SODA16 – List of Accepted Papers

This list includes 147 accepted papers, alphabetized by paper title.
Paper titles and author information appears as submitted to Easy Chair.

Paper title and author changes will not be made to this document.
The online program will reflect the most up-to-date presentation details, and is scheduled for posting in late October
(http://www.siam.org/meetings/da16/program.php).

A Fast and Simple Algorithm for Computing Approximate Euclidean Minimum Spanning Trees
Sunil Arya and David Mount

A faster subquadratic algorithm for finding outlier correlations
Matti Karppa, Petteri Kaski and Jukka Kohonen

A polynomial time quantum algorithm for computing class groups and solving the principal ideal problem in arbitrary degree number fields
Jean-François Biasse and Fang Song

Algorithmic and Enumerative Aspects of the Moser-Tardos Distribution
David Harris and Aravind Srinivasan

Algorithmic Complexity of Power Law Networks
Paweł Brach, Marek Cygan, Jakub Łącki and Piotr Sankowski

Algorithms and Adaptivity Gaps for Stochastic Probing
Anupam Gupta, Viswanath Nagarajan and Sahil Singla

An Algorithmic Hypergraph Regularity Lemma
Brendan Nagle, Vojtech Rodl and Mathias Schacht

An Efficient Algorithm for Computing High Quality Paths amid Polygonal Obstacles
Pankaj K. Agarwal, Kyle Fox and Oren Salzman

An FPTAS for Minimizing Indefinite Quadratic Forms over Integers in Polyhedra
Robert Hildebrand, Robert Weismantel and Kevin Zemmer

An Improved Approximation Guarantee for the Maximum Budgeted Allocation Problem
Christos Kalaitzis

An improved bound on fraction of correctable deletions
Boris Bukh and Venkatesan Guruswami

An Improved Combinatorial Polynomial Algorithm for the Linear Arrow-Debreu Market
Ran Duan, Jugal Garg and Kurt Mehlhorn

An Improved Distributed Algorithm for Maximal Independent Set
Mohsen Ghaffari

An O(log m)-Competitive Algorithm for Online Machine Minimization

Lin Chen, Nicole Megow and Kevin Schewior

Approximate Distance Oracles for Planar Graphs with Improved Query Time-Space Tradeoff
Christian Wulff-Nilsen

Approximate Undirected Maximum Flows in O(m polylog(n)) Time
Richard Peng

Approximately Efficient Double Auctions with Strong Budget Balance
Riccardo Colini-Baldeschi, Bart de Keijzer, Stefano Leonardi and Stefano Turchetta

Approximating capacitated k-median with $(1+\eps)k$ open facilities
Shi Li

Approximating Low-Stretch Spanners
Michael Dinitz and Zeyu Zhang

Approximating the k-Level in Three-Dimensional Plane Arrangements
Sariel Har-Peled, Haim Kaplan and Micha Sharir

Approximation and Fixed Parameter Subquadratic Algorithms for Radius and Diameter in Sparse Graphs
Amir Abboud, Virginia Vassilevska-Williams and Joshua Wang

Approximation of non-boolean 2CSP
Guy Kindler, Alexandra Kolla and Luca Trevisan

Approximation schemes for machine scheduling with resource (in-)dependent processing times
Klaus Jansen, Marten Maack and Malin Rau

Balanced Allocation: Patience is not a Virtue
John Augustine, William K. Moses Jr., Amanda Redlich and Eli Upfal

Better Distance Preservers and Additive Spanners
Greg Bodwin and Virginia Vassilevska Williams

Beyond the Richter-Thomassen Conjecture
János Pach, Natan Rubin and Gábor Tardos

Blocking optimal k-arborescences
Attila Bernáth and Tamás Király

Bounds for Random Constraint Satisfaction Problems via Spatial Coupling
Dimitris Achlioptas, S. Hamed Hassani, Nicolas Macris and Rudiger Urbanke

Canonical Paths for MCMC: from Art to Science
Lingxiao Huang, Pinyan Lu and Chihao Zhang

Characterisation of Strongly Stable Matchings
Pratik Ghosal, Adam Kunysz and Katarzyna Paluch

Clustering Problems on Sliding Windows

Vladimir Braverman, Harry Lang, Keith Levin and Morteza Monemizadeh

Clustering time series under the Frechet distance
Anne Driemel, Amer Krivosija and Christian Sohler

Communication Complexity of Permutation-Invariant Functions
Badih Ghazi, Pritish Kamath and Madhu Sudan

Communication with Contextual Uncertainty
Badih Ghazi, Ilan Komargodski, Pravesh Kothari and Madhu Sudan

Computing in continuous space with self-assembling polygonal tiles
Gilbert Oscar, Jacob Hendricks, Matthew Patitz and Trent Rogers

Connectivity in bridge-addable graph classes: the McDiarmid-Steger-Welsh conjecture
Guillaume Chapuy and Guillem Perarnau

Constant Factor Approximation for Subset Feedback Problems via a new LP relaxation
Chandra Chekuri and Vivek Madan

Constructing Almost Minimum Spanning Trees with Constant Average Distortion
Yair Bartal, Arnold Filtser and Ofer Neiman

Constructive algorithm for path-width of matroids
Jisu Jeong, Eun Jung Kim and Sang-Il Oum

Designing Networks with Good Equilibria under Uncertainty
George Christodoulou and Alkmini Sgouritsa

Deterministic Algorithms for Submodular Maximization Problems
Niv Buchbinder and Moran Feldman

Deterministic APSP, Partial Matches, and More: Quickly Derandomizing Razborov-Smolensky
Timothy Chan and Ryan Williams

Directed multicut is W[1]-hard, even for four terminal pairs
Marcin Pilipczuk and Magnus Wahlström

Discovering Archipelagos of Tractability for Constraint Satisfaction and Counting
Robert Ganian, Ramanujan M. S. and Stefan Szeider

Discrete Gaussian Sampling Reduces to CVP and SVP
Noah Stephens-Davidowitz

Distributed Algorithms for Planar Networks II: Low-Congestion Shortcuts, MST, and Min-Cut
Mohsen Ghaffari and Bernhard Haeupler

Dynamic (1 + \eps)-Approximate Matchings: A Density-Sensitive Approach
David Peleg and Shay Solomon

Dynamic DFS in Undirected Graphs: breaking the O(m) barrier
Surender Baswana, Shreejit Ray Chaudhury, Keerti Choudhary and Shahbaz Khan

Effective Diameter for Forest Fire and Social Random Walk Model
Varun Kanade, Reut Levi, Zvi Lotker, Frederik Mallmann-Trenn and Claire Mathieu

Efficient Low-Redundancy Codes for Correcting Multiple Deletions
Joshua Brakensiek, Venkatesan Guruswami and Samuel Zbarsky

Efficient Quantum Algorithms for (Gapped) Group Testing and Junta Testing
Andris Ambainis, Alexander Belov, Oded Regev and Ronald de Wolf

Error Amplification for Pairwise Spanner Lower Bounds
Amir Abboud and Greg Bodwin

Evolutionary dynamics in finite populations mix rapidly
Ioannis Panageas, Piyush Srivastava and Nisheeth Vishnoi

Exact and Approximation Algorithms for Weighted Matroid Intersection
Chien-Chung Huang, Naonori Kakimura and Naoyuki Kamiyama

Expanders via Local Edge Flips
Zeyuan Allen-Zhu, Aditya Bhaskara, Silvio Lattanzi, Vahab Mirrokni and Lorenzo Orecchia

Fast Approximations for Matroid Intersection
Chandra Chekuri and Kent Quanrud

Faster Fully Dynamic Matchings with Small Approximation Ratios
Aaron Bernstein and Clifford Stein

Finding perfect matchings in bipartite hypergraphs
Chidambaram Annamalai

Finding Stable Allocations in Polymatroid Intersection
Yu Yokoi and Satoru Iwata

Focused Stochastic Local Search and the Lovasz Local Lemma
Dimitris Achlioptas and Fotis Iliopoulos

Gowers Norm, Function Limits, and Parameter Estimation
Yuichi Yoshida

Hardness of Satisfiable CSPs and Hypergraph Coloring via efficient PCPs with Super-position Complexity
Subhash Khot, Rishi Saket and Devanathan Thiruvenkatachari

Higher Lower Bounds from the 3SUM Conjecture
Tsvi Kopelowitz, Seth Pettie and Ely Porat

How to Play Multichannel Rendezvous Games with Public Randomness
Sixia Chen, Matthew Dippel, Alexander Russell, Abhishek Samanta and Ravi Sundaram

How to Round Subspaces: A New Spectral Clustering Algorithm
Ali Kemal Sinop

How to Scale Exponential Backoff: Constant Throughput, Polylog Access Attempts, and Robustness
Michael Bender, Jeremy Fineman, Seth Gilbert and Maxwell Young

Improved Approximation Algorithms for k-Submodular Function Maximization
Satoru Iwata, Shin-Ichi Tanigawa and Yuichi Yoshida

Improved Approximation for Vector Bin Packing
Nikhil Bansal, Marek Elias and Arindam Khan

Improved Cheeger's Inequality and Analysis of Local Graph Partitioning using Vertex Expansion and Expansion Profile
Tsz Chiu Kwok, Lap Chi Lau and Yin Tat Lee

Improved Deterministic Algorithms for Linear Programming in Low Dimensions
Timothy M. Chan

Incidence Geometries and the Pass Complexity of Semi-Streaming Set Cover
Amit Chakrabarti and Anthony Wirth

Independence and Efficient Domination on P_6-free Graphs
Daniel Lokshtanov, Marcin Pilipczuk and Erik Jan van Leeuwen

Integrality Gaps and Approximation Algorithms for Dispersers and Bipartite Expanders
Xue Chen

Interpolating Between Truthful and Non-Truthful Mechanisms for Combinatorial Auctions
Mark Braverman, Jieming Mao and S. Matthew Weinberg

Jointly Private Convex Programming
Justin Hsu, Zhiyi Huang, Aaron Roth and Zhiwei Steven Wu

Kernelization via Sampling with Applications to Dynamic Graph Streams
Rajesh Chitnis, Graham Cormode, Hossein Esfandiari, Mohammadtaghi Hajiaghayi, Andrew McGregor, Morteza Monemizadeh and Sofya Vorotnikova

Learning and Efficiency in Games with Dynamic Population
Thodoris Lykouris, Vasilis Syrgkanis and Eva Tardos

Linear Recognition of Almost Interval Graphs
Yixin Cao

Locality-sensitive Hashing without False Negatives
Rasmus Pagh

Locally Adaptive Optimization: Adaptive Seeding for Monotone Submodular Functions
Ashwinkumar Badanidiyuru, Christos Papadimitriou, Aviad Rubinstein, Lior Seeman and Yaron Singer

Local-on-Average Distributed Tasks
Merav Parter, David Peleg and Shay Solomon

Lower bounds for the parameterized complexity of Minimum Fill-in and other completion problems

Ivan Bliznets, Marek Cygan, Paweł Komosa, Lukas Mach and Michał Pilipczuk

Make-to-Order Integrated Scheduling and Distribution
Yossi Azar, Amir Epstein, Lukasz Jez and Adi Vardi

Maximum Matchings in Dynamic Graph Streams and the Simultaneous Communication Model
Sepehr Assadi, Sanjeev Khanna, Yang Li and Grigory Yaroslavtsev

Multiscale Mapper: An Algorithm for Topological Summarization via Codomain Covers
Tamal Dey, Facundo Memoli and Yusu Wang

Natural Algorithms for Flow Problems
Damian Straszak and Nisheeth Vishnoi

Nearly Optimal Deterministic Algorithm for Sparse Walsh-Hadamard Transform
Mahdi Cheraghchi and Piotr Indyk

Nearly Optimal NP-Hardness of Unique Coverage
Venkatesan Guruswami and Euiwoong Lee

Nearly-optimal bounds for sparse recovery in generic norms, with applications to k-median sketching
Arturs Backurs, Piotr Indyk, Ilya Razenshteyn and David Woodruff

Near-Optimal Light Spanners
Shiri Chechik and Christian Wulff-Nilsen

New Bounds for Approximating Extremal Distances in Undirected Graphs
Massimo Cairo, Roberto Grossi and Romeo Rizzi

New directions in nearest neighbor searching with applications to lattice sieving
Anja Becker, Leo Ducas, Nicolas Gama and Thijs Laarhoven

Non-convex Compressed Sensing with the Sum-of-Squares Method
Tasuku Soma and Yuichi Yoshida

Obstructions for three-coloring graphs with one forbidden induced subgraph
Maria Chudnovsky, Jan Goedgebeur, Oliver Schaudt and Mingxian Zhong

On approximating strip packing with a better ratio than 3/2
Giorgi Nadiradze and Andreas Wiese

On Dynamic Approximate Shortest Paths for Planar Graphs with Worst-Case Costs
Ittai Abraham, Shiri Chechik, Daniel Delling, Andrew Goldberg and Renato Werneck

On the Complexity of Dynamic Mechanism Design
Christos Papadimitriou, George Pierrakos, Christos-Alexandros Psomas and Aviad Rubinstein

On the Economic Efficiency of the Combinatorial Clock Auction
Nicolas Bousquet, Yang Cai, Christoph Hunkenschroder and Adrian Vetta

On the Integrality Gap of Degree-4 Sum of Squares for Planted Clique

Prasad Raghavendra and Tselil Schramm, Samuel Hopkins, Pravesh Kothari and Aaron Henry Potechin

On the maximum quartet distance between phylogenetic trees
Noga Alon, Humberto Naves and Benny Sudakov

On the switch Markov chain for perfect matchings
Martin Dyer, Mark Jerrum and Haiko Müller

Online Contention Resolutions Schemes
Moran Feldman, Ola Svensson and Rico Zenklusen

Online Degree-Bounded Steiner Network Design
Sina Dehghani, Soheil Ehsani, Mohammadtaghi Hajiaghayi and Vahid Liaghat

Online Pricing with Impatient Bidders
Marek Cygan, Marcin Mucha, Piotr Sankowski and Qiang Zhang

Packing edge-disjoint odd (u,v) trails
Ross Churchley, Bojan Mohar and Hehui Wu

Packing Small Vectors
Yossi Azar, Ilan Cohen, Amos Fiat and Alan Roytman

Partial Resampling to Approximate Covering Integer Programs
Antares Chen, David Harris and Aravind Srinivasan

Permutation patterns are hard to count
Scott Garrabrant and Igor Pak

Persistent Homology and Nested Dissection
Michael Kerber, Don Sheehy and Primoz Skraba

Phase Transitions in Group Testing
Jonathan Scarlett and Volkan Cevher

Raising The Bar For Vertex Cover: Fixed-parameter Tractability Above A Higher Guarantee
Shivam Garg and Geevarghese Philip

Random-cluster Dynamics in Z^2
Antonio Blanca and Alistair Sinclair

Range Predecessor and Lempel-Ziv Parsing
Djamal Belazzougui and Simon Puglisi

Recovery and rigidity in a regular stochastic block model
Gerandy Brito, Ioana Dumitriu, Shirshendu Ganguly, Christopher Hoffman and Linh Tran

Reducing Curse of Dimensionality: Improved PTAS for TSP (with Neighborhoods) in Doubling Metrics
T-H. Hubert Chan and Shaofeng H.-C. Jiang

Robust Positioning Patterns
Ross Berkowitz and Swastik Kopparty

Sampling on lattices with free boundary conditions using randomized extensions
Sarah Cannon and Dana Randall

Scheduling Parallel DAG Jobs Online to Minimize Average Flow Time
Kunal Agrawal, Jing Li, Kefu Lu and Benjamin Moseley

Simple and Fast Rounding Algorithms for Directed and Node-weighted Multiway Cut
Chandra Chekuri and Vivek Madan

Simple pricing schemes for consumers with evolving values
Shuchi Chawla, Nikhil R. Devanur, Anna Karlin and Balasubramanian Sivan

Simpler and tighter analysis of sparse oblivious subspace embeddings
Michael B. Cohen

Simpler, faster and shorter labels for distances in graphs
Stephen Alstrup, Cyril Gavoille, Esben Bistrup Halvorsen and Holger Petersen

Sparse Approximation via Generating Point Sets
Avrim Blum, Sariel Har-Peled and Benjamin Raichel

Sparsity and dimension
Gwenaël Joret, Piotr Micek and Veit Wiechert

Species Trees from Gene Trees Despite a High Rate of Lateral Genetic Transfer: A Tight Bound
Constantinos Daskalakis and Sebastien Roch

Stabilizing Consensus with Many Opinions
Luca Becchetti, Andrea Clementi, Emanuele Natale, Francesco Pasquale and Luca Trevisan

Subexponential parameterized algorithm for Interval Completion
Ivan Bliznets, Fedor Fomin, Marcin Pilipczuk and Michał Pilipczuk

Subtree Isomorphism Revisited
Amir Abboud, Arturs Backurs, Thomas Dueholm Hansen, Virginia Vassilevska Williams and Or Zamir

The k-mismatch problem revisited
Benjamin Sach, Raphael Clifford, Allyx Fontaine, Tatiana Starikovskaya and Ely Porat

The Adversarial Noise Threshold for Distributed Protocols
William M. Hoza and Leonard J. Schulman

The Complexity of All-switches Strategy Improvement
John Fearnley and Rahul Savani

The complexity of approximately counting in 2-spin systems on k-uniform bounded-degree hypergraphs
Andreas Galanis and Leslie Ann Goldberg

The Matching Problem Has No Small Symmetric SDP

Gabor Braun, Jonah Brown-Cohen, Arefin Huq, Sebastian Pokutta, Prasad Raghavendra, Aurko Roy, Benjamin Weitz and Daniel Zink

The Power of Two Choices with Simple Tabulation
Søren Dahlgaard, Mathias Bæk Tejs Knudsen, Eva Rotenberg and Mikkel Thorup

The Restricted Isometry Property of Subsampled Fourier Matrices
Ishay Haviv and Oded Regev

Tight bounds for graph homomorphism and subgraph isomorphism
Fedor Fomin, Alexander Golovnev, Alexander Kulikov and Ivan Mihajlin, Marek Cygan, Jakub Pachocki and Arkadiusz Socała

Tight Bounds for the Distribution-Free Testing of Monotone Conjunctions
Xi Chen and Jinyu Xie

Tight conditional lower bounds for counting perfect matchings on graphs of bounded treewidth and cliquewidth
Radu Curticapean and Dániel Marx

Time vs. Information Tradeoffs for Leader Election in Anonymous Trees
Christian Glacet, Avery Miller and Andrzej Pelc

Towards Optimal Algorithms for Prediction with Expert Advice
Nick Gravin, Yuval Peres and Balasubramanian Sivan

Towards optimal deterministic coding for interactive communication
Ran Gelles, Bernhard Haeupler, Gillat Kol, Noga Ron-Zewi and Avi Wigderson

Treetopes and their Graphs
David Eppstein

Undirected Graph Exploration with Θ(log log n) Pebbles
Yann Disser, Jan Hackfeld and Max Klimm

Using Optimization to Obtain a Width-Independent, Parallel, Simpler, and Faster Positive SDP Solver
Zeyuan Allen-Zhu, Yin Tat Lee and Lorenzo Orecchia

Weighted dynamic finger in binary search trees
John Iacono and Stefan Langerman

Weighted SGD for ℓ_p Regression with Randomized Preconditioning
Jiyan Yang, Yinlam Chow, Christopher Ré and Michael Mahoney

Windrose Planarity: Embedding Graphs with Direction-Constrained Edges
Patrizio Angelini, Giordano Da Lozzo, Giuseppe Di Battista, Valentino Di Donato, Philipp Kindermann, Günter Rote and Ignaz Rutter