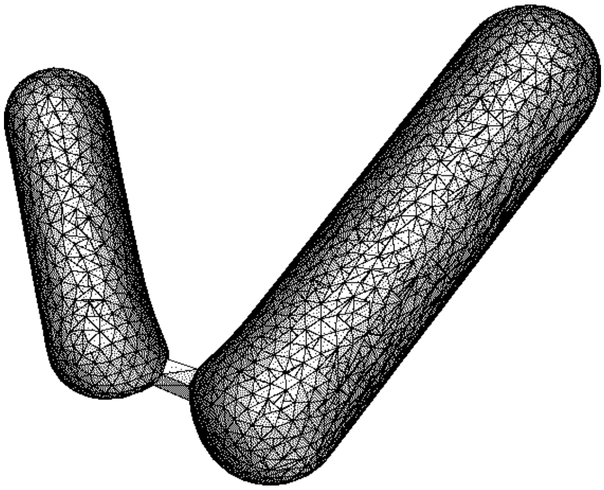
SoCG '99



The 15th Annual
ACM Symposium on
Computational Geometry

Miami Beach, Florida
June 13 – 16, 1999

http://www.cs.miami.edu/events/SCG99

Sponsored by ACM SIGACT and SIGGRAPH

Saturday, June 12

Cocktail Hour: 6:00 pm – 8:00 pm

Sunday, June 13

Coffee: 10:30 am – 11 am

Session 1, Theoretical Track

11:00 Sliver Exudation: Siu-Wing Cheng, *Hong Kong U. of Science and Technology*; Tamal K. Dey, *IIT Kharagpur*; Herbert Edelsbrunner, *UI Urbana-Champaign and Raindrop Geomagic*; Michael A. Facello, *Raindrop Geomagic*; Shang-Hua Teng, *UI Urbana-Champaign*

11:20 The Path of a Triangulation: Oswin Aichholzer, *Graz U. of Technology*

11:40 Edgewise Subdivision of a Simplex: Herbert Edelsbrunner, *UI Urbana-Champaign and Raindrop Geomagic*; Daniel R. Grayson, *UI Urbana-Champaign*

12:00 Efficient Algorithms for Maximum Regression Depth: Marc van Kreveld, *Utrecht*; Joseph S.B. Mitchell, *SUNY Stony Brook*; Peter Rousseeuw, *U. Instelling Antwerpen*; Micha Sharir, *Tel Aviv*; Jack Snoeyink, Bettina Speckmann, *U. British Columbia*

12:20 Spanning Trees Crossing Few Barriers: Tetsuo Asano, *Japan Adv. Inst. of Science and Technology*; Mark de Berg, *Utrecht*; Otfried Cheong, *Hong Kong U. of Science and Technology*; Leonidas J. Guibas, *Stanford*; Jack Snoeyink, *U. British Columbia*; Hisao Tamaki, *Meiji U.*

12:40 Generalizing Ham Sandwich Cuts to Equitable Subdivisions: Sergei Bespamyatnikh, David Kirkpatrick, Jack Snoeyink, *U. British Columbia*

Lunch: 1:00 pm – 2:30 pm

Invited Talk

2:30 The Complexity of Some Topological Algorithms: Joel Hass, *UC Davis*

Coffee: 3:30 pm – 4:00 pm

Session 2, Applied Track

4:00 Topological Beam Tracing: Steven Fortune, *Bell Laboratories*

4:20 A Geometric Approach to Computing Higher Order Form Factors: Marco Pellegrini, *Istituto di Matematica Computazionale del CNR*

4:40 Geometric Pattern Matching: A Performance Study: Martin Gavrilov, Piotr Indyk, Rajeev Motwani, Suresh Venkatasubramanian, *Stanford*

5:00 Empirical Design of Geometric Algorithms: Karsten Weihe, Ulrik Brandes, Annegret Liebers, *U. Konstanz*; Matthias Müller-Hannemann, *TU-Berlin*; Dorothea Wagner, Thomas Willhalm, *U. Konstanz*

Session 3, Theoretical Track

5:40 Geometric Algorithms for Trap Design: Robert-Paul Berretty, *Utrecht*; Ken Goldberg, *UC Berkeley*; Mark H. Overmars, A. Frank van der Stappen, *Utrecht*

6:00 Folding Flat Silhouettes and Wrapping Polyhedral Packages: New Results in Computational Origami: Erik D. Demaine, Martin L. Demaine, *Waterloo*; Joseph S.B. Mitchell, *SUNY Stony Brook*

6:20 The Table Layout Problem: Richard J. Anderson, Sumeet Sobti, *U. Washington*

Business Meeting: 10:00 pm – midnight

Monday, June 14

Invited Talk

10:00 Geometry Meets Physics: Demetri Terzopoulos, *U. Toronto*

Coffee: 11:00 am – 11:20 am

Session 4, Theoretical Track

11:20 New Bounds on Crossing Numbers: János Pach, Joel Spencer, *Courant NYU*; Géza Tóth, *MIT and Hungarian Academy of Sciences*

11:40 The Complexity of the Union of (α,β)-Covered Objects: Alon Efrat, *Stanford*

12:00 Pipes, Cigars, and Kreplach: The Union of Minkowski Sums in Three Dimensions: Pankaj K. Agarwal, *Duke*; Micha Sharir, *Tel Aviv*

12:20 Polytopes in Arrangements: Boris Aronov, *Polytechnic U.*; Tamal K. Dey, *IIT Kharagpur*

Lunch: 12:40 pm – 2:30 pm

Invited Talk

2:30 Crystal Symmetry: John Conway, *Princeton*

Coffee: 3:30 pm – 4:00 pm

Session 5, Applied Track

4:00 Controlled Perturbation for Arrangements of Polyhedral Surfaces with Application to Swept Volumes: Sigal Raab, *Bar Ilan U.*

4:20 Motion Planning for a Rigid Body Using Random Networks on the Medial Axis of the Free Space: Steven A. Wilmarth, Nancy M. Amato, Peter F. Stiller, *Texas A&M*

4:40 On Deletion in Delaunay Triangulations: Olivier Devillers, *INRIA Sophia-Antipolis*

5:00 Crust and Anti-Crust: A One-Step Boundary and Skeleton Extraction Algorithm: Christopher Gold, *Laval U.*

Session 6, Theoretical Track

5:30 Curve Reconstruction: Connecting Dots with Good Reason: Tamal K. Dey, *IIT Kharagpur*; Kurt Mehlhorn, Edgar A. Ramos, *MPI Saarbrücken*

5:50 Curve Reconstruction, the Traveling Salesman Problem, and Menger's Theorem on Length: Joachim Giesen, *ETH Zürich*

6:10 On Minimum Stars, Minimum Steiner Stars, and Maximum Matchings: Sándor P. Fekete, *U. Köln*; Henk Meijer, *Queen's U.*

Excursion

7:00 pm Buses leave the hotel at 7:00pm, 8:00pm, and 9:00pm and leave Coconut Grove at 9:30pm, 10:30pm, and 11:30pm.

Tuesday, June 15

Coffee: 10:30 am – 11 am

Session 7, Theoretical and Applied Tracks

11:00 Hierarchical Vertical Decompositions, Ray Shooting, and Circular Arc Queries in Simple Polygons: Siu-Wing Cheng, Otfried Cheong, *Hong Kong U. of Science and Technology*; Hazel Everett, *U. Québec Montréal*; René van Oostrum, *Utrecht*

11:20 Kinetic Connectivity of Rectangles: John Hershberger, *Mentor Graphics*; Subhash Suri, *Washington U.*

11:40 Lower Bounds for Kinetic Planar Subdivisions: Pankaj K. Agarwal, Julien Basch, *Duke*; Mark de Berg, *Utrecht*; Leonidas J. Guibas, *Stanford*; John Hershberger, *Mentor Graphics*

12:00 Interval Methods for Kinetic Simulations: Leonidas J. Guibas, Menelaos I. Karavelas, *Stanford*

12:20 H-Walk: Hierarchical Distance Computation for Moving Convex Bodies: Leonidas J. Guibas, David Hsu, Li Zhang, *Stanford*

Lunch: 12:40 pm – 2:30 pm

Invited Talk

2:30 Computer Vision Methods in Surgery and Medicine: Eric Grimson, *MIT*

Coffee: 3:30 pm – 4:00 pm

Session 8, Theoretical Track

4:00 Stretchability of Star-like Pseudo-Visibility Graphs: Ileana Streinu, *Smith College*

4:20 Visibility-Based Pursuit-Evasion in a Polygonal Room with a Door: Jae-Ha Lee, Sung Yong Shin, Kyung-Yong Chwa, *Korea Adv. Inst. of Science and Technology*

4:40 On Bisectors for Different Distance Functions: Christian Icking, Rolf Klein, Lihong Ma, *FernUniversität Hagen*; Stefan Nickel, Ansgar Weißler, *Universität Kaiserslautern*

5:00 Small Distortion and Volume Preserving Embeddings for Planar and Euclidean Metrics: Satish Rao, *NEC Research*

Session 9, Applied Track

5:30 Computing Roundness is Easy if the Set is Almost Round: Pedro A. Ramos, *Universidad Alcalá*

5:50 Smooth Paths in a Polygonal Channel: David Lutterkort, *Purdue*; Jörg Peters, *U. Florida*

6:10 Determining an Optimal Penetration among Weighted Regions in Two and Three Dimensions: Danny Z. Chen, Ovidiu Daescu, Xiaobo Hu, Xiaodong Wu, Jinhui Xu, *Notre Dame*

Wednesday, June 16

Session 10, Applied Track

10:00 Error-Bounded Regular Algebraic Spline Curves: Chandrajit Bajaj, *U. Texas*; Guoliang Xu, *Chinese Academy of Sciences*

10:20 Efficient Exact Geometric Computation Made Easy: C. Burnikel, R. Fleischer, K. Mehlhorn, S. Schirra, *MPI Saarbrücken*

10:40 A Core Library for Robust Numeric and Geometric Computation: V. Karamcheti, C. Li, I. Pechtchanski, *Courant NYU*; C. Yap, *NYU*

11:00 MAPC: A Library for Efficient and Exact Manipulation of Algebraic Points and Curves: John Keyser, Tim Culver, Dinesh Manocha, *U. North Carolina*; Shankar Krishnan, *AT&T Research Labs*

Coffee: 11:20 am – 11:40 am

Session 11, Theoretical Track

11:40 Efficient Algorithms for Line and Curve Segment Intersection Using Restricted Predicates: Jean-Daniel Boissonat, *INRIA Sophia-Antipolis*; Jack Snoeyink, *U. British Columbia*

12:00 Approximation and Exact Algorithms for Minimum-Width Annuli and Shells: Pankaj K. Agarwal, *Duke*; Boris Aronov, *Polytechnic U.*; Sariel Har-Peled, Micha Sharir, *Tel Aviv*

12:20 On Range Reporting, Ray Shooting, and k-Level Construction: Edgar A. Ramos, *MPI Saarbrücken*

12:40 Sharp Bounds on Geometric Permutations of Pairwise Disjoint Balls: Shakhar Smorodinsky, *Tel Aviv*; Joseph S.B. Mitchell, *SUNY Stony Brook*; Micha Sharir, *Tel Aviv*

General Information

Location:
All conference events will take place at the Radisson Deauville Resort on the island city of Miami Beach, Florida. Miami Beach is about 15 minutes east of Miami International Airport (MIA) and the city of Miami, and it is about 45 minutes south of Fort Lauderdale International Airport (FLL).

Conference Registration:
The registration desk in the hotel lobby will the open Saturday, June 12 from 6:00pm to 8:00pm and during the conference meeting times. Extra proceedings will be available at the registration desk for $40 each. Advanced registration is available until May 10. If possible, please use the registration/payment forms at the conference web page: http://www.cs.miami.edu/events/SCG99.

	Before May 10	After May 10
ACM Members	$300	$375
Non-members	$375	$450
ACM Members	$165	$195

If you do not have web access, please send the registration fee along with 1) name, 2) institution, 3) address, 4) email address or telephone number, 5) number of excursion tickets (see below) at $5/each (not included in registration fee), 6) ACM Membership number (if member) or declaration of student status, and 7) special needs (if any) to

Victor J. Milenkovic
SCG'99 Local Arrangements Chair
University of Miami
Department of Math & CS
P.O. Box 249085
Coral Gables, FL 33124

Payment may be by check/money order, Master Card, Visa, or American Express. To pay by credit card, include amount of payment, credit card number, expiration date, and signature. Credit card payment can also be sent by FAX to (305) 284-2848. Call the Math & CS office at (305) 284-2575 to confirm receipt of FAX.

Hotel Information:

Radisson Deauville Resort
6701 Collins Avenue
Miami Beach, FL 33141
Toll free: (800) 327-6656
Local: (305) 865-8511
FAX: (305) 865-8154

A block of rooms will be held until May 10: $98 single or double, $113 triple or quad (plus 12.5% tax). Inform the hotel that you are attending the Symposium on Computation Geometry, June 13-16, abbreviation "SCG'99".
The Airport Supershuttle from Miami International Airport to the hotel is $12 each way, and a taxi is about twice as much.
At the Radisson Deauville Resort, guests will enjoy everything that is Miami Beach. Bask in the sun or stroll endless stretches of golden beaches. Refresh your senses in the sparkling olympic sized swimming pool rimmed with a hundred dancing fountains. Relax those tired muscles in the rejuvenating Jacuzzi whirlpool spa. Enjoy the myriad of exciting attractions the area has to offer.
Each of the Radisson Deauville Resort's 550 spacious guest rooms and suites have been redecorated and refurbished. The decor is tropically casual with oversized beds, walk-in closets, color television and individual climate controlled air conditioning. Each room has a computer data-port and a refrigerator. Oceanfront rooms have private balconies. In addition to 700 feet of private beach, there are three all weather tennis courts, a well equipped exercise room, solarium and paddle boats on the beach.

Excursion:
South Beach is a blast, but it is not all South Florida has to offer. On Monday night, buses will be provided to take conferees to and from Coconut Grove, another popular night-spot for restaurants, bars, shopping, and sight-seeing.

Other Services:
For child care, the concierge can refer you to a bonded baby sitting service. Walgreens across the street is open 24 hours, offering sundries, a full service pharmacy, and an ATM.

Official Airline:
ACM is still in negotiation for airline discounts. Please check the Web site (URL on front cover) for the latest information.

Climate:
The Average Daily Temperature in Miami Beach for June is 75-88 F (24-31 C). Pack short-sleeved shirts, shorts, and of course, a swimming suit.

Things to Do:
South Beach is a short bus or taxi ride away down Collins Avenue. It is famed for its pedestrian mall, restaurants, and nightlife, and its restored vintage Art Deco hotels.
Vizcaya Museum and Gardens. The 70-room house and gardens overlook Biscayne Bay on a 30-acre tract that includes a native hammock and more than 10 acres of formal gardens and fountains. In the house, 34 rooms of paintings, sculpture, antique furniture, and other decorative arts, are open to the public. 3251 S. Miami Ave. (305) 250-9133.

Conference Chairs:
Victor Milenkovic (Local Arrangements)
`vjm@cs.miami.edu`

Marshall Bern (Theoretical Track)
`bern@parc.xerox.com`

John Canny (Applied Track)
`jfc@cs.berkeley.edu`