

Table of Contents

Session 1 – Invited Talk

Approximation of Multiobjective Optimization Problems	1
<i>Mihalis Yannakakis</i>	

Session 2A

Optimal, Suboptimal, and Robust Algorithms for Proximity Graphs	2
<i>Ferran Hurtado, Giuseppe Liotta, and Henk Meijer</i>	

Optimal Möbius Transformations for Information Visualization and Meshing	14
<i>Marshall Bern and David Eppstein</i>	

Session 2B

Using the Pseudo-Dimension to Analyze Approximation Algorithms for Integer Programming	26
<i>Philip M. Long</i>	

On the Complexity of Scheduling Conditional Real-Time Code	38
<i>Samarjit Chakraborty, Thomas Erlebach, and Lothar Thiele</i>	

Session 3A

Time Responsive External Data Structures for Moving Points	50
<i>Pankaj K. Agarwal, Lars Arge, and Jan Vahrenhold</i>	

Voronoi Diagrams for Moving Disks and Applications	62
<i>Menelaos I. Karavelas</i>	

Session 3B

Fast Fixed-Parameter Tractable Algorithms for Nontrivial Generalizations of Vertex Cover	75
<i>Naomi Nishimura, Prabhakar Ragde, and Dimitrios M. Thilikos</i>	

Deciding Clique-Width for Graphs of Bounded Tree-Width	87
<i>Wolfgang Espelage, Frank Gurski, and Egon Wanke</i>	

Session 4A

Complexity Bounds for Vertical Decompositions of Linear Arrangements in Four Dimensions	99
<i>Vladlen Koltun</i>	

Optimization over Zonotopes and Training Support Vector Machines 111
Marshall Bern and David Eppstein

Reporting Intersecting Pairs of Polytopes in Two and Three Dimensions . . 122
*Pankaj K. Agarwal, Mark de Berg, Sariel Har-Peled,
 Mark H. Overmars, Micha Sharir, and Jan Vahrenhold*

Session 4B

Seller-Focused Algorithms for Online Auctioning 135
*Amitabha Bagchi, Amitabh Chaudhary, Rahul Garg,
 Michael T. Goodrich, and Vijay Kumar*

Competitive Analysis of the LRFU Paging Algorithm 148
Edith Cohen, Haim Kaplan, and Uri Zwick

Admission Control to Minimize Rejections 155
Avrim Blum, Adam Kalai, and Jon Kleinberg

Session 5 – Invited Talk

Secure Multi-party Computational Geometry 165
Mikhail J. Atallah and Wenliang Du

Session 6A

The Grid Placement Problem 180
Prosenjit Bose, Anil Maheshwari, Pat Morin, and Jason Morrison

On the Reflexivity of Point Sets 192
*Esther M. Arkin, Sándor P. Fekete, Ferran Hurtado,
 Joseph S.B. Mitchell, Marc Noy, Vera Sacristán, and Saurabh Sethia*

Session 6B

A $\frac{7}{8}$ -Approximation Algorithm for Metric Max TSP 205
Refael Hassin and Shlomi Rubinfeld

Approximating Multi-objective Knapsack Problems 210
Thomas Erlebach, Hans Kellerer, and Ulrich Pferschy

Session 7A

Visual Ranking of Link Structures 222
Ulrik Brandes and Sabine Cornelsen

A Simple Linear Time Algorithm for Proper Box Rectangular Drawings of
 Plane Graphs 234
Xin He

Session 7B

- Short and Simple Labels for Small Distances and Other Functions 246
Haim Kaplan and Tova Milo
- Fast Boolean Matrix Multiplication for Highly Clustered Data 258
Andreas Björklund and Andrzej Lingas

Session 8A

- Partitioning Colored Point Sets into Monochromatic Parts 264
Adrian Dumitrescu and János Pach
- The Analysis of a Probabilistic Approach to Nearest Neighbor Searching . . 276
Songrit Maneewongvatana and David M. Mount
- I/O-Efficient Shortest Path Queries in Geometric Spanners 287
Anil Maheshwari, Michiel Smid, and Norbert Zeh

Session 8B

- Higher-Dimensional Packing with Order Constraints 300
Sándor P. Fekete, Ekkehard Köhler, and Jürgen Teich
- Bin Packing with Item Fragmentation 313
Nir Menakerman and Raphael Rom
- Practical Approximation Algorithms for Separable Packing
 Linear Programs 325
*Feodor F. Dragan, Andrew B. Kahng, Ion I. Măndoiu, Sudhakar Muddu,
 and Alexander Zelikovskiy*

Session 9 – Invited Talk

- The Challenges of Delivering Content on the Internet 338
F. Thomson Leighton

Session 10A

- Upward Embeddings and Orientations of Undirected Planar Graphs 339
Walter Didimo and Maurizio Pizzonia
- An Approach for Mixed Upward Planarization 352
Markus Eiglsperger and Michael Kaufmann

Session 10B

- A Linear-Time Algorithm for Computing Inversion Distance
 between Signed Permutations with an Experimental Study 365
David A. Bader, Bernard M.E. Moret, and Mi Yan

Computing Phylogenetic Roots with Bounded Degrees and Errors 377
Zhi-Zhong Chen, Tao Jiang, and Guo-Hui Lin

Session 11A

A Decomposition-Based Approach to Layered Manufacturing 389
*Ivaylo Ilinkin, Ravi Janardan, Jayanth Majhi, Jörg Schwerdt,
 Michiel Smid, and Ram Sriram*

When Can You Fold a Map? 401
*Esther M. Arkin, Michael A. Bender, Erik D. Demaine,
 Martin L. Demaine, Joseph S.B. Mitchell, Saurabh Sethia, and
 Steven S. Skiena*

Session 11B

Search Trees with Relaxed Balance and Near-Optimal Height 414
Rolf Fagerberg, Rune E. Jensen, and Kim S. Larsen

Succinct Dynamic Data Structures 426
Rajeev Raman, Venkatesh Raman, and S. Srinivasa Rao

Session 12A

Optimal Algorithms for Two-Guard Walkability of Simple Polygons 438
Binay Bhattacharya, Asish Mukhopadhyay, and Giri Narasimhan

Movement Planning in the Presence of Flows 450
John Reif and Zheng Sun

Session 12B

Small Maximal Independent Sets and Faster Exact Graph Coloring 462
David Eppstein

On External-Memory Planar Depth First Search 471
Lars Arge, Ulrich Meyer, Laura Toma, and Norbert Zeh

Author Index 483