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Nota di contenuto	Puzzles, Art, and Magic with Algorithms -- The ABCs of AVDs: Geometric Retrieval Made Simple -- Pareto Optimality in House Allocation Problems -- Property-Preserving Data Reconstruction -- On the Monotone Circuit Complexity of Quadratic Boolean Functions -- Generalized Function Matching -- Approximate Distance Oracles for Graphs with Dense Clusters -- Multicriteria Global Minimum Cuts -- Polyline Fitting of Planar Points Under Min-sum Criteria -- A Generalization of Magic Squares with Applications to Digital Halftoning -- Voronoi Diagrams with a Transportation Network on the Euclidean

Plane -- Structural Alignment of Two RNA Sequences with Lagrangian Relaxation -- Poly-APX- and PTAS-Completeness in Standard and Differential Approximation -- Efficient Algorithms for k Maximum Sums -- Equipartitions of Measures by 2-Fans -- Augmenting the Edge-Connectivity of a Spider Tree -- On Nash Equilibria for Multicast Transmissions in Ad-Hoc Wireless Networks -- Structural Similarity in Graphs -- Flexibility of Steiner Trees in Uniform Orientation Metrics -- Random Access to Advice Strings and Collapsing Results -- Bounding the Payment of Approximate Truthful Mechanisms -- The Polymatroid Steiner Problems -- Geometric Optimization Problems Over Sliding Windows -- On-Line Windows Scheduling of Temporary Items -- Generalized Geometric Approaches for Leaf Sequencing Problems in Radiation Therapy -- An Efficient Exact Algorithm for the Minimum Ultrametric Tree Problem -- On the Range Maximum-Sum Segment Query Problem -- An Efficient Algorithm for Finding Maximum Cycle Packings in Reducible Flow Graphs -- Efficient Job Scheduling Algorithms with Multi-type Contentions -- Superimposing Voronoi Complexes for Shape Deformation -- On Partial Lifting and the Elliptic Curve Discrete Logarithm Problem -- Guarding Art Galleries by Guarding Witnesses -- On p-Norm Based Locality Measures of Space-Filling Curves -- Composability of Infinite-State Activity Automata -- Error Compensation in Leaf Root Problems -- On Compact and Efficient Routing in Certain Graph Classes -- Randomized Insertion and Deletion in Point Quad Trees -- Diagnosis in the Presence of Intermittent Faults -- Three-Round Adaptive Diagnosis in Binary n-Cubes -- Fast Algorithms for Comparison of Similar Unordered Trees -- GCD of Random Linear Forms -- On the Hardness and Easiness of Random 4-SAT Formulas -- Minimum Common String Partition Problem: Hardness and Approximations -- On the Complexity of Network Synchronization -- Counting Spanning Trees and Other Structures in Non-constant-jump Circulant Graphs -- Adaptive Spatial Partitioning for Multidimensional Data Streams -- Paired Pointset Traversal -- Approximated Two Choices in Randomized Load Balancing -- Space-Efficient and Fast Algorithms for Multidimensional Dominance Reporting and Counting -- Local Gapped Subforest Alignment and Its Application in Finding RNA Structural Motifs -- The Maximum Agreement of Two Nested Phylogenetic Networks -- Sequences of Radius k: How to Fetch Many Huge Objects into Small Memory for Pairwise Computations -- New Bounds on Map Labeling with Circular Labels -- Optimal Buffer Management via Resource Augmentation -- Oriented Paths in Mixed Graphs -- Polynomial Deterministic Rendezvous in Arbitrary Graphs -- Distributions of Points and Large Quadrangles -- Cutting Out Polygons with Lines and Rays -- Advantages of Backward Searching — Efficient Secondary Memory and Distributed Implementation of Compressed Suffix Arrays -- Inner Rectangular Drawings of Plane Graphs -- Approximating the Minmax Subtree Cover Problem in a Cactus -- Boundary-Optimal Triangulation Flooding -- Exact Computation of Polynomial Zeros Expressible by Square Roots -- Many-to-Many Disjoint Path Covers in a Graph with Faulty Elements -- An $O(n \log n)$ -Time Algorithm for the Maximum Constrained Agreement Subtree Problem for Binary Trees -- Planning the Transportation of Multiple Commodities in Bidirectional Pipeline Networks -- Efficient Algorithms for the Hotlink Assignment Problem: The Worst Case Search -- Dynamic Tree Cross Products -- Spanners, Weak Spanners, and Power Spanners for Wireless Networks -- Techniques for Indexing and Querying Temporal Observations for a Collection of Objects -- Approximation Algorithms for the Consecutive Ones Submatrix Problem on Sparse Matrices -- The Two-Guard

Problem Revisited and Its Generalization -- Canonical Data Structure for Interval Probe Graphs -- Efficient Algorithms for the Longest Path Problem -- Randomized Algorithms for Motif Detection -- Weighted Coloring on Planar, Bipartite and Split Graphs: Complexity and Improved Approximation -- Sweeping Graphs with Large Clique Number -- A Slightly Improved Sub-cubic Algorithm for the All Pairs Shortest Paths Problem with Real Edge Lengths.

Sommario/riassunto

This volume contains the proceedings of the 15th Annual International Symposium on Algorithms and Computation (ISAAC 2004), held in Hong Kong, 20–22 December, 2004. In the past, it has been held in Tokyo (1990), Taipei (1991), Nagoya (1992), Hong Kong (1993), Beijing (1994), Cairns (1995), Osaka (1996), Singapore (1997), Taejon (1998), Chennai (1999), Taipei (2000), Christchurch (2001), Vancouver (2002), and Kyoto (2003). ISAAC is an annual international symposium that covers a wide range of topics, namely algorithms and computation.

The main purpose of the symposium is to provide a forum for researchers working in the active research community of algorithms and the theory of computation to present and exchange new ideas. In response to our call for papers we received 226 submissions. The task of selecting the papers in this volume was done by our program committee and other referees. After a thorough review process the committee selected 76 papers, the decisions being based on originality and relevance to the field of algorithms and computation. We hope all accepted papers will eventually appear in scientific journals in a more polished form.

Two special issues, one of *Algorithmica* and one of the *International Journal of Computational Geometry and Applications*, with selected papers from ISAAC 2004 are in preparation.

The best student paper award will be given for “Geometric optimization problems over sliding windows” by Bashir S. Sadjad and Timothy M. Chan from the University of Waterloo. Two eminent invited speakers, Prof. Erik D. Demaine, MIT, and Prof. David M. Mount, University of Maryland, also contributed to this volume.
