SODA13 - Accepted Papers

Energy Efficient Scheduling of Parallelizable Jobs
Kyle Fox, Sungjin Im and Benjamin Moseley

Twisted Tabulation Hashing
Mihai Pătraşcu and Mikkel Thorup

New Additive Spanners
Shiri Chechik

Optimal Dynamic Sequence Representations
Gonzalo Navarro and Yakov Nekrich

Restricted Isometry of Fourier Matrices and List Decodability of Random Linear
Codes
Mahdi Cheraghchi, Venkatesan Guruswami and Ameya Velingker

Lyndon Words and Short Superstrings
Marcin Mucha

Better Balance by Being Biased: A 0.8776-Approximation for Max Bisection
Per Austrin, Siavosh Benabbas and Konstantinos Georgiou

Clinching Auction with Online Supply
Gagan Goel, Vahab Mirrokni and Renato Paes Leme

Higher-Order Geodesic Voronoi Diagrams in a Polygonal Domain with Holes
Chih-Hung Liu and Der-Tsai Lee

Compressed static functions with applications to other dictionary problems
Djamal Belazzougui and Rossano Venturini

Regret Minimization for Reserve Prices in Second-Price Auctions
Nicolo Cesa-Bianchi, Claudio Gentile and Yishay Mansour

eps-Samples for Kernels
Jeff Phillips

Dynamic graph connectivity in polylogarithmic worst case time
Bruce Kapron, Valerie King and Ben Mountjoy

On the number of matroids
Nikhil Bansal and Rudi Pendavingh

Mimicking Networks and Succinct Representations of Terminal Cuts
Robert Krauthgamer and Inbal Rika

Low-distortion Inference of Latent Similarities from a Multiplex Social Network
Ittai Abraham, Shiri Chechik, David Kempe and Aleksandrs Slivkins

Distance Oracles for Stretch Less Than 2
Rachit Agarwal and Philip Godfrey

Towards More Realistic Probabilistic Models for Data Structures: The External
Path Length in Tries under the Markov Model
Kevin Leckey, Ralph Neininger and Wojciech Szpankowski

Testing k-Modal Distributions: Optimal Algorithms via Reductions
Constantinos Daskalakis, Ilias Diakonikolas, Rocco Servedio, Gregory Valiant and
Paul Valiant.

Approximate Shortest Descending Paths
Siu-Wing Cheng and Jiongxin Jin

Lasserre SDPs, L1-embeddings, and approximating non-uniform sparsest cut via
generalized spectra
Venkatesan Guruswami and Ali Kemal Sinop

Reporting neighbors in high-dimensional Euclidean spaces
Dror Aiger, Haim Kaplan and Micha Sharir

Computing the Discrete Fr\'echet Distance in Subquadratic Time
Pankaj Agarwal, Rinat Ben Avraham, Haim Kaplan and Micha Sharir

Exponential Lower Bounds for the PPSZ k-SAT Algorithm
Shiteng Chen, Dominik Scheder, Navid Talebanfard and Bangsheng Tang

Playing Mastermind with Many Colors

Benjamin Doerr, Reto Spöhel, Henning Thomas and Carola Winzen

Improved quantum query algorithms for triangle finding and associativity testing
Troy Lee, Frederic Magniez and Miklos Santha

Anonymous Meeting in Networks
Yoann Dieudonne and Andrzej Pelc

Smoothed Analysis of the Successive Shortest Path Algorithm
Tobias Brunsch, Kamiel Cornelissen, Bodo Manthey and Heiko Röglin

A unified approach to truthful scheduling on related machines
Leah Epstein, Asaf Levin and Rob van Stee

More Compact Oracles for Approximate Distances in Undirected Planar Graphs
Ken-Ichi Kawarabayashi, Christian Sommer and Mikkel Thorup

Better bounds for matchings in the streaming model
Michael Kapralov

A near-optimal algorithm and lower bound for testing signed majorities
Dana Ron and Rocco Servedio

Space efficient streaming algorithms for the distance to monotonicity and asymmetric edit distance
Michael Saks and C Seshadhri

List-coloring embedded graphs
Zdenek Dvorak and Ken-Ichi Kawarabayashi

Breaking the n^(log n) Barrier for Solvable-Group Isomorphism
David Rosenbaum

Approximate Maximum Flow on Separable Undirected Graphs
Gary Miller and Richard Peng

Shortest Non-trivial Cycles in Directed and Undirected Surface Graphs
Kyle Fox

Simple and Nearly Optimal Multi-Item Auctions

Yang Cai and Zhiyi Huang

Jungles, bundles, and fixed parameter tractability
Fedor Fomin and Michał Pilipczuk

Discrete Convexity and Polynomial Solvability in Minimum 0-Extension Problems
Hiroshi Hirai

A New Approach to Online Scheduling: Approximating the Optimal Competitive Ratio
Elisabeth Günther, Olaf Maurer, Nicole Megow and Andreas Wiese

Approximate Distance Oracles with Improved Query Time
Christian Wulff-Nilsen

Faster Deterministic Fully-Dynamic Graph Connectivity
Christian Wulff-Nilsen

Towards Polynomial Simplex-Like Algorithms for Market Equlibria
Jugal Garg, Ruta Mehta, Milind Sohoni and Nisheeth Vishnoi

The communication complexity of addition
Emanuele Viola

Generalized Perron--Frobenius Theorem for Multiple Choice Matrices, and Applications
Chen Avin, Michael Borokhovich, Yoram Haddad, Kantor Erez, Zvi Lotker, Merav Parter and David Peleg

Fast matrix multiplication using coherent configurations
Henry Cohn and Chris Umans

Online Mixed Packing and Covering
Yossi Azar, Umang Bhaskar, Lisa Fleischer and Debmalya Panigrahi

Fuel Efficient Computation in Passive Self-Assembly
Robert Schweller and Michael Sherman

On differentially private low rank approximation
Michael Kapralov and Kunal Talwar

Fast Algorithms for Interactive Coding
Zvika Brakerski and Moni Naor

Simple, Fast and Deterministic Gossip and Rumor Spreading
Bernhard Haeupler

Learning mixtures of structured distributions over discrete domains
Siu-On Chan, Ilias Diakonikolas, Rocco Servedio and Xiaorui Sun

New Approximability Results for Two-Dimensional Bin Packing
Klaus Jansen and Lars Prädel

Poly-logarithmic Approximation for Maximum Node Disjoint Paths with Constant
Congestion
Chandra Chekuri and Alina Ene

Lattice Sparsification and the Approximate Closest Vector Problem
Daniel Dadush and Gabor Kun

Algorithms for the Densest Sub-Lattice Problem
Daniel Dadush and Daniele Micciancio

Graph Products Revisited: Tight Approximation Hardness of Induced Matching,
Poset Dimension and More
Parinya Chalermsook, Bundit Laekhanukit and Danupon Nanongkai

The Diffusion of Networking Technologies
Sharon Goldberg and Zhenming Liu

Improved Algorithms for Constructing Consensus Trees
Jesper Jansson, Chuanqi Shen and Wing-Kin Sung

Euclidean spanners in high dimensions
Sariel Har-Peled, Piotr Indyk and Anastasios Sidiropoulos

Adaptive and Approximate Orthogonal Range Counting
Timothy M Chan and Bryan T Wilkinson

Breaking the $O(n^{2.5})$ Time Barrier for Undirected Unit-Capacity Maximum
Flow

Ran Duan

Approximate Counting via Correlation Decay on Planar Graphs
Yitong Yin and Chihao Zhang

Correlation Decay up to Uniqueness in Spin Systems
Liang Li, Pinyan Lu and Yitong Yin

Weighted Graph Laplace Operator under Topological Noise
Tamal Dey, Pawas Ranjan and Yusu Wang

Beating the Direct Sum Theorem in Communication Complexity with Implications
for Sketching
Marco Molinaro, David Woodruff and Grigory Yaroslavtsev

Efficient protocols of generating bipartite classical distributions and quantum states
Rahul Jain, Yaoyun Shi, Zhaohui Wei and Shengyu Zhang

The traveling salesman problem for lines, balls and planes
Adrian Dumitrescu and Csaba Toth

Clustering Affine Subspaces: Hardness and Algorithms
Euiwoong Lee and Leonard Schulman

The Space Complexity of 2-Dimensional Approximate Range Counting
Zhewei Wei and Ke Yi

Eigenvalues of a matrix in the streaming model
Alexandr Andoni and Huy Nguyen

A Constant Factor Approximation Algorithm for Reordering Buffer Management
Noa Avigdor-Elgrabli and Yuval Rabani

A Simple Algorithm for the Graph Minor Decomposition - Logic meets Structural
Graph Theory
Martin Grohe, Ken-Ichi Kawarabayashi and Bruce Reed

Windows into Relational Events: Data Structures for Contiguous Subsequences of
Edges
Michael J Bannister, Christopher Dubois, David Eppstein and Padhraic Smyth

Minimum Makespan Scheduling with Low Rank Processing Times
Aditya Bhaskara, Ravishankar Krishnaswamy, Kunal Talwar and Udi Wieder

Nested Quantum Walks with Quantum Data Structures
Stacey Jeffery, Robin Kothari and Frederic Magniez

Near-Optimal Range Reporting Structures for Categorical Data
Kasper Green Larsen and Freek van Walderveen

Skew Bisubmodularity and Valued CSPs
Anna Huber, Andrei Krokhin and Robert Powell

Matroid Secretary for Regular and Decomposable Matroids
Michael Dinitz and Guy Kortsarz

Optimal Listing of Cycles and st-Paths in Undirected Graphs
Rui Ferreira, Roberto Grossi, Andrea Marino, Nadia Pisanti, Romeo Rizzi and
Gustavo Sacomoto

Known algorithms for Edge Clique Cover are probably optimal
Marek Cygan, Marcin Pilipczuk and Michal Pilipczuk

Combinatorial and Geometric Properties of Planar Laman Graphs
Stephen Kobourov, Torsten Ueckerdt and Kevin Verbeek

4-connected projective-planar graphs are hamiltonian-connected
Ken-Ichi Kawarabayashi and Kenta Ozeki

Convergence of multivariate belief propagation, with applications to cuckoo
hashing and load balancing
Mathieu Leconte, Marc Lelarge and Laurent Massoulié

Dichotomy for Holant* Problems with Domain Size 3
Jin-Yi Cai, Pinyan Lu and Mingji Xia

Optimal Leader Election in Multi-Hop Radio Networks
Mohsen Ghaffari and Bernhard Haeupler

Totally odd subdivisions and parity subdivisions: Structures and Coloring

Ken-Ichi Kawarabayashi

Segmentation of Trajectories for Non-Monotone Criteria
Boris Aronov, Anne Driemel, Marc Van Kreveld, Maarten Löffler and Frank Staals

Packing directed cycles through a specified vertex set
Ken-Ichi Kawarabayashi, Marek Krcal, Daniel Kral and Stephan Kreutzer

Complexity of SAT Problems, Clone Theory and the Exponential Time Hypothesis
Victor Lagerkvist, Gustav Nordh, Peter Jonsson and Bruno Zanuttini

Balls and Bins via Local Search
Paul Bogdan, Thomas Sauerwald, Alexandre Stauffer and He Sun

The Power of Non-Uniform Wireless Power
Magnus Halldorsson, Stephan Holzer, Pradipta Mitra and Roger Wattenhofer

5-coloring $K_{3,k}$-minor-free graphs: Beyond Thomassen
Ken-Ichi Kawarabayashi

Efficient algorithms for computing the triplet and quartet distance between trees of arbitrary degree
Gerth Stølting Brodal, Rolf Fagerberg, Thomas Mailund, Christian Nørgaard Storm Pedersen and Andreas Sand

Decremental maintenance of strongly connected components
Liam Roditty

How to Sell Hyperedges: The Hypermatching Assignment Problem
Marek Cygan, Fabrizio Grandoni and Monaldo Mastrolili

(1+eps)-approximation for facility location in data streams
Artur Czumaj, Christiane Lammersen, Morteza Monemizadeh and Christian Sohler

Output-sensitive Skyline (a.k.a.\ Maxima) Algorithms in External Memory
Xiaocheng Hu, Cheng Sheng, Yufei Tao, Yi Yang and Shuigeng Zhou

Turning big data into tiny data: Constant-size coresets for k-means, PCA and projective clustering

Dan Feldman, Melanie Schmidt and Christian Sohler

Active Self-Assembly of Simple Units Using an Insertion Primitive
Nadine Dabby and Ho-Lin Chen

Testing Low Complexity Affine-Invariant Properties
Arnab Bhattacharyya, Eldar Fischer and Shachar Lovett

Minimizing the number of lattice points in a translated polygon
Friedrich Eisenbrand and Nicolai Hähnle

Multiway Cycle Separators and I/O-Efficient Planar Graph Algorithms
Lars Arge, Freek van Walderveen and Norbert Zeh

Mixing Times of Self-Organizing Lists and Biased Permutations
Prateek Bhakta, Sarah Miracle, Dana Randall and Amanda Pascoe Streib

Frozen variables in random boolean constraint satisfaction problems
Michael Molloy and Ricardo Restrepo

Finding Endogenously Formed Communities
Maria-Florina Balcan, Christian Borgs, Mark Braverman, Jennifer Chayes and
Shanghua Teng

Fast Constructions of Light-Weight Spanners for General Graphs
Michael Elkin and Shay Solomon

Lower Bounds for Adaptive Sparse Recovery
David P Woodruff and Eric Price

Online Submodular Welfare Maximization: Greedy is Optimal
Michael Kapralov, Ian Post and Jan Vondrak

Simultaneous PQ-Ordering with Applications to Constrained Embedding Problems
Thomas Bläsius and Ignaz Rutter

Approximating Watchman Routes
Joseph Mitchell

Learning pseudo-Boolean k-DNFs and submodular functions

Sofya Raskhodnikova and Grigory Yaroslavtsev

Local Distribution and the Symmetry Gap: Approximability of Multiway Partitioning Problems
Alina Ene, Jan Vondrak and Yi Wu

Learning Disjunctions: Near-Optimal Trade-off between Mistakes and "I Don't Know's"
Erik D Demaine and Morteza Zadimoghaddam

Shift Finding in Sub-Linear Time
Alexandr Andoni, Haitham Hassanieh, Piotr Indyk and Dina Katabi

Optimal and Efficient Parametric Auctions
Pablo Azar, Constantinos Daskalakis, Silvio Micali and S Matthew Weinberg

Reducing Revenue to Welfare Maximization: Approximation Algorithms and other Generalizations
Yang Cai, Constantinos Daskalakis and S Matthew Weinberg

An Almost Optimal Algorithm for Computing Nonnegative Rank
Ankur Moitra

Local-Search based Approximation Algorithms for Mobile Facility Location Problems
Sara Ahmadian, Zachary Friggstad and Chaitanya Swamy

The Power of Linear Reconstruction Attacks
Shiva Kasiviswanathan, Mark Rudelson and Adam Smith

Communication Complexity of Combinatorial Auctions with Submodular Valuations
Shahar Dobzinski and Jan Vondrak

The simplex method is strongly polynomial for deterministic Markov decision processes
Ian Post and Yinyu Ye

Ironing in Dynamic Revenue Management: Posted Prices & Biased Auctions
Rahul Deb and Mallesh Pai

On the Complexity of Information Spreading in Dynamic Networks
Chinmoy Dutta, Gopal Pandurangan, Rajmohan Rajaraman, Zhifeng Sun and Emanuele Viola.

Tight Cell-Probe Bounds for Online Hamming Distance Computation
Raphael Clifford, Markus Jalsenius and Benjamin Sach

Transforming Curves on Surfaces Redux
Jeff Erickson and Kim Whittlesey

Weighted Flowtime on Capacitated Machines
Kyle Fox and Madhukar Korupolu

Approximability and proof complexity
Ryan O'Donnell and Yuan Zhou

Randomized Primal-Dual analysis of RANKING for Online Bi-Partite Matching
Nikhil Devanur, Kamal Jain and Robert Kleinberg

The complexity of detecting taut angle structures on triangulations
Benjamin A Burton and Jonathan Spreer

A $\widetilde O(n^2)$ Time-Space Trade-off for Undirected s-t Connectivity
Adrian Kosowski

An Infinite Class of Sparse-Yao Spanners
Matthew Bauer and Mirela Damian

Morphing Planar Graph Drawings with a Polynomial Number of Steps
Soroush Alamdari, Patrizio Angelini, Timothy M. Chan, Giuseppe Di Battista, Fabrizio Frati, Anna Lubiw, Maurizio Patrignani, Vincenzo Roselli, Sahil Singla, Bryan T. Wilkinson

Faster Robust Linear Regression
K.L. Clarkson, P. Drineas, M. Magdon-Ismail, M.W. Mahoney, X. Meng, D.P. Woodruff