ALGO 2001 Program

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Monday August 27

08:00 Registration — *In front of Auditorium F*

09:00 ARACNE 2001 opening remarks — *Auditorium F*

09:05 **Invited presentation: Berthold Vöcking** — *Auditorium F*
Multiple-Choice Algorithms

09:55 Coffee break

ARACNE Session 1 — *Auditorium F*

10:20 *Dynamic Bandwidth Allocation: Lower Bounds on Latency for a Class of Randomized Single Servers*
Sotiris Nikoletseas and Paul Spirakis

10:45 *The Cost of Lack of Coordination in Distributed Network Routing*
Marios Mavronicolas, Antonis Mouskos, and Paul Spirakis

11:10 *Efficient Management of Transient Station Failures in Linear Radio Communication Networks with Bases*
Carlo Gaibisso, Guido Proietti, and Richard Tan

11:35 *Optimal Gossiping on CCCs of Even Dimension*
Jop F. Sibeyn and Michal Soch

12:00 Lunch

14:15 **Invited presentation: Stefano Leonardi** — *Auditorium F*
Non-clairvoyant scheduling to minimize the average flow time

15:05 Coffee break

ARACNE Session 2 — *Auditorium F*

15:30 *Hamiltonian cycles in faulty random geometric networks*
Jordi Petit

15:55 *Wavelength assignment problem in all-optical rings revisited*
Luciano Margara

16:20 *Better Alternatives to OSPF Routing*
Jessica H. Fong, Anna C. Gilbert, Sampath Kannan, and Martin J. Strauss

17:30 -21:00 Registration and Gettogether — *Coffee lounge, Building 540*

Tuesday August 28

08:00 Registration — *In front of Auditorium F*

09:00 Welcome — *Auditorium E*

09:05 **Invited presentation: Lars Arge** — *Auditorium E*
External memory data structures

ESA Session 1: Caching and Prefetching — *Auditorium F*

10:00 *Strongly Competitive Algorithms for Caching with Pipelined Prefetching*
Alexander Gaysinsky, Alon Itai, and Hadas Shachnai

10:25 *Duality Between Prefetching and Queued Writing with Parallel Disks*
David A. Hutchinson, Peter Sanders, and Jeffrey Scott Vitter

WAE Session 1 — *Auditorium G1*

10:00 *Compact DFA Representation for Fast Regular Expression Search*
Gonzalo Navarro and Mathieu Raffinot

10:25 *The max-shift algorithm for approximate string matching* – Cancelled
Costas S. Iliopoulos, Laurent Mouchard, and Yoan J. Pinzon

10:50 Coffee break

ESA Session 2: Online Algorithms — *Auditorium F*

11:15 *Online Bin-Coloring*
Sven Oliver Krumke, Willem de Paepe, Joerg Rambau, and Leen Stougie

11:40 *A General Decomposition Theorem for the k-Server Problem*
Steve Seiden

12:05 *Buying a constant competitive ratio for paging*
J. Csirik, C. Imreh, J. Noga, S. Seiden, and G.J. Woeginger

WAE Session 2 — *Auditorium G1*

11:15 *Fractal Matrix Multiplication: a Case Study on Portability of Cache Performance*
Gianfranco Bilardi, Paolo D'Alberto, and Alexandru Nicolau

11:40 *Experiences with the design and implementation of space-efficient deques*
Jyrki Katajainen and Bjarke Buur Mortensen

12:05 *Designing and implementing a general purpose halfedge data structure*
Hervé Brönnimann

12:30 Lunch

14:00 **Invited presentation: Jotun Hein** — *Auditorium E*
Algorithms for Statistical Multiple Alignment

ESA Session 3: Data Structures I — *Auditorium F*

15:00 *Simple minimal perfect hashing in less space*
Martin Dietzfelbinger and Torben Hagerup

15:25 *Cuckoo Hashing*
Rasmus Pagh and Flemming Friche Rodler

WABI Session 1: Alignment — *Auditorium G1*

15:00 *An improved model for statistical alignment*
I. Miklos and Z. Toroczkai

15:25 *Improving profile-profile alignments via log average scoring*
N. von Oehsen and R. Zimmer

15:50 Coffee break

ESA Session 4: Optimization and Approximation — *Auditorium F*

16:15 *Coupling Variable Fixing Algorithms for the Automatic Recording Problem*
Meinolf Sellmann and Torsten Fahle

16:40 *Approximation algorithms for scheduling malleable tasks under precedence constraints*
R. Lepere, D. Trystram, and G.J. Woeginger

17:05 *On the Approximability of the Minimum Test Collection Problem*
B.V. Halldorsson, M.M. Halldorsson, and R. Ravi

WABI Session 2: Genetic mapping — *Auditorium G1*

16:15 *False positives in genomic map assembly and sequence validation*
T. Anantharaman and B. Mishra

16:40 *Boosting EM for radiation hybrid and genetic mapping* – Cancelled
T. Schiex, P. Chabrier, M. Bouchez, and D. Milan

16:40 *Comparing assemblies using fragments and mate-pairs*
D.H. Huson, A.L. Halpern, Z. Lai, E.W. Myers, K. Reinert, and G.G. Sutton

17:05 *Placing probes along the genome using pairwise distance data*
W. Casey, B. Mishra, and M. Wigler

Wednesday August 29

09:00 **Invited presentation: Susanne Albers** — *Auditorium E*
Some algorithmic problems in large networks

ESA Session 5: Sequences — *Auditorium F*

10:00 *Finding approximate repetitions under Hamming distance*
Roman Kolpakov and Gregory Kucherov

10:25 *SNPs Problems, Complexity and Algorithms*
Giuseppe Lancia, Vineet Bafna, Sorin Istrail, Ross Lippert, and Russell Schwartz

WAE Session 3 — *Auditorium G1*

10:00 *Optimised Predecessor Data Structures for Internal Memory*
Naila Rahman, Richard Cole, and Rajeev Raman

10:25 *An Adaptable and Extensible Geometry Kernel*
Susan Hert, Michael Hoffmann, Lutz Kettner, Sylvain Pion, and Michael Seel

10:50 Coffee break

ESA Session 6: Scheduling — *Auditorium F*

11:15 *A FPTAS for approximating the unrelated parallel machines scheduling problem with costs*
E. Angel, E. Bampis, and A. Kononov

11:40 *Grouping techniques for scheduling problems: simpler and faster*
Aleksei V. Fishkin, Klaus Jansen, and Monaldo Mastrolilli

12:05 *A 2-approximation algorithm for the multi-vehicle scheduling problem on a path with release and handling times*
Y. Karuno and H. Nagamochi

WAE Session 4 — *Auditorium G1*

11:15 *Efficient Resource Allocation with Noisy Functions*
Arne Andersson, Per Carlsson, and Fredrik Ygge

11:40 *Improving the efficiency of Branch and Bound Algortihms for the Simple Plant Location Problem*
Boris Goldengorin, Diptesh Ghosh, and Gerard Sierksma

12:05 *Exploiting Partial Knowledge of Satisfying Assignments*
Kazuo Iwama and Suguru Tamaki

12:30 Lunch

14:00 **Invited presentation: Uri Zwick** — *Auditorium E*
Bio-Geometric Modeling

ESA Session 7: Shortest Paths — *Auditorium F*

15:00 *A Simple Shortest Path Algorithm with Linear Average Time*
Andrew V. Goldberg

15:25 *A Heuristic for Dijkstra's Algorithm with Many Targets and its Use in Weighted Matching Algorithms*
Kurt Mehlhorn and Guido Schaefer

WABI Session 3: Statiscal models *Auditorium G1*

15:00 *Comparing stochastic models*
A. Jagota, R.B. Lyngso, and C.N.S. Pedersen

15:25 *Assessing the statistical significance of overrepresented oligonucleotides*
A. Denise, M. Regnier, and M. Vandenbogaert

15:50 Coffee break

ESA Session 8: Geometry I *Auditorium F*

16:15 *A Separation Bound for Real Algebraic Expressions*
Christoph Burnikel, Stefan Funke, Kurt Mehlhorn, Stefan Schirra, and Susanne Schmitt

16:40 *Property Testing with Geometric Queries*
Artur Czumaj and Christian Sohler

17:05 *Smallest Color-Spanning Objects*
Manuel Abellanas, Ferran Hurtado, Christian Icking, Rolf Klein, Elmar Langetepe, Lihong Ma, Belen Palop, and Vera Sacristan

WABI Session 4: Protein structure *Auditorium G1*

16:15 *Pattern matching and pattern discovery algorithms for protein topologies*
J. Viksna and D. Gilbert

16:40 *Computing linking numbers of a filtration*
H. Edelsbrunner and A. Zomorodian

17:05 *Side chain-positioning as an integer programming problem*
O. Eriksson, Y. Zhou, and A. Elofsson

18:30 Concert hall reception

Thursday August 30

09:00 **Invited presentation: Herbert Edelsbrunner** *Auditorium E*
Exact and approximate distances in graphs

ESA Session 9: Data Structures II *Auditorium F*

10:00 *Explicit Deterministic Constructions for Membership in the Bitprobe Model*
Jaikumar Radhakrishnan, Venkatesh Raman, and S. Srinivasa Rao

10:25 *Lossy Dictionaries*
Rasmus Pagh and Flemming Friche Rodler

WAE Session 5 *Auditorium G1*

10:00 *Using PRAM Algorithms on a Uniform-Memory-Access Shared-Memory Architecture*
David A. Bader, Ajith K. Illendula, and Bernard M.E. Moret

10:25 *An Experimental Study of Data Migration Algorithms*
Eric Anderson, Joe Hall, Jason D. Hartline, Michael Hobbs, Anna Karlin, Jared Saia, Ram Swaminathan, and John Wilkes

10:00–10:50 **WABI Poster Session 1** *Auditorium G2*

10:50 Coffee break

ESA Session 10: Geometry II *Auditorium F*

11:15 *Splitting a Delaunay triangulation in linear time*
Bernard Chazelle, Olivier Devillers, Ferran Hurtado, Merce Mora, Vera Sacristan, and Monique Teillaud

11:40 *A fast algorithm for approximating the detour of a polygonal chain*
Annette Ebbers-Baumann, Rolf Klein, Elmar Langetepe, and Andrzej Lingas

12:05 *An Approximation Algorithm for Minimum Convex Cover with Logarithmic Performance Guarantee*
Stephan Eidenbenz and Peter Widmayer

WAE Session 6 *Auditorium G1*

11:15 *An Experimental Study of Basic Communication Protocols in Ad-hoc Mobile Networks*
Ioannis Chatzigiannakis, Sotiris Nikoletseas, Nearchos Paspallis, Paul Spirakis, and Christos Zaroliagis

11:40 *Experimental Analysis of Algorithms for Bilateral-Contract Clearing Mechanisms Arising in Deregulated Power Industry*
Chris Barrett, Doug Cook, Vance Faber, Gregory Hicks, Achla Marathe, Madhav Marathe, Aravind Srinivasan, Yoram J. Sussmann, and Heidi Thornquist

12:05 *Pareto Shortest Paths is Often Feasible in Practice*
Matthias Mueller-Hannemann and Karsten Weihe

11:15–12:30 **WABI Poster Session 2** *Auditorium G2*

12:30 Lunch

14:00 **Invited presentation: Andrei Broder** *Auditorium E*
Some algorithmic challenges in web search

ESA Session 11: Distributed Algorithms *Auditorium F*

15:00 *Distributed O(Delta log n)-edge-coloring algorithm*
A. Czygrinow, M. Hanckowiak, and M. Karonski

15:25 *Modeling Replica Placement in a Distributed File System: Narrowing the Gap between Analysis and Simulation*
John Douceur and Roger Wattenhofer

WABI Session 5: Phylogeny *Auditorium G1*

15:00 *A chemical-distance-based test for positive Darwinian selection*
T. Pupko, R. Sharan, M. Hasegawa, R. Shamir, and D. Graur

15:25 *Finding the maximum compatible tree for a bounded number of trees with bounded degree is solvable in polynomial time*
Ganeshkumar G. and T. Warnow

15:50 Coffee break

ESA Session 12: Graph Algorithms *Auditorium F*

16:15 *Computing Cycle Covers without Short Cycles*
Markus Blaeser and Bodo Siebert

16:40 *A polynomial time algorithm for the cutwidth of bounded degree graphs with small treewidth*
Dimitrios M. Thilikos, Maria Serna, and Hans L. Bodlaender

17:05 *Lower Bounds and Exact Algorithms for the Graph Partitioning Problem using Multicommodity Flows*
Norbert Sensen

WABI Session 6: Gene order *Auditorium G1*

16:15 *Experiments in computing sequences of reversals*
A. Bergeron and F. Strasbourg

16:40 *Improving the accuracy of evolutionary distances between genomes*
L.-S. Wang

17:05 *Finding an optimal inversion median: experimental results*
A. Siepel and B.M.E. Moret

17:30 Business meeting *Auditorium F*

19:00 Conference dinner *Mathematical canteen*

Friday August 31

ESA Session 16: Graphs *Auditorium E*

09:00 *A General Model of Undirected Web Graphs*
Colin Cooper and Alan Frieze

09:25 *Packing Cycles and Cuts in Undirected Graphs*
Alberto Caprara, Alessandro Panconesi, and Romeo Rizzi

WABI Session 9: Sequence analysis *Auditorium G1*

09:00 *Determination of the binding amino acids based on random peptide array screening data*
P.J. van der Veen, L.F.A. Wessels, J.W. Slootstra, R.H. Meloen, M.J.T. Reinders, and J. Hellendoorn

09:25 *A simple hypergeometric approach for discovering putative transcription factor binding sites*
Y. Barash, G. Bejerano, and N. Friedman

09:50 Break

ESA Session 13: Pricing *Auditorium E*

10:00 *Fast Pricing of European Asian Options with Provable Accuracy: Single-stock and Basket Options*
Karhan Akcoglu, Ming-Yang Kao, and Shuba V. Raghavan

10:25 *Competitive Auctions for Multiple Digital Goods*
Andrew V. Goldberg and Jason D. Hartline

WABI Session 7: Phylogeny *Auditorium G1*

10:00 *MLMC trees and Hadamard conjugation*
B. Chor, M. Hendy, and D. Penny

10:25 *The performance of phylogenetic methods on trees of bounded diameter*
L. Nakhleh, U. Roshan, K. St.John, J. Sun, and T. Warnow

10:50 Coffee break

ESA Session 14: Broadcasting and Multicasting *Auditorium E*

11:15 *Algorithms for Efficient Filtering in Content-Based Multicast*
Stefan Langerman, Sachin Lodha, and Rahul Shah

11:40 *Approximation Algorithms for Minimum-Time Broadcast under the Vertex-Disjoint Paths Mode*
Pierre Fraigniaud

12:05 *Round Robin is Optimal for Fault-Tolerant Broadcasting on Wireless Networks*
A. Clementi, A. Monti, and R. Silvestri

WABI Session 8: Gene order *Auditorium G1*

11:15 *(1+e)-approximation of sorting by reversals and transpositions*
N. Eriksen

11:40 *On the practical solution of the reversal median problem*
A. Caprara

12:05 *Algorithms for finding gene clusters*
S. Heber and J. Stoye

12:30 Lunch

ESA Session 15: Graph Labeling and Graph Drawing *Auditorium G1*

14:00 *On-line and Off-line distance constrained labeling of disk graphs*
Jiri Fiala, Aleksei V. Fishkin, and Fedor V. Fomin

14:25 *Approximate Distance Labeling Schemes*
C. Gavoille, M. Katz, N. Katz, C. Paul, and D. Peleg

14:50 *On the Parameterized Complexity of Layered Graph Drawing*
V. Dujmovic, M. Fellows, M. Hallett, M. Kitching, G. Liotta, C. McCartin, N. Nishimura, P. Ragde, F. Rosamond, M. Suderman, S. Whitesides, and D. R. Wood

15:15 *Greedy algorithms for minimisation problems in random regular graphs*
Michele Zito