land and CDMTCS, Auckland, New Zealand. (WWW)

- **WSCG99** (Seventh International Conference in Central Europe on Computer Graphics and Visualization) February 8-12, 1999, University of West Bohemia, Czech Republic. Submit three (3) copies of an extended abstract, by October 15, 1998. Electronic submissions encouraged. See (WWW). (WWW)
- **STACS99** (16th International Symposium on Theoretical Aspects of Computer Science) March 4-6, 1999, Trier, Germany. Submit six (6) copies of an extended abstract to Christoph Meinel, FB IV - Informatik Universitaet Trier D-54286 Trier, Germany, by September 11, 1998. Electronic submissions encouraged. See (WWW). E-mail: `info@stacs.uni-trier.de` (WWW)
- **STOC99** (Symposium on Theory of Computing) May 1-4, 1999, Atlanta, Georgia. Submit fifteen (15) copies of an extended abstract by October 1, 1998. Electronic submissions encouraged. See (WWW)
- **SOLIDMODELING99** (Fifth ACM Symposium on solid modeling and applications) June 9-11, 1999, Sheraton Inn, Ann Arbor, Michigan. Submit one an extended abstract, by September 30 1998, and a full paper by October 30, 1998. Electronic submissions encouraged. See (WWW)
- **GD99** (Sixth SIAM Conference on Geometric Design) November 2-5, 1999, Albuquerque, New Mexico. Submit an extended abstract to e-mail: `meetings@siam.org`, by April 1, 1999. Electronic submissions encouraged. See (WWW)

ACM SoCG'98 My impressions

Hervé Brönnimann

The 14th ACM Symp. on Computational Geometry took place in Minneapolis, Minnesota, between June 7-10. The atmosphere was very friendly among all the participants, with the conference expanding to three days and a half of talks, invited talks, video, panel discussion, demo and open problem sessions.

Compared to the previous SoCG, I noted very vividly a confirmation of the "applied" trend. The conference is attracting more and more people who seek solutions from our community. There was a mix of the usual crowd that attends SoCG, plus some people from other "applied" communities. This means we have done a good job at selling ourselves in other communities. It also means that more of the research in our community is directly considering applications, and this helps convince these people that we can bring something useful to them. This goes along the lines set by the Task Force led a few years ago by Bernard Chazelle, and the emergence of the two track format of the conference.

This was also acknowledged by a special panel discussion on the Theory/Application Interface moderated by Steve Fortune. On the panel were Mark Overmars (Utrecht U.), Jean Ponce (U. Illinois), Jarek Rossignac (GVU/Georgia Tech.), Peter Rousseeuw (U. Antwerp), and Steve Vavasis (Cornell U.).

Similarly, there was a demo by the CGAL projet of the CGAL library (`http://www.uu.nl/CGAL/`), which highlighted both the design and functionality of the library, which has release 1.1 ready for downloading. Three committee members are in CGAL, and CGAL members contributed a total of five papers acknowledging support from the CGAL project.

The papers. There were too many papers to review here, and they all went through a thorough review process (with 19 out of 53 accepted papers for the theoretical track, and 27 out of 57 for the applied track). They are all worth of a thorough reading, so the reader who would like to know more about them is invited to get his copy of the proceedings and browse. Eventually we will have pointers to online versions (courtesy Alon Efrat).

One can still see some trends, nevertheless. In the following, I will try to categorize the papers and extract some features of the conference as a whole. Some papers deal with applied themes such as manufacturing (4), reconstruction (3), image and database analysis (3), meshing (4), and robustness (7). Among the theoretical themes tackled, combinatorial complexity of geometric structures is the the main study of seven papers, while improved algorithms to compute these structures are given in eleven papers. Optimization of hard geometric problems are the topic of six papers. Departing from an old tradition in our field and continuing a trend of the previous conferences, only a few papers study both combinatorial and algorithmic aspects; algorithmic improvements come mostly from new data structure or algorithmic techniques.

Another trend is the renewed interest into Geometric Computing, with papers such as exact primitives for computations over the sphere, for exact evaluation of geometric predicates and filters for better efficiency, rounding of geometric structures, and software design of geometric data structures. The emergence of a project like CGAL or the Center for Geometric Computing is a good sign that our community is actively involved in making computational geometry more available for practitioners, and at the same time shows that there is a fruitful feedback.

Among the new problems or approaches presented, I'd like to draw the attention to the *motion space* for assembly planning, deformation grids, or analysis of combinatorial structures via continuous motions. Once again, this is only a partial choice, there is much more food for thoughts in the proceedings.

Panel discussion. The theme of the discussion was the interface between theory and applications. Among some of the interventions, and my notes were quite succinct about the panel, I still may quote the following. I apologize for not taking more complete notes, and invite readers to complete the debate in future issues.

Ponce said that the hard problems in his area concern motion planning and object recognition. He also said it was not correct to view vision/robotics as application areas of c.g.—rather they were independent areas that could benefit from c.g. He also invited about cooperation between c.g. and other conferences, such as in vision.

Rossignac said that the reason c.g. did not always help in applications is that there was a lack of understanding of the problem, the problem was often over-simplified, and asymptotic complexity was over-emphasized. It was important to team up with a domain expert.

Rousseeuw talked about halfspace intersection, k-sets, k-levels, minimum enclosures etc. He said results in higher dimensions, especially with imprecise data, were important (and lacking).

Vavasis and Fortune both spoke for a better understanding and treatment of numerical issues.

Invited talks. One final note is in order for the invited talks. One must thank the organizers for blending such a nice bouquet, getting people from all horizons. It was fun, challenging, and mind-opening.

Herbert Edelsbrunner from U. Illinois and Raindrop Geomagic showed how to interpret shape from a deformation of a union of balls. He illustrated with a visual demo of the programming environment and of the resulting shapes.

Peter Rousseeuw from Antwerp U. tried to highlight a few key problems in statistics that would be of great interest to a computational geometer. Among them: the *level* with respect to a flat in an arrangement (the usual notion of level is w.r.t. a point), and the *depth* of an arrangement is the maximum level w.r.t. the hyperplane at infinity. Are there natural (lower and upper) bounds for them, and how can we compute them?

James Sethian from Berkeley U. spoke about level set methods which are useful for solving PDEs. Personally, I felt like his approach was more akin to finite element methods, where the complexity depends largely on the sampling grid rather than on that of the data. Nevertheless, it might offer a profitable alternative to more traditional computational geometric methods in some areas like image processing, for instance.

An engaging talk was given after the conference dinner (in the dinner hall) by Greg Frederickson from Purdue who spoke about a past-time of his: the Art and Mathematics of Geometric Dissections, or how to divide a square into an equilateral triangle of same area with a minimum of pieces, and similar problems.

Hugues Hoppe from Microsoft Corp. gave a presentation of Progressive Representation for Geometry, which he has develpped in a series of SigGraph papers in the last four conferences. The main operations apply to a triangular mesh by merging or splitting vertices, two dual operations.

Finally, Ricky Pollack from Courant Inst. NYU gave a lecture on Algorithms for Algebraic Geometry, which explained roadmaps and how to compute connected components and motion planning in a semi-algebraic set.

Overall, this was deemed by many participants as a lively and excellent edition of SoCG. Next year is going to take place in Miami. If I can make one wish, it is that there are invited talks, of the same level of fun and quality, inviting to as many different but connected areas.

Hervé Brönnimann, with the help of Ravi Janardan for the panel discussion.

ACM SoCG'98 Business meeting

Hervé Brönnimann

The business meeting of ACM Sympos. on Comput. Geom. took place on Sunday evening, the first day of the conference. Issues discussed included location of the upcoming conferences, a few announcements, and the program committee procedures for the upcoming conferences as decided by the steering committee. Joe O'Rourke gave much more objective notes on the meeting, they have been circulated on the mailing list `compgeom-announce`.

The next conference will take place in Miami, FL, hosted by Victor Milenkovic. Victor showed a video tape of the hotel (Radisson, just as this year) and gave a few facts about the city. I noted that the hotel is neither in Miami Beach, which is a different city than Miami, and also different from Coral Gables where the University is located. However, both are within a short ride by taxi, and right next to the hotel are a lot of other cheaper hotels for students should they want to.

The SoCG '00, if you have not resolved the Y2K problem, or '2000 otherwise, was proposed to take place in Hong Kong HKUST, by Ottfried Cheong and Siu-Wing Cheng. There was another proposition by Klara Kedem to host it in Israel, following the tradition that every three the conference moves to Europe. (The cost would certainly be cheaper for Europeans to Israel than to Hong Kong.) In that case, the conference would either take place in Eilat, or in Haifa. After hearing arguments (esp. pricewise), it was voted by 51 to 31 that Hong Kong was the best candidate. Another argument was the high (about 50) estimated number of people from Asia who would come to HK but not otherwise. This might be the unique occasion to enrich the community with members from Asian countries.

Joe O'Rourke made an announcement that an electronic documentation project exists which already is set up and works wonder for the theoretical physics community, and has moved to mathematics and now to computer science. It has now become the *de facto* publication medium in physics. The question was not so much whether we should join in, because we don't have much decision power there. Indeed, papers in comput. geom. will most likely be forwarded to the theoretical CS editors. An editor does not review the paper, he simply assesses that it fits into the category. Therefore, all relevant papers find their way in the electronic library and are accessible to everyone afterwards (the whole world!). People are encouraged to submit theirs. The main benefit is that one can receive a daily notification/abstract of papers submitted in a discipline by subscribing to a mailing list, an author can post newer versions, and they remain linked to the original paper, and this mechanism extends also to links between different papers, so that when a paper is a follow-up of another, you can know immediately.

Another annoucement was the upcoming CCCG'98 and GD'98 which took place in Montreal in August (back-to-back). SODA'99 which will take place in Baltimore will have short communications, which amount to 2 page announcement in the proceedings (can be submitted elsewhere, before or after SODA) and a full 20 mins presentation at the meeting. The intent is to allow presentation of nearby fields, or efforts to connect SODA themes with applications, without having to submit a publication. A satellite workshop of SODA called ALENEX (ALgorithms Engineering and EXperiments) accepts submissions until September 11th 1998. Finally, Alon Efrat (`alone@math.tau.ac.il`) reminded authors that he gathers the electronic versions of papers submitted to the proceedings.

The meeting concluded on the rules for program committee of SoCG'99 set by the steering committee. These rules have been explicited by the steering committee on the mailing lists and in Joe O'Rourke's message. Main points include smaller commitees for both tracks (6 to 8 people), and an urge for close collaboration between applied and theoretical tracks' committees (hosting a joint meeting, for instance).

Hervé Brönnimann