SoCG '00

The 16th Annual
ACM Symposium on
Computational Geometry

HKUST, Hong Kong
June 12 – 14, 2000
Preliminary Program

http://www.cs.ust.hk/tcsc/scg00.html

Sponsored by ACM SIGACT and SIGGRAPH

Sunday, June 11

Reception: 6:00 pm – 8:00 pm
University Centre, Multipurpose Hall

Monday, June 12

Session 1, Applied Track

9:00 **Mesh Generation for Domains with Small Angles:** Jonathan R. Shewchuk, *UC Berkeley*

9:20 **Triangulations in CGAL:** Jean-Daniel Boissonnat, Olivier Devillers, Monique Teillaud, and Mariette Yvinec, *INRIA*

9:40 **Improving the Surface Cycle Structure for Hexahedral Mesh Generation:** Matthias Müller-Hannemann, *TU Berlin*

10:00 **Computing with Integer Points in Minkowski Sums:** Ioannis Z. Emiris, *INRIA*

Coffee break: 10:20 am – 10:50 am

Invited talk

10:50 Fred Richards, *Yale University*

Lunch: 11:50 am – 1:30 pm

Session 2, Theory Track

1:30 **Point Sets with Many k-Sets:** Géza Tóth, *MIT*

1:50 **An Improved Bound for k-Sets in Three Dimensions:** Micha Sharir, Shakhar Smorodinsky, *Tel Aviv U.*; Gábor Tardos, *Hungarian Academy*

2:10 **Origin-Embracing Distributions or A Continuous Analogue of the Upper Bound Theorem:** Uli Wagner and Emo Welzl, *ETH Zürich*

2:30 **A Helly-Type Theorem for Hyperplane Transversals to Well-Separated Convex Sets:** Boris Aronov, *Poly U.*; Jacob E. Goodman, *City College, CUNY*; Richard Pollack, *Courant Inst.*; Rephael Wenger, *Ohio State*

2:50 **A Trace Bound for the Hereditary Discrepancy:** Bernard Chazelle and Alexey Lvov, *Princeton*

Coffee break: 3:10 pm – 3:40 pm

Session 3, Theory/Applied Track

3:40 On the Continuous Weber and k-Median Problems: Sándor P. Fekete, *TU Berlin*; Joseph S.B. Mitchell, *SUNY Stony Brook*; Karin Weinbrecht, *U. Köln*

4:00 The 2-Center Problem with Obstacles: Dan Halperin, Micha Sharir, *Tel Aviv U.*; Ken Goldberg, *UC Berkeley*

4:20 Random Sampling in Geometric Optimization: New Insights and Applications: Bernd Gärtner and Emo Welzl, *ETH Zürich*

4:40 The Analysis of a Simple k-Means Clustering Algorithm: Tapas Kanungo, David M. Mount, Nathan S. Netanyahu, *U. Maryland*; Christine Piatko, *Johns Hopkins*; Ruth Silverman, *U. of the District of Columbia*; Angela Y. Wu, *American U.*

5:00 An Efficient, Exact, and Generic Quadratic Programming Solver for Geometric Optimization: Bernd Gärtner, *ETH Zürich*; Sven Schönherr, *FU Berlin*

5:20 Accurate and Efficient Unions of Balls: Nina Amenta and Ravi Kolluri, *UT Austin*

Business meeting: 8 pm
University Centre, Multipurpose Hall

Tuesday, June 13

Session 4, Applied Track

9:00 Fast Software for Box Intersections: Afra Zomorodian, *UI Urbana Champaign*; Herbert Edelsbrunner, *Duke U. and Raindrop Geomagic*

9:20 Algebraic Methods and Arithmetic Filtering for Exact Predicates on Circle Arcs: Olivier Devillers, Alexandra Fronville, Bernard Mourrain, and Monique Teillaud, *INRIA*

9:40 Pitfalls in Computing with Pseudorandom Determinants: Bernd Gärtner, *ETH Zürich*

10:00 LOOK — A Lazy Object-Oriented Kernel for Geometric Computation: Stefan Funke and Kurt Mehlhorn, *MPI*

Coffee: 10:20 am – 10:50 am

Invited talk

10:50 Andrew Frank, *Technical University Vienna*

Lunch: 11:50 am – 1:30 pm

Session 5, Theory Track

1:30 When Crossings Count — Approximating the Minimum Spanning Tree: Sariel Har-Peled, *Duke U.*; Piotr Indyk, *Stanford U.*

1:50 Linear Programming Queries Revisited: Edgar A. Ramos, *MPI*

2:10 Point Set Labeling with Specified Positions: Srinivas Doddi, *U. New Mexico*; Madhav V. Marathe, *Los Alamos*; Bernard M.E. Moret, *U. New Mexico*

2:30 I/O-Efficient Dynamic Planar Point Location: Lars Arge, *Duke U.*; Jan Vahrenhold, *U. Münster*

2:50 Linear-Time Triangulation of a Simple Polygon Made Easier Via Randomization: Nancy M. Amato, *Texas A&M*; Michael T. Goodrich, *JHU*; Edgar A. Ramos, *MPI*

Coffee: 3:10 pm – 3:40 pm

Session 6, Applied/Theory Track

3:40 A Simple Algorithm for Homeomorphic Surface Reconstruction: Nina Amenta and Sunghee Choi, *UT Austin*; Tamal K. Dey and Naveen Leekha, *Ohio State*

4:00 Smooth Shape Reconstruction via Natural Neighbor Interpolation of Distance Functions: Jean-Daniel Boissonnat and Frédéric Cazals, *INRIA*

4:20 Reconstructing Curves with Sharp Corners: Tamal K. Dey and Rephael Wenger, *Ohio State*

4:40 Voronoi-Based Interpolation with Higher Continuity: Hisamoto Hiyoshi and Kokichi Sugihara, *U. Tokyo*

Conference Banquet: 7 pm

Wednesday, June 14

Session 7, Applied/Theory Track

9:00 Reachability by Paths of Bounded Curvature in Convex Polygons: Hee-kap Ahn and Otfried Cheong, *HKUST*; Jiří Matoušek, *Charles U.*; Antoine Vigneron, *HKUST*

9:20 An Algorithm for Searching a Polygonal Region with a Flashlight: Steven M. Lavalle, Borislav Simov, and Giora Slutzki, *Iowa State*

9:40 Computing Approximate Shortest Paths on Convex Polytopes: Pankaj K. Agarwal and Sariel Har-Peled, *Duke U.*; Meetesh Karia, *Trilogy*

10:00 **Densest Translational Lattice Packing of Non-Convex Polygons:** Victor J. Milenkovic, *U. Miami*

Coffee: 10:20 am – 10:50 am

Session 8, Theory Track

10:50 **Deterministic Algorithms for 3-D Diameter and some 2-D Lower Envelopes:** Edgar A. Ramos, *MPI*

11:10 **Approximating the Diameter, Width, Smallest Enclosing Cylinder, and Minimum-Width Annulus:** Timothy M. Chan, *U. Waterloo*

11:30 **Testing the Congruence of d-Dimensional Point Sets:** Peter Braß and Christian Knauer, *FU Berlin*

Lunch: 11:50 am – 1:30 pm

Invited talk

1:30 Jean-Claude Latombe, *Stanford University*

Coffee: 2:30 pm – 3:00 pm

Session 9, Theory Track

3:00 **Multivariate Regression Depth:** Marshall Bern, *Xerox*; David Eppstein, *UC Irvine*

3:20 **Kinetic Collision Detection for Simple Polygons:** David Kirkpatrick, *UBC*; Jack Snoeyink, *UNC Chapel Hill*; Bettina Speckmann, *UBC*

3:40 **Kinetic Connectivity for Unit Disks:** Leonidas Guibas, *Stanford U.*; John Hershberger, *Mentor Graphics*; Subhash Suri, *Washington U.*; Li Zhang, *Stanford U.*

Coffee: 4:00 pm – 4:20 pm

Session 10, Theory Track

4:20 **Delaunay Triangulations and Voronoi Diagrams for Riemannian Manifolds:** Greg Leibon, *Dartmouth*; David Letscher, *Oklahoma State*

4:40 **Sweep Algorithms for Constructing Higher-Dimensional Constrained Delaunay Triangulations:** Jonathan R. Shewchuk, *UC Berkeley*

5:00 **Cutting Glass:** János Pach, *CUNY*; Gábor Tardos, *Hungarian Academy*

General Information

The symposium will be held on the campus of Hong Kong University of Science & Technology (HKUST), on a hillside overlooking the South Chinese Sea. Accomodation on campus is available on a first-come-first-serve basis, with a choice between staying in a hotel-quality room in a serviced apartment or in a student dormitory room (all rooms are US$40 per night per room).

All presentations will take place in *Lecture Theatre C*, a few minutes walk from either accomodation. Sport facilities on campus include an outdoor swimming pool, squash courts, table-tennis, etc., and are available to those staying on-campus. There is a small supermarket, an ATM that should allow you to get money using your credit card, and various inexpensive restaurants on campus. More information on the conference site, including detailed information on how to get there, is available in our local guide on the conference website.

HKUST is a bit far from the trendy tourist areas of Hong Kong (at least 30 minutes by taxi, or 45-60 minutes by bus and underground), and so we would recommend staying on-campus. If you don't mind the commute, or if you wish to extend your stay, there is no shortage of hotels in Hong Kong, and current room rates are quite reasonable. The Hong Kong Tourist Association maintains a good list of hotels (links are on the conference web site) and many hotels can even be booked on-line.

The conference banquet on Tuesday night will take us to a Chinese Restaurant in downtown Tsim Sha Tsui East.

Sunday not only has the traditional evening reception for the Symposium, but also a Workshop on Computational Geometry to celebrate Micha Sharir's 50th birthday. More information can be found on the conference web site.

The registration desk will be open from 6:00 pm to 8:00 pm on Sunday, June 11, in front of the reception room (the Multipurpose Hall in the University Centre—the building with the serviced apartments), and again on Monday morning in front of Lecture Theatre C. On Monday afternoon, Tuesday and Wednesday, the desk will be in an adjacent room.

Conference chairs:

Siu-Wing Cheng, Otfried Cheong (Local Arrangements)
`scg00@cs.ust.hk`

Pankaj K. Agarwal (Theory Track)
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Steven Fortune (Applied Track)
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