



Monday, September 15

Foyer of the Audimax

8:00 Registration

Joint Program – Audimax A

9:00 Welcome Address

Conference Chairs and Vice-President of Research Prof. Dr.-Ing. Detlef Löhe

9:25 Invited Talk Chair: Kurt Mehlhorn

A Bridging Model for Multi-Core Computing

Leslie Valiant, Harvard University

10:15 Short Break

10:25 Session 1A Chair: Kurt Mehlhorn

ESA Best Paper Award

Better and Simpler Approximation for the Stable Marriage Problem

Zoltan Kraly

Program continues in parallel sessions

ESA – Audimax A

10:50 Session 1A

Chair: Kurt Mehlhorn

Improved Approximation Algorithms for Relay Placement A. Efrat, S. Fekete, P. Gaddehosur, J. Mitchell, V. Polishchuk and J. Suomela

ESA – Audimax B

10:50 Session 1B

Chair: Kazuhisa Makino

An Almost Space-Optimal Streaming Algorithm for Coresets in Fixed Dimensions Hamid Zarrabi-Zadeh

WABI – Lecture Room, 2nd Floor

10:50 Session 1

Multichromosomal Genome median and Halving Problems E. Tannier, C. Zheng, D. Sankoff

11:15 Coffee Break

11:40 Session 2A

Chair: Rolf Fagerberg

A Practical Quicksort Algorithm for Graphics Processors Daniel Cederman and Philippos Tsigas

The Complexity of Sorting with Networks of Stacks and Queues Stefan Felsner and Martin Pergel

11:40 Session 2B

Chair: Katarzyna Paluch

Faster Steiner Tree Computation in Polynomial-Space F. Fomin, F. Grandoni and D. Kratsch

Two-stage Robust Network Design with Exponential Scenarios R. Khandekar, G. Kortsarz, V. Mirrokni and M. Salavatipour

11:40 Session 2

A Branch-and-Bound Method for the Multichromosomal Reversal Median Problem Meng Zhang, William Arndt, Jijun Tang

Decompositions of Multiple Breakpoint Graphs and Rapid Exact Solutions to the Median Problem Wei Xu, David Sankoff

12:30 Lunch Break

14:00 Session 3A

Chair: Dan Halperin

On the Size of the 3D visibility skeleton: Experimental Results L. Zhang, H. Everett, S. Lazard, C. Weibel and S. Whitesides

How Reliable are Practical Point-in-Polygon Strategies Stefan Schirra

Fitting a Step Function to a Point Set H. Fournier and A. Vigneron

14:00 Session 3B

Chair: Mike Paterson

Edit Distances and Factorisations of Even Permutations Anthony Labarre

An Online Algorithm for Finding the Longest Previous Factors D. Okanohara and Kunihiko Sadakane

Detecting regular Visit Patterns B. Djordjevic, J. Gudmundsson, A. Pham and T. Wolle

14:00 Session 3

Read Mapping Algorithms for Single Molecule Sequencing Data Vladimir Yanovsky, Stephen Rumble, Michael Brudno

Exact Transcriptome Reconstruction from Short Sequence Reads Vincent Lacroix, Michael Sammeth, Roderic Guigo, Anne Bergeron

Post-Hybridization Quality Measures for Oligos in Genome-Wide Microarray Experiments F. Batte, C. Müller-Tidow, H. Serve, K. Nieselt

15:15 Coffee Break

15:45 Session 4A

Chair: Michael Hoffmann

Stabbing Convex Polygons with a Segment or a Polygon P. Agarwal, D. Chen, S. Ganjugunte, E. Misiulek, M. Sharir and K. Teng

A Near-tight Bound for the Online Steiner Tree Problem in Graphs of Bounded Asymmetry Spyros Angelopoulos

Locality and Bounding-Box Quality of Two-Dimensional Space-Filling Curves H. Haverkort and F. v. Walderveen

15:45 Session 4B

Chair: Katarzyna Paluch

Edge Coloring and Decompositions of Weighted Graphs Uriel Feige and Mohit Singh

Approximating Multi-Criteria Max-TSP M. Blaeser, B. Manthey and O. Putz

Cache-Oblivious Red-Blue Line Segment Intersection L. Arge, T. Molhave and N. Zeh

15:45 Session 4

NAPX: A Polynomial Time Approximation Scheme for the Noah's Ark Problem Glenn Hickey, Paz Carmi, Anil Maheshwari, Norbert Zeh

Minimum Common String Partition Parameterized Peter Damaschke

Hardness and Approximability of the Inverse Scope Problem Zoran Nikoloski, Sergio Grimbs, Joachim Selbig, Oliver Ebenhöf

17:00 Short Break

17:10 Session 5A

Chair: Rolf Fagerberg

Probabilistic Analysis of Online Bin Coloring algorithms via Stochastic Comparison Benjamin Hiller and Tjark Vredeveld

Randomized Competitive Analysis for 2-Server Problems W. Bein, K. Iwama and J. Kawahara

17:10 Session 5B

Chair: Christian Knauer

Facility Location in Dynamic Geometric Data Streams C. Lammerson and C. Sohler

An Efficient Algorithm for 2D Euclidian 2-Center with Outliers P. Agarwal and Jeff Phillips

17:10 Session 5

Rapid Neighbour-Joining Martin Simonsen, Christian N.S. Pedersen, Thomas Mailund

Efficiently Computing Arbitrarily-Sized Robinson-Foulds Distance Matrices Seung-Jin Sul, Grant Brammer, Tiffani Williams

18:15 Reception



Tuesday, September 16

Joint Program – Audimax A

9:00 Invited Talk Chair: Dan Halperin
Flexible Path Planning Using Corridor Maps
Marc Overmars, Universiteit Utrecht

9:50 Short Break

10:00 Session 6A Chair: Renato Werneck

ESA Best Student Paper Track B
Time-Dependent SHARC-Routing
Daniel Delling

Program continues in parallel sessions

ESA – Audimax A

10:25 Session 6A

Chair: Renato Werneck

Mobile Route Planning *P. Sanders, D. Schultes and C. Vetter*

An Integer Programming Algorithm for Routing Optimization in IP Networks *Andreas Bley*

ESA – Audimax B

10:25 Session 6B

Chair: Rolf Fagerberg

Bloomier Filters: A second look *Denis Charles and Kumar Chellapilla*

More Robust Hashing: Cuckoo Hashing with a Stash *A. Kirsch, M. Mitzenmacher and U. Wieder*

WABI – Lecture Room, 2nd Floor

10:25 Session 6

Efficient Genome Wide Tagging by Reduction to SAT *A. Choi, N. Zaitlen, B. Han, K. Pipatsrisawat, A. Darwiche, E. Eskin*

Computing the Minimal Tiling Path from a Physical Map by Integer Linear Programming *Serdar Bozdag, Stefano Lonardi, Timothy Close*

11:15 Coffee Break

11:40 Session 7A

Chair: Christian Knauer

Space-Time Tradeoffs for Proximity Searching in Doubling Spaces *S. Arya, D. Mount, A. Vigneron and J. Xia*

An Optimal dynamic spanner for doubling metric spaces *Lee-Ad Gottlieb and Liam Roditty*

11:40 Session 7B

Chair: Renato Werneck

Finding Path Minima in incremental unrooted trees *Haim Kaplan and Nira Shafir*

Engineering Tree Labeling Schemes: a case Study on Least Common Ancestors *S. Caminiti, I. Finocchi and R. Petreschi*

11:40 Session 7

An Efficient Lagrangian Relaxation for the Contact Map Overlap Problem *Rumen Andonov, Nicola Yanev, Noel Malod-Dognin*

A Faster Algorithm for RNA Co-folding *Michal Ziv-Ukelson, Irit Gat-Viks, Ydo Wexler, Ron Shamir*

12:30 Lunch Break

14:00 Session 8A

Chair: Katarzyna Paluch

On the Complexity of Optimal Hotlink Assignment *Tobias Jacobs*

Faster Swap Edge Computation in Minimum Diameter Spanning Trees *Beat Gfeller*

Tight Bounds and a Fast FPT Algorithm for Directed Max-Leaf Spanning Tree *Paul Bonsma and Frederic Dorn*

14:00 Session 8B

Chair: Dan Halperin

Straight Skeletons of Three-Dimensional Polyhedra *G. Barequet, D. Eppstein, M. Goddich and A. Vaxman*

Decompositions and Boundary Coverings of Non-Convex Fat Polyhedra *M. de Berg and C. Gray*

The Complexity of Bisectors and Voronoi Diagrams on Realistic Terrains *B. Aronov, M. de Berg, Shripad Thite*

14:00 Session 8

Protein Decoy Generation using Branch and Bound with Efficient Bounding *M. Paluszewski, P. Winter*

Fast Target Set Reduction for Large-scale Protein Function Prediction *T. Lingner, P. Meinicke*

Multiple Instance Learning Allows MHC Class II Epitope Predictions across Alleles *Nico Pfeifer, Oliver Kohlbacher*

15:15 Coffee Break

15:45 Session 9A

Chair: Michael Hoffmann

Relative Convex Hulls in Semi-Dynamic Subdivisions *Csaba Tóth and Mashhood Ishaque*

On Dominance Reporting in 3D *Peyman Afshani*

Robust Kinetic Convex Hulls in 3D *U. Acar, G. Blöchl, K. Tangwongsan and D. Türkoglu*

15:45 Session 9B

Chair: Gianni Franceschini

Speed Scaling Functions for Flow Time Scheduling based on Active Job Count *T. Lam, L. K. Lee, I. To and P. Wong*

A Constant-Approximate Feasibility Test for Multiprocessor Real Time Scheduling *V. Bonifaci, A. Marchetti-Spaccamela and S. Stiller*

RFQ: Redemptive Fair Queueing *Ajay Gulati and Peter Varman*

15:45 Session 9

An Algorithm for Orienting Graphs Based on Cause-Effect Pairs and Its Applications to Orienting Protein Networks *A. Medvedovsky, V. Bafna, U. Zwick, R. Sharan*

Enumerating Precursor Sets of Target Metabolites in a Metabolic Network *L. Cottret, P. Vieira Milreu, V. Acuña, A. Marchetti-Spaccamela, F. V. Martinez, M.-F. Sagot, L. Stougie*

Boosting the Performance of Inference Algorithms for Transcriptional Regulatory Networks Using a Phylogenetic Approach *X. Zhang, B. Moret*

17:00 Short Break

17:10 Session 10A

Chair: Gianni Franceschini

The Alcuin number of a graph *P. Csorba, C. Hurkens and G. Woeginger*

Improved BDD Algorithms for the Simulation of Quantum Circuits *Vasilis Samoladas*

17:10 Session 10B

Chair: Christian Knauer

Range Medians *Sariel Har-Peled and S. Muthukrishnan*

Succinct Representations of Arbitrary Graphs *Arash Farzan and Ian Munro*

17:10 Session 10

Fast Bayesian Haplotype Inference via Context Tree Weighting *Pasi Rastas, Jussi Kollin, Mikko Koivisto*

Genotype Sequence Segmentation: Handling Constraints and Noise *Qi Zhang, Wei Wang, Leonard Mcmillan, Fernando Pardo-Manuel de Villena, David Threadgill, Jan Prins*

18:15 ESA Business Meeting



Wednesday, September 17

Joint Program – Audimax A

9:00 Invited Talk Chair: Jens Lagergren
Towards the Large Scale in Silico Study of Human Metabolic Diseases
Eytan Ruppin, Tel Aviv University

9:50 Short Break

10:00 Session 11A Chair: Kurt Mehlhorn

ESA Best Student Paper Track A
Deterministic Sampling Algorithms
Anke van Zuylen

Program continues in parallel sessions

ESA – Audimax A

10:25 Session 11A

Chair: Kurt Mehlhorn

Oblivious Randomized Direct Search for Real-Parameter Optimization *Jens Jägersküpper*

Improved randomized results for that interval selection problem *Leah Epstein and Asaf Levin*

ESA – Audimax B

10:25 Session 11B

An experimental Analysis of Robinson-Foulds Distance-Matrix Algorithms *Tiffani Williams and Seung-Jin Sul*

A Local-Search 2-Approximation for 2-Correlation-Clustering *T. Coleman, J. Saunderson and A. Wirth*

WABI – Lecture Room, 2nd Floor

10:25 Session 11

Constructing Phylogenetic Supernetworks from Quartets *Stefan Grunewald, Andreas Spillner, Kristofer Forslund, Vincent Moulton*

Summarizing Multiple Gene Trees Using Cluster Networks *Daniel Huson, Regula Rupp*

11:15 Coffee Break

11:40 Session 12A

Chair: Marco Lübbecke

The Effects of Local Randomness in the Adversarial Queuing Model *Yann Lorion and Maik Weinard*

Improved Competitive Performance Bounds for CIOQ Switches *A. Kesselman, K. Kogan and M. Segal*

11:40 Session 12B

Chair: Renato Werneck

Coupled Path Planning, Region Optimization, and Applications in Intensity-Modulated Radiation Therapy *Danny Z. Chen, Shuang Luan and Chao Wang*

Parallel Imaging Problem *Thanh Nguyen and Éva Tardos*

11:40 Session 12

Fast and Adaptive Variable Order Markov Chain Construction *Marcel Schulz, David Weese, Tobias Rausch, Andreas Döring, Knut Reinert, Martin Vingron*

Computing Alignment Seed Sensitivity with Probabilistic Arithmetic Automata *Inke Herms, Sven Rahmann*

12:30 Lunch Break

14:00 Session 13A

Chair: Katarzyna Paluch

An Optimal Incremental Algorithm for Minimizing Lateness with Rejection *Samir Khuller and Julian Mestre*

Approximability of Average Completion Time scheduling on Unrelated Machines *Rene Sitters*

Fast Divide-and-Conquer Algorithms for Pre-emptive Scheduling Problems with Controllable Processing Times *N. Shakhlevich, A. Shioura and V. Strusevich*

14:00 Session 13B

Chair: Kurt Mehlhorn

Selfish Bin Packing *Leah Epstein and Elena Kleiman*
Collusion-Resistant Mechanisms with Verification Yielding Optimal Solutions *P. Penna and C. Ventre*

A characterization of 2-player Mechanisms for Scheduling *G. Christodolou, E. Koutsoupias and A. Vivaldi*

14:00 Session 13

The Relation Between Indel Length and Functional Divergence: a Formal Study *Rahleh Salari, Alexander Schonhuth, Fereydoun Hormozdiari, Artem Cherkasov, S. Cenk Sahinalp*

Detecting Repeat Families in Incompletely Sequenced Genomes *José Augusto Amgarten Quitzau, Jens Stoye*

Novel Phylogenetic Network Inference by Combining Maximum Likelihood and Hidden Markov Models *Sagi Snir, Tamir Tuller*

15:15 Coffee Break

15:45 Session 14A

Chair: Peter Sanders

A Scaling Algorithm for Maximum Node-Capacitated Multiflow Problem *Maxim Babenko and Alexander Karzanov*

The Partial Augment-Relabel Algorithm for the Maximum Flow Problem *Andrew Goldberg*

15:45 Session 14B

Chair: Marco Lübbecke

Linear Time Planarity Testing and Embedding of Strongly Connected Cyclic Level Graphs *Christian Bachmeier and W. Brunner*

A New Approach to Exact Crossing Minimization *M. Chimani, P. Mutzel and I. Bomze*

15:45 Session 14

A Local Move Set for Protein Folding in Triangular Lattice Models *Hans-Joachim Böckenhauer, Abu Zafer M Dayem Ullah, Leonidas Kapsokalivas, Kathleen Steinhofel*

An Automated Combination of Kernels for Predicting Protein Subcellular Localization *Cheng Soon Ong, Alexander Zien*

18:00 Social Event: Visit to the ZKM



Thursday and Friday

Joint Program – Audimax A

Thursday, September 18

9:00 - 9:50 Invited Talk

Timetabling and Robustness - Computing Good and Delay-Resistant Timetables
Rolf Möhring, Technische Universität Berlin

Friday, September 19

9:00 - 9:50 Invited Talk

Competitive Algorithms for Incremental Optimization Problems
David P. Williamson, Cornell University

Program continues in parallel sessions

Thursday, September 18

WAOA – Audimax A

9:50 - 10:00

Max-Weight Integral Multicommodity Flow in Spiders and High-Capacity Trees *Jochen Konemann, Ojas Parekh and David Pritchard*

Size Versus Stability in the Marriage Problem *Peter Biro, David Manlove and Shubham Mittal*

Degree-Constrained Subgraph Problems: Hardness and Approximation Results *O. Amini, D. Peleg, S. Perennes, I. Sau and S. Saurabh*

11:15 - 11:40

A lower bound for scheduling of unit jobs with immediate decision on parallel machines *Tomáš Ebenlendr and Jiri Sgall*

Improved Randomized Online Scheduling of Unit Length Intervals and Jobs *Stanley Fung, CK Poon and Feifeng Zheng*

12:30 - 14:00

Minimizing average flow time on unrelated machines *Rene Sitters*

Cooperation in multiorganization matching *Laurent Gourves, Jerome Monnot and Fanny Pascual*

Randomized Algorithms for Buffer Management with 2-Bounded Delay *Marcin Bienkowski, Marek Chrobak and Lukasz Jez*

15:15 - 15:45

A General Scheme for Designing Monotone Algorithms for Scheduling Problems with Precedence Constraints *C. Thielen and S. Krumke*

Malicious Bayesian Congestion Games *Martin Gairing*

Stackelberg Strategies and Collusion in Network Games with Splittable Flow *T. Harks*

17:00 - 17:10 Short Break

Peak Shaving Through Resource Buffering *Amotz Bar-Noy, Matthew P. Johnson and Ou Liu*

On Lagrangian Relaxation and Subset Selection Problems *Ariel Kulik and Hadas Shachnai*

Approximation algorithms for prize-collecting network design problems with general connectivity requirements *C. Nagarajan, Y. Sharma, D. Williamson*

ATMOS – Audimax B

9:50 - 10:00 Short Break

Line Planning on Paths and Tree Networks with Applications to the Quito Trolebús System *R. Borndörfer, M. E. Pfetsch, L. Torres and R. Torres*

Simultaneous Line Planning and Traffic Assignment *Karl Nachtigall and Karl Jerosch*

Robust Line Planning under Unknown Incentives and Elasticity of Frequencies *Spyros Kontogiannis and Christos Zaroliagis*

11:15 - 11:40 Coffee Break

Recoverable Robustness for Railway Rolling Stock Planning *Valentina Cacchiani, Alberto Caprara, Laura Galli, Leo Kroon, Gabor Maroti and Paolo Toth*

Dynamic Algorithms for Recoverable Robustness Problems *Serafino Cicerone, Gabriele Di Stefano, Michael Schachtebeck and Anita Schöbel*

12:30 - 14:00 Lunch Break

Engineering Time-Expanded Graphs for Faster Timetable Information

D. Delling, T. Pajor, D. Wagner

Efficient On-Trip Timetable Information in the Presence of Delays *Mathias Schnee, Matthias Müller-Hannemann and Lennart Frede*

IP-based Techniques for Delay Management with Priority Decisions *M. Schachtebeck and A. Schöbel*

15:15 - 15:45 Coffee Break

The Second Chvatal Closure Can Yield Better Railway Timetables *C. Liebchen and E. Swarat*

Solving Periodic Timetable Optimisation Problems by Modulo *Karl Nachtigall and Jens Opitz*

Towards Solving Very Large Scale Train Timetabling Problems by Lagrangian Decomposition *Frank Fischer and Christoph Helmberg*

Integrated gate and bus assignment at Amsterdam Airport Schiphol *Guido Diepen, Marjan van den Akker and Han Hoogeveen*

Friday, September 19

WAOA – Audimax A

9:50 - 10:00 Short Break

Caching Content under Digital Rights Management *Leah Epstein, Amos Fiat and Meital Levy*

Reoptimization of Weighted Graph and Covering Problems *Anna Zych, Davide Bilo and Peter Widmayer*

Smoothing imprecise 1.5D terrains *Chris Gray, Maarten Löffler and Rodrigo Silveira*

11:15 - 11:40 Coffee Break

Local PTAS for Dominating and Connected Dominating Set in Location Aware Unit Disk Graphs *Andreas Wiese and Evangelos Kranakis*

Dynamic Offline Conflict-Free Coloring for Unit Disks *Joseph Chan, Francis Chin, Xiangyu Hong and Hingfung Ting*

12:30 - 14:00 Lunch Break

Experimental Analysis of Scheduling Algorithms for Aggregated Links *Wojciech Jawor, Marek Chrobak and Mart Molle*

A $(2 - \frac{1}{n})$ Approximation Algorithm for the Minimum Maximal Matching Problem *Zvi Gotthilf, Moshe Lewenstein and Elad Rainshmidt*

On the maximum edge coloring problem *Giorgio Lucarelli, Ioannis Milis and Vangelis Paschos*