The 14th Annual International Computing and Combinatorics Conference

COCOON'08, June 27-29, 2008, Mercure Teda hotel at Dalian, China

Locations of Session Rooms and Dining Halls

Session Rooms	Breakfasts	Lunches, Reception	Banquet
At the 3rd floor of the Grand Mercure Hotel	At the 1st floor of the Grand Mercure Hotel	At the 1st floor of the Grand Mercure Hotel	At the 3rd floor of the Grand Mercure Hotel
Registration is needed	Included in the room charge	Tickets are needed	Tickets are needed

Registration Day of June 26

At the lobby	14:00-19:00	*Registration Package: Bag, Proceedings, badge, program, notebook, ball pen, reception/lunch/banquet/tour tickets, local map*
Reception	19:00-21:00	Buffet at the first floor (**reception-tickets** are needed)

Morning Sessions of June 27

Sessions/Chairs/Time		Titles of Talks / Speakers and Authors
Session 1A **Jie Wang**	09:00-10:00	Partitioning Graphs of Supply and Demand: Generalization of Knapsack Problem ***Takao Nishizeki,*** Tohoku University, Japan Suppose that each vertex of a graph G is either a supply vertex or a demand vertex and is assigned a positive real number, called the supply or the demand. Each demand vertex can receive ``power'' from at most one supply vertex through edges in G. One thus wishes to partition G into connected components so that each component C either has no supply vertex or has exactly one supply vertex whose supply is at least the sum of demands in C, and one wishes to maximize the fulfillment, that is, the sum of demands in all components with supply vertices. This maximization problem is a generalization of the multiple knapsack problem. In this talk, we survey the recent results on the hardness and approximability of the problem. The problem is NP-hard even for trees having exactly one supply vertex and is strongly NP-hard for general graphs. Furthermore, the problem is MAXSNP-hard and hence there is no polynomial-time approximation scheme (PTAS) for general graphs unless P=NP. However, there is a fully polynomial-time approximation scheme (FPTAS) for trees. The FPTAS can be extended for series-parallel graphs and partial k-trees, that is, graphs with bounded treewidth, if there is exactly one supply vertex in the graph.
Tea Break	10:00-10:20	At the 3rd floor
Session A1 Computational Biology (1) ***Jie Wang***	10:20-10:45	Quasi-bicliques: Complexity and Binding Pairs *Xiaowen Liu, Jinyan Li,* ***Lusheng Wang***
	10:45-11:10	Complexity of a Collision-Aware String Partition Problem and its Relation to Oligo Design for Gene Synthesis, *Anne Condon, Jan Manuch,* ***Chris Thachuk***
	11:10-11:35	Genome Halving under DCJ Revisited ***Julia Mixtacki***
	11:35-12:00	Haplotype Inferring via Galled-tree Networks is NP-Complete *Arvind Gupta,* ***Jan Manuch****, Ladislav Stacho, Xiaohong Zhao*

Session B1 Network Optimization (I) ***Xiangyang Li***	10:20-10:45	The Iterated Restricted Immediate Snapshot Model *Sergio Rajsbaum, **Michel Raynal**, Corentin Travers*
	10:45-11:10	Spreading messages ***Ching-Lueh Chang**, Yuh-Dauh Lyuu*
	11:10-11:35	On Some City Guarding Problems *Lichen Bao, Sergey Bereg, Ovidiu Daescu, Simeon Ntafos, **Junqiang Zhou***
	11:35-12:00	Optimal Insertion of a Segment Highway in a City Metric ***Matias Korman**, Takeshi Tokuyama*
Session C1 Complexity ***Ker-I Ko***	10:20-10:45	Structural Identifiability in Low-Rank Matrix Factorization ***Epameinondas Fritzilas**, Yasmin Rios-Solis, Sven Rahmann*
	10:45-11:10	Complexity of Counting the Optimal Solutions ***Miki Hermann**, Reinhard Pichler*
	11:10-11:35	Quantum Separation of Local Search and Fixed Point Computation *Xi Chen, Xiaoming Sun, **Shang-Hua Teng***
	11:35-12:00	Multi-Party Quantum Communication Complexity with Routed Messages ***Seiichiro Tani**, Masaki Nakanishi, Shigeru Yamashita*
Lunch	12:00-13:00	Buffet Lunch at the 1st floor (**lunch-tickets** are needed)

Afternoon Sessions of June 27

Sessions/Chairs/Time		Titles of Talks / Speakers and Authors
Session A2 Computational Biology (2) ***Jie Wang***	14:00-14:25	A 2.25-Approximation Algorithm for Cut-and-Paste Sorting of Unsigned Circular Permutations *Xiaowen Lou, **Daming Zhu***
	14:25-14:50	Efficient Algorithms for SNP Haplotype Block Selection Problems ***Yaw-Ling Lin***
	14:50-15:15	Sequence Alignment Algorithms for Run-Length-Encoded Strings ***Guan-Shieng Huang**, Jia-Jie Liu, Yue-Li Wang*
	15:15-15:40	Adjacent Swaps on Strings ***Bhadrachalam Chitturi**, Hai Sudborough, Walter Voit, Xuerong Feng*
Session B2 Algorithms and Complexity ***Toshihide Ibaraki***	14:00-14:25	Counting Polycubes without the Dimensionality Curse ***Gadi Aleksandrowicz**, Gill Barequet.*
	14:25-14:50	Improved Parameterized Algorithms for Weighted 3-Set Packing *Jianxin Wang, **Qilong Feng***
	14:50-15:15	The Computational Complexity of Link Building ***Martin Olsen***
	15:15-15:40	Polychromatic Colorings of n-dimensional Guillotine-Partitions ***Balázs Keszegh***
Session C2 Algorithms and Data Structures ***Ker-I. Ko***	14:00-14:25	Efficient Compression of Web Graphs ***Yasuhito Asano**, Yuya Miyawaki, Takao Nishizeki*
	14:25-14:50	Damaged BZip Files are Difficult to Repair *Christian Hundt, **Ulf Ochsenfahrt***
	14:50-15:15	A Sublinear Time Randomized Algorithm for Coset Enumeration in the Black Box Model ***Bin Fu**, Zhixiang Chen*
	15:15-15:40	On the Monotonicity of Weak Searching *Boting Yang, **Yi Cao***
Tea Break	15:40-16:00	At the 3rd floor

Session A3 Graph Algorithms and Bioinformatics ***Gill Barequet***	16:00-16:25	Probe Ptolemaic Graphs *David Chandler, Maw-Shang Chang, Ton Kloks, Van Bang Le,* ***Sheng-Lung Peng***
	16:25-16:50	Covering Directed Graphs by In-trees ***Naoyuki Kamiyama****, Naoki Katoh*
	16:50-17:15	Star-Shaped Drawings of Graphs with Fixed Embedding and Concave Corner Constraints *Seok-Hee Hong,* ***Hiroshi Nagamochi***
	17:15-17:40	A Practical Exact Algorithm for the Individual Haplotyping Problem MEC/GI *Minzhu Xie,* ***Jianxin Wang****, Jianer Chen*
Session B3 Wireless Networks ***Xiaohua Jia***	16:00-16:25	(6+ε)-Approximation for Minimum Weight Dominating Set in Unit Disk Graphs *Xiaofeng Gao, Yaochun Huang, Zhao Zhang,* ***Weili Wu***
	16:25-16:50	Spectrum Bidding in Wireless Networks and Related ***Xiang-Yang Li****, Ping Xu, ShaoJie Tang, XiaoWen Chu*
	16:50-17:15	Throughput Maximization with Traffic Profile in Wireless Mesh Network ***Hejiao Huang****, Yun Peng*
	17:15-17:40	Joint Topology Control and Power Conservation for Wireless Sensor Networks Using Transmit Power Adjustment ***Deying Li****, Hongwei Du, Lin Liu, Scott C.-H. Huang*
Session C3 Algorithmic Game and Cryptography ***Xiao Zhou***	16:00-16:25	On the Complexity of Equilibria Problems in Angel-Daemon Games ***Joaquim Gabarro****, Alina Garcia, Maria Serna.*
	16:25-16:50	Average-Case Competitive Analyses for One-Way Trading ***Hiroshi Fujiwara****, Kazuo Iwama, Yoshiyuki Sekiguchi*
	16:50-17:15	Visual Cryptography on Graphs ***Steve Lu****, Daniel Manchala, Rafail Ostrovsky*
	17:15-17:40	Algebraic Cryptanalysis of CTRU Cryptosystem ***Nitin Vats***
Banquet	19:00-20:30	Banquet (Table dinner) at the 3rd floor (**banquet-tickets** are needed)

One-Day Tour of June 28

Time		Activities
Morning	07:40-08:00	Meet at the lobby (**one-day-tour-tickets** are needed)
	08:00-12:00	**Dalian Ocean Park** (http://www.laohutan.com.cn/)
Lunch	12:00-13:00	Table dinner at CYTS Dalian Hotel
Afternoon	13:00-17:00	**Dalian Forest Zoo** (http://www.dlzoo.com/default.asp)
	17:00-18:00	**Xinghai Plaza** (the largest square in China)
Supper	18:00-20:00	Table dinner at Zhong Hai Lou restaurant

Morning Sessions of June 29

Sessions/Chairs/Time		Titles of Talks / Speakers and Authors
Session 2A ***Dingzhu Du***	09:00-10:00	Optimal Randomized Algorithm for Density Selection Problem ***Der-Tsai Lee****,* Academia Sinica, Taiwan (joint work with Tien-Ching Lin)
		Given a sequence $A = (a_1, w_1), (a_2, w_2), \ldots, (a_n, w_n)$ of n ordered pairs (a_i, w_i) of real numbers a_i and $w_i > 0$ for each $1 \le i \le n$, two nonnegative real numbers l, u with $l \le u$ and a positive integer k, the Density Selection Problem (DSP) is to find

Session 2A ***Dingzhu Du***	09:00-10:00	the consecutive subsequence $A(i^*, j^*)$ over all $O(n^2)$ consecutive subsequences $A(i, j)$ satisfying width constraint $l \le w(i, j) = \sum^{j}_{t=i} w_t \le u$ such that the rank of its density $d(i^*, j^*) = \sum^{j^*}_{t=i^*} a_t / w(i^*, j^*)$ is k. This Density Selection Problem is a generalization of the following three well-known problems: Selection Problem in computer science, Slope Selection Problem in computational geometry and Maximum-Density Subsequence Problem in bioinformatics. The maximum-density subsequence problem is a special case of DSP where k is equal to the total number of consecutive subsequences satisfying width constraint and can be solved in optimal $O(n)$ time. The slope selection problem is a special case of DSP where $l = 0$, $u = \infty$ and can be solved in optimal $O(n \log n)$ time. The famous selection problem is a special case of DSP where $l = 1$, $u = 1$ and $w_i = 1$ for each i and can be solved in optimal $O(n)$ time. In this talk we will give a randomized algorithm for DSP that runs in optimal expected $O(n \log n)$ time. We will also consider the Density Range Query Problem. Given a sequence A of n ordered pairs and two width bounds l, u and two real numbers d_l, d_r, the reporting mode of this problem is to find all consecutive subsequences $A(i, j)$ satisfying width constraint such that $d_l \le d(i, j) \le d_r$ and the counting mode is just to output the total number of consecutive subsequences $A(i, j)$ satisfying width constraint such that $d_l \le d(i, j) \le d_r$. We will show that the reporting mode can be solved in optimal $O(n \log m + h)$ time, where $m = \min\{(u\text{-}l)/w_{min}, n\}$ and h is the output size, and the counting mode can be solved in optimal $O(n \log m)$ time.
Tea Break	10:00-10:20	At the 3rd floor
Session A4 Network Optimization (2) ***Xiangyang Li***	10:20-10:45	(1+ρ)-Approximation for Selected-Internal Steiner Minimum Tree *Xianyue Li, Yaochun Huang, Feng Zou, Donghyun Kim,* ***Weili Wu***
	10:45-11:10	Column Generation Algorithms for the Capacitated m-Ring-Star Problem ***Edna Hoshino****, Cid C. de Souza*
	11:10-11:35	Approximating the Generalized Capacitated Tree-Routing Problem ***Ehab Morsy****, Hiroshi Nagamochi*
	11:35-12:00	Computing Maximum Flows in Undirected Planar Networks with Edge and Vertex Capacities ***Xianchao Zhang****, Weifa Liang, Guoliang Chen*
Session B4 Computational Geometry ***Ker-I Ko***	10:20-10:45	Voronoi Diagram of Polygonal Chains under the Discrete Fréchet Distance *Sergey Bereg, Kevin Buchin, Maike Buchin, Marina Gavrilova,* ***Binhai Zhu***
	10:45-11:10	On Center Regions and Balls Containing Many Points *Shakhar Smorodinsky,* ***Marek Sulovský****, Uli Wagner*
	11:10-11:35	On Unfolding 3D Lattice Polygons and 2D Orthogonal Trees ***Sheung-Hung Poon***
	11:35-12:00	New Algorithms for Online Rectangle Filling with k-Lookahead *Haitao Wang, Amitabh Chaudhary,* ***Danny Z. Chen***
Session C4 Graph Theory and Algorithms ***Toshihide Ibaraki***	10:20-10:45	A New Characterization of P_6-Free Graphs ***Pim van 't Hof****, Daniël Paulusma*
	10:45-11:10	Maximum Connected Domatic Partition of Directed Path Graphs with Single Junction *Masaya Mito,* ***Satoshi Fujita***
	11:10-11:35	Efficient Algorithms for the k Smallest Cuts Enumeration ***Li-Pu Yeh****, Biing-Feng Wang*
	11:35-12:00	On Listing, Sampling, and Counting the Chordal Graphs with Edge Constraints ***Shuji Kijima****, Masashi Kiyomi, Yoshio Okamoto, Takeaki Uno*
Lunch	12:00-13:00	Buffet Lunch (**lunch-tickets** are needed)

Afternoon Sessions of June 29

Sessions/Chairs/Time		Titles of Talks / Speakers and Authors
Session B5 Comm. Networks and Optimization ***Danny Ziyi Chen***	14:00-14:25	Finding Frequent Items in a Turnstile Data Stream ***Regant Hung***, *Kwok Fai Lai, Hing Fung Ting*
	14:25-14:50	Diagnosability of Two-Matching Composition Networks *Sun-Yuan Hsieh,* ***Chia-Wei Lee***
	14:50-15:15	Optimal Tree Structures for Group Key Tree Management Considering Insertion/Deletion Cost ***Weiwei Wu***, *Minming Li, Enhong Chen*
	15:15-15:40	A Linear Programming Duality Approach to Analyzing Strictly Nonblocking d-ary Multilog Networks under General Crosstalk Constraints *Hung Ngo,* ***Yang Wang***, *Anh Le*
Session C5 Algorithms and Computability ***Miki Hermann***	14:00-14:25	Isoperimetric Problem and Meta-Fibonacci Sequences ***L. Sunil Chandran***, *Anita Das, B. V. Subramanyan Bharadwaj*
	14:25-14:50	Resource Bounded Frequency Computations with Three Errors ***Ulrich Hertrampf***, *Christoph Minnameier*
	14:50-15:15	VC Dimension Bounds for Analytic Algebraic Computations ***Jose Luis Montaña***, *Luis Miguel Pardo, Mar Callau*
	15:15-15:40	Smallest Formulas for Parity of 2^k Variables Are Essentially Unique ***Jun Tarui***
Tea Break	15:40-16:00	At the 3rd floor
Session B6 Complexity and Computational Geometry ***Xujin Chen***	16:00-16:25	Geometric Spanner of Objects Under L_1 Distance *Yongding Zhu,* ***Jinhui Xu***, *Yang Yang, Naoki Katoh, Shin-ichi Tanigawa*
	16:25-16:50	The Orbit Problem is in the GapL Hierarchy *Vikraman Arvind,* ***T. C. Vijayaraghavan***
	16:50-17:15	Monotone DNF Formula that has a Minimal or Maximal Number of Satisfying Assignments ***Takayuki Sato***, *Kazuyuki Amano, Eiji Takimoto, Akira Maruoka*
	17:15-17:40	Approximating Alternative Solutions ***Michael Krüger***, *Harald Hempel*
	17:40-18:00	Dimensions of Points in Self-Similar Fractals ***Jack H. Lutz***, *Elvira Mayordomo*
Session C6 Complex Networks and Scheduling Problems ***Xiaodong Hu***	16:00-16:25	Detecting Community Structure by Network Vectorization ***Wei Ren***, *Guiying Yan, Guohui Lin, Caifeng Du, Xiaofeng Han*
	16:25-16:50	Two-Agent Scheduling with Linear Deteriorating Jobs on a Single Machine ***Peng Liu***, *Lixin Tang*
	16:50-17:15	A Two-Stage Flexible Flowshop Problem with Deterioration ***Hua Gong***, *Lixin Tang*
	17:15-17:40	A Lower Bound for the On-Line Preemptive Machine Scheduling with L_p Norm ***Tianping Shuai***, *Donglei Du*
	17:40-18:00	The Coordination of Two Parallel Machines Scheduling and Batch Deliveries *Hua Gong,* ***Lixin Tang***
Free time	18:00-	You are encouraged to experience Dalian yourself.