
Third Annual International Computing and Combinatorics Conference
August 20-22, 1997,
New Garden Hotel, Shanghai, China

GENERAL INFORMATION

COCOON'97 is the third in the series of Annual International Computing and Combinatorics Conference. It features 2 invited lectures and 53 contributed papers covering a wide scope of areas including algorithms, complexity, computability, logic, formal language, automata, rewriting, parallel and distributed computation, computational geometry, computational biology, computational finance, cryptography, mathematical programming, etc. The social program includes a reception, a dinner followed by an entertainment performance, a banquet, and various post-conference tours. For more complete information about the conference, please consult our homepage at <http://www.dcss.mcmaster.ca/cocoon97>

CONFERENCE PROGRAM

Tuesday, August 19, 1997

10:00am – 7:00pm Registration;

7:00pm – 8:30pm Reception.

Wednesday, August 20, 1997

Invited Lecture (**Chair:** Tao Jiang)

8:30am *Mutual Search*

— Paul Vitanyi (Amsterdam, The Netherlands)

Session 1: Parallel and Distributed Computing I (**Chair:** Paul Vitanyi)

9:15am *Conflict-Free Access to Templates of Trees and Hypercubes in Parallel Memory Systems*

— Sajal K. Das, M. Cristina Pinotti

9:40am *Many-to-One Packet Routing via Matchings*

— Danny Krizanc, Louxin Zhang

10:05am *A Multi-Tree Generating Routing Scheme Using Acyclic Orientations*

— Fred S. Annexstein, Ken Berman, Ram Swaminathan

Coffee and Tea Break 10:30am – 10:45am

Session 2: Computational Geometry (**Chair:** D.T. Lee)

10:45am *An algorithm for Heilbronn's problem*

— Claudia Bertram-Kretzberg, Thomas Hofmeister, Hanno Lefmann

11:10am *Optimal Multiresolution Polygonal Approximation*

— K. W. Chan, Francis Y. L. Chin

11:35am *Constructing A Strongly Convex Superhull of Points*

— Wei Chen, Xiao Wen Deng, Koichi Wada, Kimio Kawaguchi

Lunch: 12:00

Session 3: Complexity (**Chair:** Kojiro Kobayashi)

1:00pm *Can Large Fanin Circuits Perform Reliable Computations in the Presence of Noise?*

— Rüdiger Reischuk

1:25pm *On Set Systems with Restricted Intersections Modulo a Composite*

— Vince Grolmusz

1:50pm *Size and Variable Ordering of OBDDs Representing Threshold Functions*

— Yasuhiko Takenaga, Mitsushi Nouzoe, Shuzo Yajima

Coffee and Tea Break: 2:15pm – 2:30pm

Session 4: Computational Biology I (**Chair:** Wen-Lian Hsu)

2:30pm *The Performance of the Neighbor-Joining Method of Phylogeny Reconstruction*

— Kevin Atteson

2:55pm *Parsimony is Hard to Beat*

— Kenneth Rice, Tandy Warnow

3:20pm *Inferring Evolutionary Trees with Strong Combinatorial Evidence*

— Vincent Berry, Olivier Gascuel

3:45pm *On the complexity of computing evolutionary trees*

— Leszek Gasieniec, Jesper Jansson, Andrzej Lingas, Anna Ostlin

Coffee and Tea Break: 4:10pm – 4:20pm

Session 5: Computability (**Chair:** Dingzhu Du)

4:20pm *Computable Invariance*

— Vasco Brattka

4:45pm *Subclasses of Computable Real Valued Functions*

— Qing Zhou

5:10pm *Computability on Continuous, Lower Semi-Continuous and Upper Semi-Continuous Real Functions*

— Klaus Weihrauch, Xizhong Zheng

5:40pm – 10:00pm Dinner and Entertainment Performance

Thursday, August 21, 1997

Invited Lecture (**Chair:** D.T. Lee)

8:30am *Eigenvalues, Eigenvectors, and Graph Partitioning*

— Shanghua Teng (Minneapolis, USA)

Session 6: Cryptography and Computational Finance (**Chair:** Shanghua Teng)

9:15am *Contrast-Optimal k out of n Secret Sharing Schemes in Visual Cryptography*

— Thomas Hofmeister, Matthias Krause, Hans U. Simon

9:40am *A Rabin-Type Scheme Based on $y^2 \equiv x^3 + bx^2 \pmod{n}$*

— Seng Kiat Chua, San Ling

10:05am *Optimal Bidding Algorithms Against Cheating in Multiple-Object Auctions*

— Ming-Yang Kao, Junfeng Qi, Lei Tan

Coffee and Tea Break: 10:30am – 10:45am

Session 7: Graph Algorithms and Computational Geometry (**Chair:** Xin He)

10:45am *Spring Algorithms and Symmetry*

— Peter Eades, Xuemin Lin

11:10am *Fast Range Searching with Delaunay Triangulations*

— Binhai Zhu

11:35am *Generalized Vertex-Rankings of Partial k -Trees*

— Md. Abul Kashem, Xiao Zhou, Takao Nishizeki

12:00am *Efficient Domination on Permutation Graphs and Trapezoid Graphs*

— Y. Daniel Liang, Chin Lung Lu, Chuan Yi Tang

Lunch: 12:25

Session 8: Computational Biology II (**Chair:** Tao Jiang)

1:30pm *On Physical Mapping Algorithms - An Error-Tolerant Test for the Consecutive Ones Property*

— Wen-Lian Hsu

1:55pm *The Median Problem for Breakpoints in Comparative Genomics*

— David Sankoff, Mathieu Blanchette

2:20pm *Fast Algorithms for Aligning Sequences with Restricted Affine Gap Penalties*

— Kun-Mao Chao

2:45pm *A Matrix Representation of Phylogenetic Trees*

— Sanzheng Qiao, W.S-Y. Wang

Coffee and Tea Break: 3:10pm – 3:25pm

Session 9: Algorithms (**Chair:** Josep Diaz)

3:25pm *Edge and Node Searching Problems on Trees*

— Sheng-Lung Peng, Chin-Wen Ho, Tsan-sheng Hsu, Ming-Tat Ko, Chuan-Yi Tang

3:50pm *Construction of Nearly Optimal Multiway Trees*

— Peter Becker

4:15pm *Optimal Algorithm for Circle Partitioning*

— Kuo-Hui Tsai, Da-Wei Wang

4:40pm *Hexagonal Routing of Multiterminal Nets*

— Xuehou Tan, Xiaoyu Song

Coffee and Tea Break: 5:05pm – 5:20pm

Session 10: Rewriting, Logic and Complexity (**Chair:** Hong Zhu)

5:20pm *Design and Analysis of Parallel Set-Term Unification*

— Seung-Jin Lim, Yiu-Kai Ng

5:45pm *On Modularity of the Completeness in Order-Sorted Term Rewriting Systems*

— Yoshinobu Kawabe, Naohiro Ishii

6:10pm *A Three-valued Quantificational Logic of Context*

— Kaile Su, Decheng Ding, Huowang Chen

6:35pm *Resolution of Hartmanis' Conjecture for NL-hard Sparse Sets*

— Jin-Yi Cai, D. Sivakumar

7:00pm – 9:00pm Banquet (**MC:** Dingzhu Du, Ming Li, Hong Zhu)

Friday, August 22, 1997

Session 11: Algorithms and Applications (**Chair:** Siu-Wing Cheng)

8:30am *A Branch-and-Bound Algorithm for Computing Node Weighted Steiner Minimum Trees*

— Guoliang Xue

8:55am *Fixed topology Steiner trees and spanning forests with applications in network communications*

— Lusheng Wang, Xiaohua Jia

9:20am *A Declustering Algorithm for Minimizing Spatial Join Cost*

— Yanchun Zhang, Jitian Xiao, Xiaofang Zhou

9:45am *A Compact Storage Scheme for Fast Wavelet-Based Subregion Retrieval*

— A. Poulakidas, A. Srinivasan, O. Egecioglu, O. Ibarra, T. Yang

Coffee and Tea Break: 10:10am – 10:30am

Session 12: Automata, Languages and Complexity (*Chair:* Jie Wang)

10:30am *A complete characterization of repetitive morphisms over the two-letter alphabet*

— Yuji Kobayashi, Friedrich Otto, Patrice Seebold

10:55am *An Algorithm for Identifying Spliced Languages*

— Sam M. Kim

11:20am *The Shapes of Trees*

— Ulrich Hertrampf

11:45am *Tally Languages Accepted by alternating multitape finite automata*

— Dainis Geidmanis, Janis Kaneps, Kalvis Apsitis, Daina Taimina, Elena Calude

Lunch: 12:10

Session 13: Parallel and Distributed Computing II (**Chair:** Sam Myo Kim)

1:30pm *Independent Spanning Trees of Chordal Rings*

— Yukihiro Iwasaki, Yuka Kajiwara, Koji Obokata, Yoshihide Igarashi

1:55pm *Rearrangeable Graphs*

— Qing Hu, Yixin Zhang, Xiaojun Shen

2:20pm *Projective Torus Networks*

— T.Y. Sung, T.Y. Ho, L.H. Hsu

Coffee and Tea Break: 2:45pm – 3:00pm

Session 14: Mathematical Programming and Genetic Algorithms (**Chair:** Rajeev Motwani)

3:00pm *On the 100% Rule of Sensitivity Analysis in Linear Programming*

— Pu Cai, Jin-Yi Cai

3:25pm *Enumerating Triangulations for Products of Two Simplices and for Arbitrary Configurations of Points*

— Fumihiko Takeuchi, Hiroshi Imai

3:50pm *Tree Structure Genetic Algorithms with a Nourishment Mechanism*
— Zhangang Han, Ruqian Lu

Coffee and Tea Break: 4:15pm – 4:30pm

Session 15: Parallel and Distributed Computing III (**Chair:** Ming Li)

4:30pm *An Approach to scalability of Parallel Matrix Multiplication*
— Xingfu Wu

4:55pm *Limited Acceleration Mechanism for Cell Loss Free Flow Control in ATM Networks*
— Hong Liu, Reza Sotudeh, Enmin Song

5:20pm *They Are Just Butterflies*
— Yong-Hong Chen and Qiao Li

5:45pm *A Selected Tour of the Theory of Identification Matrices*
— Lin Chen

Conference Information

Dear Colleague:

We have received your completed registration form for Third Annual International Computing and Combinatorics Conference (COCOON'97). Here is some information concerning your traveling to Shanghai.

1. Hotel Reservation and Costs

We shall make a reservation for you at New Garden Hotel for the period specified in your registration form (please inform us promptly if you haven't told us your schedule or intend to change your schedule). The room rate will be US\$52 or RMB 430 Yuan for standard room (two beds) by the special contract between the Hotel and COCOON'97. The eastern and western breakfast price is RMB 30Yuan. Please pay the hotel costs by US dollar or RMB in Cash or bank money order or personal check at the registration desk when you arrive here.

2. Arriving in Shanghai

Taxis are always available at the Hongqiao International Airport. Other public transportation is not convenient for foreigners. Transportation by taxi from the Hongqiao International Airport to New Garden Hotel (about 7km) costs about RMB 20 Yuan (or US\$ 2.5) and no tip is expected. In any case you may show the following slip (in Chinese) to call a taxi at the Hongqiao International Airport.

Please take me to the New Garden Hotel

(Cash and traveler's cheques are easily exchanged into RMB at the Bank of China in the airport. If the Bank of China is closed at the airport when you arrive, you may exchange your money at the Hotel to pay the taxi. Some taxi drivers take US\$.)

3. Weather in Shanghai

During the end of August daytime temperatures are usually in the range of 25(C) (midnight) to 35(C) (afternoon). All the conference

hall and hotel rooms are air-conditioned.

4. Registration and Information Desk

These desks will set up in the lobby of the New Garden Hotel on 19 Aug. 1997 at 10:00 - 19:00. After 19 Aug. the desks will be moved to a hotel room. At registration you will receive a conference kit containing, among other things:

- a copy of proceedings
- a list of participants in the symposium
- T-shirt
- a badge
- receipt

All participants are required to wear their badges when attending the conference, the reception, the performance, and the banquet.

5. Social Program

There will be a welcome reception on Tuesday Aug. 19 at 19:00, a dinner followed by an entertainment performance on Wednesday Aug. 20 at 18:30 and a conference banquet on Thursday Aug. 21 at 19:00.

6. Meals and Refreshments

3 working lunches (Aug. 20-22) are provided for all participants. During the conference breaks free refreshments will be available.

7. Post-conference Tours

On Saturday Aug. 23, the tour to Suzhou will be organized for all participants who are interested. Please register at the registration desk when you arrive at the hotel. The tour price is UD\$50. The other tours to Beijing and Canton will also be arranged for those who have made reservations. Please contact Mr. Cheng Lin asap if you have not made reservation but intend to take them.

We are looking forward to meeting you in Shanghai.

COCOON'97
Institute of Applied Mathematics
Academia Sinica