The 21st Annual International Computing and Combinatorics Conference (COCOON'15)

Beijing, China
August 4-6, 2015

Welcome to COCOON 2015

The 21st Annual International Computing and Combinatorics Conference (COCOON'15) will be held in the city of **Beijing, China**, during **August 4-6, 2015**.

The conference organizers would like to extend their most cordial invitation to researchers around the world to come to the capital of China, to exchange their most significant research works.

Program Committee

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- Chenchen Wu
- DachuanXu (Co-Chair)
- YichengXu
- Ruiqi Yang
- Chonglan Zhang
- Xinyuan Zhao (Co-Chair)

Brief Schedule Table

COCOON 2015	Program Schedule
Monday, August 3, 2015	
Time	**Events**
15:00--21:00	On-site registration (Grand GongdaJianguo Hotel)
Tuesday, August 4, 2015	
Time	**Events**
08:30 -- 12:10	Conference (Grand Ballroom)
12:10 -- 13:30	Lunch (Lobby Lounge)
13:30 -- 17:10	Conference (Grand Ballroom)
18:40 -- 20:40	Banquet (Grand Ballroom)
Wednesday, August 5, 2015	
Time	**Events**
08:30 -- 11:50	Conference (Grand Ballroom)
12:10 -- 13:30	Lunch (Lobby Lounge)
13:30 -- 17:10	Conference (Grand Ballroom)
Thursday, August 6, 2015	
Time	**Events**
08:30 -- 11:45	Conference (Grand Ballroom)
12:10 -- 13:30	Lunch (Lobby Lounge)

Program Schedule

Grand Gongda Jianguo Hotel

100 Pingleyuan Street, Chaoyang District, Beijing

(Tel:86-10-59102222)

Monday, August 3, 2015

Time	Venue	Event
15:00--21:00	Grand GongdaJianguo Hotel	On-site registration

NOTE: August 4-6: On-site registration is available during 8:00am-5:00pm at Grand Gongda

Jianguo Hotel.

Tuesday, August 4, 2015

Time	Venue	Events	Chairs
8:30--8:40	大宴会厅 (Grand Ballroom)	Opening	DachuanXu
8:40--9:40	大宴会厅 (Grand Ballroom)	Keynote 1: **Approximation Algorithms for Clustering Problems** *JaroslawByrka*	Xiaodong Hu
9:40--10:10		Photo & Coffee break	
10:10--11:10	大宴会厅 (Grand Ballroom)	Keynote 2: **Algorithms for the Asymmetric Traveling Salesman Problem** *Ola Svensson*	Rolf Moehring
11:10--12:10	大宴会厅 (Grand Ballroom)	CSoNet Keynote: **Mathematical Analysis of Community Structure Detection in Complex Networks** *Xiang-Sun Zhang*	My T. Thai
12:10--13:30	大堂吧 (Lobby Lounge)	Lunch	
13:30--15:10	大宴会厅 I (Grand Ballroom I)	Session 1: Graph Algorithms I	SouravChakraborty
		Mining Preserving Structures in a Graph Sequence *Takeaki Uno*, Yushi Uno	

		On the Most Imbalanced Orientation of a Graph	
		Walid Ben-Ameur, *Antoine Glorieux*, Jose Neto	
		Cheeger Inequalities for General Edge-Weighted Directed Graphs	
		T-H. Hubert Chan,*Zhihao Gavin Tang*, Chenzi Zhang	
		Algorithmic Aspects of Disjunctive Domination in Graphs	
		B.S. Panda, *ArtiPandey*, Subhabrata Paul	
13:30--15:10	大宴会厅 II (Grand Ballroom II)	Session 2: Approximation Algorithms	Yasuhiro Takahashi
		Improved Approximation Algorithms for Min-Max and Minimum Vehicle Routing Problems	
		Wei Yu, Zhaohui Liu	
		Improved Approximation Algorithms for the Maximum Happy Vertices and Edges Problems	
		Peng Zhang, Tao Jiang, Angsheng Li	
		An Approximation Algorithm of the Smallest Color-Spanning Circle Problem	
		Yin Wang, YinfengXu	
		Approximation Algorithms for the Connected Sensor Cover Problem	
		Lingxiao Huang, Jian Li, *Qicai Shi*	
15:10--15:30		Coffee break	
15:30--17:10	大宴会厅 I (Grand Ballroom I)	Session 3: Circuits Algorithms	Zhao Zhang
		Skew Circuits of Small Width	
		Nikhil Balaji, Andreas Krebs, *NutanLimaye*	
		Correlation Bounds and #SAT Algorithms for Small Linear-Size Circuits	
		Ruiwen Chen, Valentine Kabanets	
		Commuting Quantum Circuits with Few Outputs are Unlikely to be Classically Simulatable	
		Yasuhiro Takahashi, SeiichiroTani, Takeshi Yamazaki, Kazuyuki Tanaka	
		Evaluating Matrix Circuits	
		Daniel Konig, Markus Lohrey	

15:30--17:10	大宴会厅 II (Grand Ballroom II)	Session 4: Computing and Graph	Takeaki Uno
		Approximation and Nonapproximability for the One-Sided Scaffold Filling Problem *Haitao Jiang*, Jingjing Ma, Junfeng Luan, Daming Zhu	
		Packing Cubes into a Cube in (d>3)-Dimensions *Yiping Lu*, Danny Chen, Jianzhong Cha	
		Towards Flexible Demands in Online Leasing Problems Shouwei Li, Alexander Macker, *Christine Markarian*, SorenRiechers, Friedhelm Meyer auf der Heide	
		Lower Bounds for the Size of Nondeterministic Circuits *Hiroki Morizumi*	
		Computing Minimum Dilation Spanning Trees in Geometric Graphs Alex F. Brandt, Miguel F. A. de M. Gaiowski, *Pedro J. de Rezende*, Cid C. de Souza	
		Speedy Colorful Subtrees *Tim White*, Stephan Beyer, Kai Duhrkop, Markus Chimani, Sebastian Bocker	
18:40--20:40	大宴会厅 (Grand Ballroom)	**Banquet**	Donglei Du

Wednesday, August 5, 2015

Time	Venue	Events	Chairs
8:30--9:45	大宴会厅 I (Grand Ballroom I)	Session 5: Complexity and Security	Donglei Du
		Private Certificate-Based Remote Data Integrity Checking in Public Clouds *Huaqun Wang*, Jiguo Li	
		Maximal and Maximum Transitive Relation Contained in a Given Binary Relation *SouravChakraborty*, ShamikGhosh, NiteshJha, SasankaRoy	
		An Improved Kernel for the Complementary	

		Maximal Strip Recovery Problem	
		Shuai Hu, *Wenjun Li*, Jianxin Wang	
		On Symbolic Ultrametrics, Cotree Representations, and Cograph Edge Decompositions and Partitions	
		Marc Hellmuth, *Nicolas Wieseke*	
		Bounds for the Super Extra Edge Connectivity of Graphs	
		Chia-Wen Cheng, *Sun-Yuan Hsieh*	
8:30--9:45	大宴会厅 II (Grand Ballroom II)	Session 6: Graph Algorithms II	Pedro J. de Rezende
		Algorithmic Aspect of Minus Domination on Small-Degree Graphs	
		Jin-Yong Lin, *Ching-Hao Li*, Sheung-Hung Poon	
		Time-space Tradeoffs for Dynamic Programming in Trees and Bounded Treewidth Graphs	
		Niranka Banerjee,*SankardeepChakraborty*, Venkatesh Raman, Sasanka Roy, SaketSaurabh	
		Reducing Rank of the Adjacency Matrix by Graph Modification	
		Syed Mohammad Meesum, PranabenduMisra, SaketSaurabh	
9:45--10:10		Coffee break	
10:10--11:50	大宴会厅 I (Grand Ballroom I)	Session7: Computational Complexity	Peng Zhang
		Combinations of Some Shop Scheduling Problems and the Shortest Path Problem: Complexity and Approximation Algorithms	
		Kameng Nip, Zhenbo Wang, Wenxun Xing	
		Complexity of Grundy Coloring and Its Variants	
		Edouard Bonnet, FlorentFoucaud, Eun Jung Kim, Florian Sikora	
		On the Complexity of the Minimum Independent Set Partition Problem	
		T-H. Hubert Chan, CharalamposPapamanthou, *Zhichao Zhao*	

		Bivariate Complexity Analysis of Almost Forest Deletion	
		AshutoshRai, SaketSaurabh	
10:10--11:50	大宴会厅 II (Grand Ballroom II)	Session 8: Knapsack and Allocation	Xin Han
		On the Number of Anchored Rectangle Packings for a Planar Point Set	
		Kevin Balas, *CsabaToth*	
		Approximate Truthful Mechanism Design for Two-Dimensional Orthogonal Knapsack Problem	
		Deshi Ye, *Guochuan Zhang*	
		Online Integrated Allocation of Berths and Quay Cranes in Container Terminals with 1-Lookahead	
		Jiayin Pan, YinfengXu	
		Disjoint Path Allocation with Sublinear Advice	
		Heidi Gebauer, *Dennis Komm*, RastislavKralovic, Richard Kralovic, JasminSmula	
12:10--13:30	大堂吧 (Lobby Lounge)	Lunch	
13:30--15:10	大宴会厅 I (Grand Ballroom I)	Session 9: Graph Algorithms III	Jens Massberg
		Dynamic Tree Shortcut with Constant Degree	
		T-H. Hubert Chan, Xiaowei Wu, *Chenzi Zhang*, Zhichao Zhao	
		The Rectilinear Steiner Tree Problem With Given Topology and Length Restrictions	
		Jens Massberg	
		Compact Monotone Drawing of Trees	
		Xin He, Dayu He	
		A Measure and Conquer Approach for the Parameterized Bounded Degree-one Vertex Deletion	
		Bang Ye Wu	
13:30--15:10	大宴会厅 II (Grand Ballroom II)	Session 10: Random	Dennis Komm
		Sampling in Space Restricted Settings	
		Anup Bhattacharya, Davis Issac, RageshJaiswal, Amit Kumar	

Time	Venue	Events	Chairs
		Entropy of Weight Distributions of Small-Bias Spaces and Pseudobinomiality *LouayBazzi*	
		Optimal Algorithms for Running Max and Min Filters on Random Inputs Hongyu Liang, *Shengxin LIU*, Hao Yuan	
		Model Checking MSVL Programs Based on Dynamic Symbolic Execution *ZhenhuaDuan*, Cong Tian, Kangkang Bu	
15:10--15:30		Coffee break	
15:30--16:45	大宴会厅 I (Grand Ballroom I)	Session 11: Geometric Cover	LouayBazzi
		On the Complete Width and Edge Clique Cover Problems Van Bang Le, *Sheng-Lung Peng*	
		Unique Covering Problems with Geometric Sets *Pradeesha Ashok*, SudeshnaKolay, NeeldharaMisra, SaketSaurabh	
		Linear Time Approximation Schemes for Geometric Maximum Coverage Jian Li, Haitao Wang, Bowei Zhang, *Ningye Zhang*	
15:30--17:10	大宴会厅 II (Grand Ballroom II)	Session 12: Game Theory and Algorithms	Guochuan Zhang
		Strategy-Proof Mechanism for Obnoxious Facility Location on a Line Deshi Ye, Lili Mei, *Yong Zhang*	
		Bin Packing Game with an Interest Matrix Zhenbo Wang, *Xin Han*, GyorgyDosa, ZsoltTuza	
		The Least-Core and Nucleolus of Path Cooperative Games Qizhi Fang, Bo Li, *Xiaohan Shan*, Xiaoming Sun	
		Reversible Pebble Game on Trees *BalagopalKomarath*, JayalalSarma, SaurabhSawlani	

Thursday, August 6, 2015

Time	Venue	Events	Chairs

8:30--10:10	大宴会厅 I (Grand Ballroom I)	Session 13: Encoding and Security	Yiping Lu
		Quantifying Communication in Synchronized Languages *Zhe Dang*, Thomas Fisher, William Hutton, Oscar Ibarra, Qin Li	
		Simultaneous Encodings for Range and Next/Previous Larger/Smaller Value Queries *Seungbum Jo*, SrinivasaRaoSatti	
		A New Non-Merkle-Damgard Structural Hash Function with Provable Security *Shenghui Su*, Tao Xie, Shuwang Lu	
		A Public Key Cryptoscheme Using Bit-pairs with Provable Semantical Security Shenghui Su, Shuwang Lu, *MaozhiXu*	
8:30--10:10	大宴会厅 II (Grand Ballroom II)	Session 14: Network and Algorithms	Sun-Yuan Hsieh
		An Algorithmic Framework for Labeling Network Maps Jan-HenrikHaunert, *Benjamin Niedermann*	
		Smoothed Analysis of the Minimum-Mean Cycle Canceling Algorithm and the Network Simplex Algorithm *KamielCornelissen*, BodoManthey	
		DD-POR: Dynamic Operations and Direct Repair in Network Coding-based Proof of Retrievability KazumasaOmote, *Thao Tran Phuong*	
		Evaluating Bayesian Networks via Data Streams *Hoa Vu*, Andrew McGregor	
9:50--10:10		Coffee break	
10:30--11:45	大宴会厅 I (Grand Ballroom I)	Session 15: Algorithm	Xujin Chen
		On Energy-Efficient Computations with Advice Hans-Joachim Bockenhauer, Richard Dobson,*Sacha Krug*, Kathleen Steinhofel	

		Multi-Radio Channel Detecting Jamming Attack Against Enhanced Jump-Stay Based Rendezvous in Cognitive Radio Network
		Yang Gao, ZhaoquanGu, Qiang-Sheng Hua, Hai Jin
		Upper Bounds on Fourier Entropy
		SouravChakraborty, *RaghavKulkarni*, SatyaLokam, NitinSaurabh
12:10 -- 13:30	大堂吧 (Lobby Lounge)	Lunch

Invited Speakers

Jarosław (Jarek) Byrka

University of Wroclaw

Title: Approximation Algorithms for Clustering Problems

Bio: Jaroslaw Byrka is an associate professor at the Computer Science Institute, University of Wroclaw. He was a PhD student in CWI, Amsterdam and obtained his PhD in 2008 from TU Eindhoven. Then he was a postdoc at EPFL in Lausanne and in 2010 moved back to Wroclaw. His research focuses on LP-based approximation algorithms for combinatorial optimization problems. The list of problems he proposed new algorithms for includes Steiner tree, Facility Location problems, and Joint Replenishment.

Ola Svensson

School of Computer and Communication Sciences, EPFL

Title: Algorithms for the Asymmetric Traveling Salesman Problem

Bio: Ola Svensson is an assistant professor in the theory group at EPFL. He is interested in fundamental questions in combinatorial optimisation related to the approximability of basic optimization problems. His work on the traveling salesman problem received the best paper award at FOCS'11.

Xiang-Sun Zhang

Academy of Mathematics and Systems Science, Chinese Academy of Sciences

Title: Mathematical Analysis of Community Structure Detection in Complex Networks

Bio: Professor Xiang-Sun Zhang is a Research Professor of the Academy of Mathematics and Systems Sciences (AMSS) at the Chinese Academy of Sciences (CAS), Beijing, China. He graduated from the Chinese University of Science and Technology in 1965. He was an assistant professor, associate professor and a full-time research professor in the Institute of Applied Mathematics (IAM), CAS. Professor Zhang was also the Director of the IAM from 1992 to 1998. He has served as Executive Vice President of the Academy of Mathematics and System Sciences (AMSS), CAS, from 1998 to 2003 and as President of Operations Research Society of China (ORSC) from 1996 to 2004. Since 2002, Professor Zhang has served as the Director of the Research Center of Bioinformatics, AMSS. His research and consulting interests include Optimization Theory and Application, Bioinformatics, Complex Networks in the which he published over 170 refereed journal articles, 70 conference papers and several books. Professor Zhang is the Honorary President of the Operations Research Society of China. Moreover, he was the first prize winner in the "OR in Development", awarded by the International Federation of Operations Research Societies (IFORS) at the 14th International Conference at Vancouver, Canada, in 1996.

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