105 (first floor)
Session: Methods of optimization   Chair: *Mátyás Koniorczyk*

Mátyás Koniorczyk: *Graph cliques and quantum annealing*
Attila Szász: *New interval-based training technique to parameter robustness*
Éva Kenyeres: *Particle Filter Optimisation algorithms for robust optimisation*

Friday, June 7, 12:15-13:15

Room: E III (ground floor)
Plenary   Chair: *Giancarlo Bigi*

Merve Bodur: *Decision rules for sequential decision-making under uncertainty*