31st Annual European Symposium on Algorithms

ESA 2023, September 4–6, 2023, Amsterdam, The Netherlands

Edited by
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ACM Classification 2012
Computing methodologies → Machine learning; Information systems → Point lookups; Mathematics of computing → Algebraic topology; Mathematics of computing → Approximation algorithms; Mathematics of computing → Combinatorial algorithms; Mathematics of computing → Combinatoric problems; Mathematics of computing → Computations on matrices; Mathematics of computing → Graph algorithms; Mathematics of computing → Graph enumeration; Mathematics of computing → Graphs and surfaces; Mathematics of computing → Graph theory; Mathematics of computing → Matchings and factors; Mathematics of computing → Paths and connectivity problems; Mathematics of computing → Random graphs; Mathematics of computing → Stochastic processes; Social and professional topics → Social engineering attacks; Theory of computation → Quantum computation theory; Theory of computation → Algorithm design techniques; Theory of computation → Algorithmic game theory; Theory of computation → Approximation algorithms analysis; Theory of computation → Complexity theory and logic; Theory of computation → Computational complexity and cryptography; Theory of computation → Computational geometry; Theory of computation → Database query processing and optimization (theory); Theory of computation → Data compression; Theory of Computation → Design and analysis of algorithms; Theory of computation → Dynamic graph algorithms; Theory of computation → Facility location and clustering; Theory of computation → Finite Model Theory; Theory of computation → Fixed parameter tractability; Theory of computation → Generating random combinatorial structures; Theory of computation → Graph algorithms analysis; Theory of computation → Logic and verification; Theory of computation → Markov decision processes; Theory of computation → Massively parallel algorithms; Theory of computation → Mathematical optimization; Theory of computation → Mixed discrete-continuous optimization; Theory of computation → Nonconvex optimization; Theory of computation → Online algorithms; Theory of computation → Oracles and decision trees; Theory of computation → Packing and covering problems; Theory of computation → Parallel algorithms; Theory of computation → Parallel computing models; Theory of computation → Parameterized complexity and exact algorithms; Theory of computation → Pattern matching; Theory of computation → Problems, reductions and completeness; Theory of computation → Quantum complexity theory; Theory of computation → Quantum computation theory; Theory of computation → Quantum query complexity; Theory of computation → Randomness, geometry and discrete structures; Theory of computation → Random network models; Theory of computation → Random order and robust communication complexity; Theory of computation → Random projections and metric embeddings; Theory of computation → Routing and network design problems; Theory of computation → Scheduling algorithms; Theory of computation → Semidefinite programming; Theory of computation → Shortest paths; Theory of computation → Sketching and sampling; Theory of computation → Sorting and searching; Theory of computation → Sparsification and spanners; Theory of computation → Streaming, sublinear and near linear time algorithms; Theory of computation → Theory and algorithms for application domains; Theory of computation → Unsupervised learning and clustering

ISBN 978-3-95977-295-2

Published online and open access by
Schloss Dagstuhl – Leibniz-Zentrum für Informatik GmbH, Dagstuhl Publishing, Saarbrücken/Wadern, Germany. Online available at https://www.dagstuhl.de/dagpub/978-3-95977-295-2.

Publication date
September, 2023

Bibliographic information published by the Deutsche Nationalbibliothek
The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data are available in the Internet at https://portal.dnb.de.

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Digital Object Identifier: 10.4230/LIPIcs.ESA.2023.0

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ISSN 1868-8969

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Contents

Preface
Inge Li Gørtz, Martin Farach-Colton, Simon J. Puglisi, and Grzegorz Herman ... 0:xiii

Program Committees
... 0:xv–0:xvi

External Reviewers
... 0:xvii–0:xxii

Invited Talk

On Hashing by (Random) Equations
Martin Dietzfelbinger ... 1:1–1:1

Regular Papers

On Diameter Approximation in Directed Graphs
Amir Abboud, Mina Dalirrooyfard, Ray Li, and Virginia Vassilevska Williams 2:1–2:17

Can You Solve Closest String Faster Than Exhaustive Search?
Amir Abboud, Nick Fischer, Elazar Goldenberg, Karthik C. S., and Ron Safier ... 3:1–3:17

What Else Can Voronoi Diagrams Do for Diameter in Planar Graphs?
Amir Abboud, Shay Mozes, and Oren Weimann ... 4:1–4:20

Smooth Distance Approximation
Ahmed Abdelkader and David M. Mount ... 5:1–5:18

Reconfiguration of Polygonal Subdivisions via Recombination
Hugo A. Akitaya, Andrei Gonczi, Diane L. Souvaine, Csaba D. Tóth, and Thomas Weighill ... 6:1–6:16

Faster Detours in Undirected Graphs
Shyan Akmal, Virginia Vassilevska Williams, Ryan Williams, and Zixuan Xu 7:1–7:17

A Local-To-Global Theorem for Congested Shortest Paths
Shyan Akmal and Nicole Wein ... 8:1–8:17

Axis-Parallel Right Angle Crossing Graphs
Patrizio Angelini, Michael A. Bekos, Julia Katheder, Michael Kaufmann, Maximilian Pfister, and Torsten Ueckerdt ... 9:1–9:15

(No) Quantum Space-Time Tradeoff for USTCON
Simon Apers, Stacey Jeffery, Galina Pass, and Michael Walter ... 10:1–10:17

Exploration of Graphs with Excluded Minors
Júlia Baligács, Yann Disser, Irene Heinrich, and Pascal Schweitzer ... 11:1–11:15

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Learning-Augmented Online TSP on Rings, Trees, Flowers and (Almost) Everywhere Else
Evripidis Bampis, Bruno Escoffier, Themis Gouleakis, Niklas Hahn, Kostas Lakis, Golnoosh Shahkarami, and Michalis Xefteris 12:1–12:17

A Parameterized Algorithm for Vertex Connectivity Survivable Network Design Problem with Uniform Demands
Jørgen Bang-Jensen, Kristine Vitting Klinkby, Pranabendu Misra, and Saket Saurabh 13:1–13:15

Lyndon Arrays in Sublinear Time
Hideo Bannai and Jonas Ellert 14:1–14:16

Sorting Finite Automata via Partition Refinement
Ruben Becker, Manuel Cáceres, Davide Cenzato, Sung-Hwan Kim, Bojana Kodric, Francisco Olivares, and Nicola Prezza 15:1–15:15

Fully Polynomial-Time Algorithms Parameterized by Vertex Integrity Using Fast Matrix Multiplication
Matthias Bentert, Klaus Heeger, and Tomohiro Koana 16:1–16:16

Approximating Min-Diameter: Standard and Bichromatic
Aaron Berger, Jenny Kaufmann, and Virginia Vassilevska Williams 17:1–17:14

Space-Efficient Parameterized Algorithms on Graphs of Low Shrubdepth
Benjamin Bergougnoux, Vera Chekan, Robert Ganian, Mamadou Moustapha Kanté, Matthias Mnich, Sang-il Oum, Michał Pilipczuk, and Erik Jan van Leeuwen 18:1–18:18

High Performance Construction of RecSplit Based Minimal Perfect Hash Functions
Dominik Bez, Florian Kurpicz, Hans-Peter Lehmann, and Peter Sanders 19:1–19:16

On the Giant Component of Geometric Inhomogeneous Random Graphs
Thomas Bläsius, Tobias Friedrich, Maximilian Katzmann, Janosch Ruff, and Ziena Zeif 20:1–20:13

An Efficient Algorithm for Power Dominating Set
Thomas Bläsius and Max Göttlicher 21:1–21:15

Incremental $(1-\varepsilon)$-Approximate Dynamic Matching in $O(poly(1/\varepsilon))$ Update Time
Joakim Blikstad and Peter Kiss 22:1–22:19

Maximum Independent Set When Excluding an Induced Minor: $K_1 + tK_2$ and $tC_3 \uplus C_4$
Édouard Bonnet, Julien Duron, Colin Geniet, Stéphan Thomassé, and Alexandra Wesolek 23:1–23:15

Faster 0-1-Knapsack via Near-Convex Min-Plus-Convolution
Karl Bringmann and Alejandro Cassis 24:1–24:16

Funnelselect: Cache-Oblivious Multiple Selection
Gerth Stølting Brodal and Sebastian Wild 25:1–25:17

Oriented Spanners
Kevin Buchin, Joachim Gudmundsson, Antonia Kalb, Aleksandr Popov, Carolin Rehs, André van Renssen, and Sampson Wong 26:1–26:16

Online Coalition Formation Under Random Arrival or Coalition Dissolution
Martin Bullinger and René Romen 27:1–27:18

On k-Means for Segments and Polylines
Sergio Cabello and Panos Giannopoulos 28:1–28:14

Effective Resistances in Non-Expander Graphs
Dongrun Cai, Xue Chen, and Pan Peng 29:1–29:18

New Menger-Like Dualities in Digraphs and Applications to Half-Integral Linkages
Victor Campos, Jonas Costa, Raul Lopes, and Ignasi Sau 30:1–30:18

Enumerating Maximal Induced Subgraphs
Yixin Cao 31:1–31:13

Approximation Algorithm for Norm Multiway Cut
Charlie Carlson, Jafar Jafarov, Konstantin Makarychev, Yury Makarychev, and Liren Shan 32:1–32:14

Polynomial-Time Approximation of Independent Set Parameterized by Treewidth
Parinya Chalermsook, Fedor Fomin, Thekla Hamm, Tuukka Korhonen, Jesper Nederlof, and Ly Orgo 33:1–33:13

Faster Local Motif Clustering via Maximum Flows
Adil Chhabra, Marcelo Fonseca Faraj, and Christian Schulz 34:1–34:16

Primal-Dual Schemes for Online Matching in Bounded Degree Graphs
Ilan Reuven Cohen and Binghui Peng 35:1–35:17

Robust and Space-Efficient Dual Adversary Quantum Query Algorithms
Michael Czekanski, Shelby Kimmel, and R. Teal Witter 36:1–36:19

Revisiting the Random Subset Sum Problem
Arthur Carvalho Walraven Da Cunha, Francesco d'Amore, Frédéric Giroire, Hicham Lesfari, Emanuele Natale, and Laurent Viennot 37:1–37:11

Scheduling with a Limited Testing Budget: Tight Results for the Offline and Oblivious Settings
Christoph Damerius, Peter Kling, Minming Li, Chenyang Xu, and Ruilong Zhang 38:1–38:15

A $(3/2+\varepsilon)$-Approximation for Multiple TSP with a Variable Number of Depots
Max Deppert, Matthias Kaul, and Matthias Mnich 39:1–39:15

Efficient Parallel Output-Sensitive Edit Distance
Xiangyun Ding, Xiaojun Dong, Yan Gu, Youzhe Liu, and Yihan Sun 40:1–40:20

Efficient 1-Laplacian Solvers for Well-Shaped Simplicial Complexes: Beyond Betti Numbers and Collapsing Sequences
Ming Ding and Peng Zhang 41:1–41:19

Optimal Energetic Paths for Electric Cars
Dani Dorfman, Haim Kaplan, Robert E. Tarjan, and Uri Zwick 42:1–42:17

Evaluating Restricted First-Order Counting Properties on Nowhere Dense Classes and Beyond
Jan Dreier, Daniel Mock, and Peter Rossmanith 43:1–43:17

Online Algorithms with Randomly Infused Advice
Yuval Emek, Yuval Gil, Maciej Pacut, and Stefan Schmid 44:1–44:19

The Lawn Mowing Problem: From Algebra to Algorithms
Sándor P. Fekete, Dominik Krupke, Michael Perk, Christian Rieck, and Christian Scheffer 45:1–45:18

Learned Monotone Minimal Perfect Hashing
Paolo Ferragina, Hans-Peter Lehmann, Peter Sanders, and Giorgio Vinciguerra . 46:1–46:17

Correlating Theory and Practice in Finding Clubs and Plexes
Aleksander Figiel, Tomohiro Koana, André Nichterlein, and Niklas Wünsche 47:1–47:18

Kernelization for Spreading Points
Fedor V. Fomin, Petr A. Golovach, Tanmay Inamdar, Saket Saurabh, and Meirav Zehavi 48:1–48:16

Lossy Kernelization for (Implicit) Hitting Set Problems
Fedor V. Fomin, Tien-Nam Le, Daniel Lokshtanov, Saket Saurabh, Stéphan Thomassé, and Meirav Zehavi 49:1–49:14

Bootstrapping Dynamic Distance Oracles
Sebastian Forster, Gramoz Goranci, Yasamin Nazari, and Antonis Skarlatos 50:1–50:16

A Sweep-Plane Algorithm for Calculating the Isolation of Mountains
Daniel Funke, Nicolai Hüning, and Peter Sanders 51:1–51:17

A Tight Competitive Ratio for Online Submodular Welfare Maximization
Amit Ganz, Pranav Nuti, and Roy Schwartz 52:1–52:17

First Order Logic and Twin-Width in Tournaments
Colin Geniet and Stéphan Thomassé 53:1–53:14

Improved Approximation Algorithms for the Expanding Search Problem
Svenja M. Griesbach, Felix Hommelsheim, Max Klimm, and Kevin Schewior 54:1–54:15

Noisy k-Means++ Revisited
Christoph Grunau, Ahmet Alper Özüdoğru, and Václav Rozhoň 55:1–55:7

Convergence to Lexicographically Optimal Base in a (Contra)Polymatroid and Applications to Densest Subgraph and Tree Packing
Elfarouk Harb, Kent Quanrud, and Chandra Chekuri 56:1–56:17

Algorithms for Matrix Multiplication via Sampling and Opportunistic Matrix Multiplication
David G. Harris 57:1–57:17

Counting and Sampling Labeled Chordal Graphs in Polynomial Time
Úrsula Hébert-Johnson, Daniel Lokshtanov, and Eric Vigoda 58:1–58:17

Tight Algorithms for Connectivity Problems Parameterized by Clique-Width
Falko Hegerfeld and Stefan Kratsch 59:1–59:19

Pareto Sums of Pareto Sets
Demian Hespe, Peter Sanders, Sabine Storandt, and Carina Truschel 60:1–60:17

Solving Edge Clique Cover Exactly via Synergistic Data Reduction
Anthony Hevia, Benjamin Kallus, Summer McClintic, Samantha Reisner, Darren Strash, and Johnathan Wilson 61:1–61:19

Threshold Testing and Semi-Online Prophet Inequalities
Martin Hoefer and Kevin Schewior 62:1–62:15

Parameterized Complexity of Fair Bisection: FPT-Approximation meets Unbreakability
Tanmay Inamdar, Daniel Lokshtanov, Saket Saurabh, and Vaishali Surianarayanan 63:1–63:17

Improved Quantum Boosting
Adam Izdebski and Ronald de Wolf 64:1–64:16

Finding Long Directed Cycles Is Hard Even When DFVS Is Small or Girth Is Large
Ashwin Jacob, Michał Włodarczyk, and Meirav Zehavi 65:1–65:17

5-Approximation for $\mathcal{H}$-Treewidth Essentially as Fast as $\mathcal{H}$-Deletion Parameterized by Solution Size
Bart M. P. Jansen, Jari J. H. de Kroon, and Michał Włodarczyk 66:1–66:16

The Unweighted and Weighted Reverse Shortest Path Problem for Disk Graphs
Haim Kaplan, Matthew J. Katz, Rachel Saban, and Micha Sharir 67:1–67:14

On Fully Dynamic Strongly Connected Components
Adam Karczmarz and Marcin Smulewicz 68:1–68:15

An Improved Approximation Algorithm for the Max-3-Section Problem
Dor Katzelnick, Aditya Pillai, Roy Schwartz, and Mohit Singh 69:1–69:17

Fitting Tree Metrics with Minimum Disagreements
Evangelos Kipouridis 70:1–70:10

Coloring Tournaments with Few Colors: Algorithms and Complexity
Felix Klingelhoefer and Alantha Newman 71:1–71:14

Bellman–Ford Is Optimal for Shortest Hop-Bounded Paths
Tomasz Kociumaka and Adam Polak 72:1–72:10

Towards Bypassing Lower Bounds for Graph Shortcuts
Shimon Kogan and Merav Parter 73:1–73:16

Faster Block Tree Construction
Dominik Köppl, Florian Kurpicz, and Daniel Meyer 74:1–74:20

Connectivity Queries Under Vertex Failures: Not Optimal, but Practical
Evangelos Kosinas 75:1–75:13

Improved Approximations for Translational Packing of Convex Polygons
Adam Kurpisz and Silvan Suter 76:1–76:14

Structural Parameterizations for Two Bounded Degree Problems Revisited
Michael Lampis and Manolis Vasilakis 77:1–77:16

Massively Parallel Algorithms for the Stochastic Block Model
Zelin Li, Pan Peng, and Xianbin Zhu 78:1–78:17

Connectivity in the Presence of an Opponent
Zihui Liang[1], Bakh Khoussainov, Toru Takisaka, and Mingyu Xiao 79:1–79:14

On the Perturbation Function of Ranking and Balance for Weighted Online Bipartite Matching
Jingxun Liang, Zhihao Gavin Tang, Yixuan Even Xu, Yuhao Zhang, and Renfei Zhou 80:1–80:15

Tight Bounds for Quantum Phase Estimation and Related Problems
Nikhil S. Mande and Ronald de Wolf 81:1–81:16

A Fine-Grained Classification of the Complexity of Evaluating the Tutte Polynomial on Integer Points Parameterized by Treewidth and Cutwidth
Isja Mannens and Jesper Nederlof 82:1–82:17

Matching Statistics Speed up BWT Construction
Francesco Masillo 83:1–83:15

Approximation Schemes for Min-Sum k-Clustering
Ismail Naderi, Mohsen Rezapour, and Mohammad R. Salavatipour 84:1–84:16

Algorithms for Computing Maximum Cliques in Hyperbolic Random Graphs
Eunjin Oh and Seunghyeok Oh 85:1–85:15

Parameterized Complexity of Equality MinCSP
George Osipov and Magnus Wahlström 86:1–86:17

Engineering Fast Algorithms for the Bottleneck Matching Problem
Ioannis Panagiotas, Grégoire Pichon, Somesh Singh, and Bora Uçar 87:1–87:15

Subcubic Algorithm for (Unweighted) Unrooted Tree Edit Distance
Krzysztof Pióro 88:1–88:14

Linear Time Construction of Cover Suffix Tree and Applications
Jakub Radoszewski 89:1–89:17

Simultaneous Representation of Interval Graphs in the Sunflower Case
Ignaz Rutter and Peter Stumpf 90:1–90:15

Relaxed Models for Adversarial Streaming: The Bounded Interruptions Model and the Advice Model
Menachem Sadigurschi, Moshe Shechner, and Uri Stemmer 91:1–91:14

Maximal k-Edge-Connected Subgraphs in Almost-Linear Time for Small k
Thatchaphol Saranurak and Wuwei Yuan 92:1–92:9

Approximating Connected Maximum Cuts via Local Search
Baruch Schieber and Soroush Vahidi 93:1–93:17

Parameterized Matroid-Constrained Maximum Coverage
François Sellier 94:1–94:16

Fault Tolerance in Euclidean Committee Selection
Chinmay Sonar, Subhash Suri, and Jie Xue 95:1–95:14

Aggregating over Dominated Points by Sorting, Scanning, Zip and Flat Maps
Jacek Sroka and Jerzy Tyszkiewicz 96:1–96:13

Improved Algorithms for Online Rent Minimization Problem Under Unit-Size Jobs
Enze Sun, Zonghan Yang, and Yuhao Zhang 97:1–97:14

Simple Deterministic Approximation for Submodular Multiple Knapsack Problem
Xiaoming Sun, Jialin Zhang, and Zhijie Zhang 98:1–98:15

The Tight Spanning Ratio of the Rectangle Delaunay Triangulation
André van Renssen, Yuan Sha, Yucheng Sun, and Sampson Wong 99:1–99:15

Canonization of a Random Graph by Two Matrix-Vector Multiplications
Oleg Verbitsky and Maksim Zhukovskii 100:1–100:13

Improved Algorithms for Distance Selection and Related Problems
Haitao Wang and Yiming Zhao 101:1–101:14

Maximum Coverage in Random-Arrival Streams
Rowan Warneke, Farhana Choudhury, and Anthony Wirth 102:1–102:15

Efficient Block Approximate Matrix Multiplication
Chuhan Yang and Christopher Musco 103:1–103:15

A Simple Boosting Framework for Transshipment
Goran Zuzic 104:1–104:14

Preface

This volume contains the extended abstracts selected for presentation at ESA 2023, the 31st European Symposium on Algorithms. The event was organized by Centrum Wiskunde & Informatica (CWI), Amsterdam, the Netherlands, as a part of ALGO 2023, on September 4–6, 2023.

The scope of ESA includes original, high-quality, theoretical and applied research on algorithms and data structures. Since 2002, it has had two tracks: the Design and Analysis Track (Track A), intended for papers on the design and mathematical analysis of algorithms, and the Engineering and Applications Track (Track B), for submissions that also address real- world applications, engineering, and experimental analysis of algorithms. In 2022, a new track – Track S – was added, inviting contributions that *simplify* algorithmic results. We find that simpler algorithms are easier to implement, bridging the gap between theory and practice, and we find that new simple or elegant proofs are easier to understand and to teach, and may contain interesting new insights whose relevance only the future will reveal.

In response to the call for papers for ESA 2023, 370 papers were submitted, 267 for Track A, 61 for Track B, and 42 for Track S. Paper selection was based on originality, technical quality, exposition quality, and relevance. Each paper received at least three reviews. The program committees selected 103 papers for inclusion in the program: 79 from Track A, 15 from Track B, and 9 for Track S, yielding an overall acceptance rate of about 28%. The presentations of the accepted papers, together with two invited talks by Martin Dietzfelbinger (TU Ilmenau) and Rotem Oshman (Tel Aviv University) promise to make up an exciting program.

The European Association for Theoretical Computer Science (EATCS) sponsored best paper and best student paper awards. A submission was eligible for the best student paper award if all authors were doctoral, master, or bachelor students at the time of submission. For Track A, the best paper award was given to Ursula Hebert-Johnson, Daniel Lokshtanov and Eric Vigoda for the paper "Counting and Sampling Labeled Chordal Graphs in Polynomial Time". For Track B, the best paper award was given to Xiangyun Ding, Xiaojun Dong, Yan Gu, Youzhe Liu and Yihan Sun for the paper "Efficient Parallel Output-Sensitive Edit Distance". The best paper award for Track S was given to Oleg Verbitsky and Maksim Zhukovskii for the paper "Canonization of a Random Graph by Two Matrix-Vector Multiplications". The best student paper award was given to Joakim Blikstad and Peter Kiss for the paper "Incremental (1-ϵ)-Approximate Dynamic Matching in O(poly(1/ϵ)) Update Time".

We wish to thank all the authors who submitted papers for consideration, the invited speakers, the members of the program committees for their hard work, and the over 500 external reviewers who assisted the program committees in the evaluation process. Special thanks go to the organizing committee, who helped us with the organization of the conference.

Information on past ESA symposia, including locations and proceedings, is maintained at `http://esa-symposium.org`.

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31st Annual European Symposium on Algorithms (ESA 2023).
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Leibniz International Proceedings in Informatics
LIPICS Schloss Dagstuhl – Leibniz-Zentrum für Informatik, Dagstuhl Publishing, Germany

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