Computational Complexity

Thirteenth Annual IEEE Conference

Sponsored by

The IEEE Computer Society Technical Committee on Mathematical Foundations of Computing

and

University at Buffalo
State University of New York

In cooperation with
ACM-SIGACT and EATCS

June 15 — 18, 1998

Buffalo, NY, USA

ADVANCE REGISTRATION FORM

Last name ______________________

First name ______________________

Affiliation ______________________

Mailing address ______________________

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EMail address ______________________

Homepage ______________________

Telephone ______________________

Special dietary needs ______________________

Special accessibility needs ______________________

Conference Fees*	Advance†	Late
Members‡	$ 235	$ 290
Nonmembers	$ 295	$ 360
Students	$ 115	$ 140
Extra Proceedings	$ 40	$ 40

*The registration fee includes lunches, a proceedings, and all social events.

†The advance registration deadline is May 29.

‡ACM, EATCS, IEEE, or SIGACT members.

Payment computation

Registration fee	$ ________
Extra Proceedings (____)	$ ________
Voluntary contribution	$ ________
Total	$ ________

(Please fill in the next page too)

Social events

Estimated number of family members (including you) attending. Family of registrants included FREE:

Welcoming Barbecue ____________

Niagara Falls excursion ____________

Methods of Payment

☐ Check Enclosed ☐ Money Order Enclosed

Make check payable to "UB Foundation/CCC'98"
Do not send cash

☐ VISA	☐ American Express
☐ MasterCard	☐ Discover
☐ Carte Blanche	☐ Diner's Club

Credit Card Number ______________________________

Exp. Date ______________________________

Name on Card ______________________________

Signature ______________________________

Electronic registration

Electronic registration is possible through the web site for this year's conference. Check the conference web site for latest information. If not paying through the web site, you need to return the registration form by mail or fax.

Return registration form to:

IEEE Conference on Computational Complexity
University at Buffalo
Office of Conference Operations
120 Center For Tomorrow
Buffalo, NY 14260

or FAX to: 1-716-645-3869.

Conference homepage

Information about this year's conference is available on the web at
http://www.cs.buffalo.edu/~regan/ccc98/
Information about the Computational Complexity conference is available at
http://cs.utep.edu/longpre/complexity.html

Lodging

The first two hotels below have been chosen as standard lodging for the conference. Hotel reservations, either at the standard or at the alternate hotels, should be handled directly by contacting the hotel. Standard lodging has guaranteed rates until May 29 and you must mention the conference name to get those guaranteed rates. All hotels are within easy walking distance, except the University Inn, which provides free van service. Hotels 1, 2 and 3 have free shuttles from the airport. Use courtesy phones.

1. Hampton Inn, 10 Flint Road, Amherst, NY 14226. Rate: $79 (double). Reservations: 1-800-HAMPTON (1-800 426-7866). Local: (716) 689-4414. FAX (716) 689-4382.

   http://www.hamptoninn.com/

2. University Inn & Conference Center, 2401 N. Forest Road, Amherst, NY 14226. Rate: $62 (double). (716) 636-7500; FAX (716) 636-8296

   http://www.universityinn.com/

We have not arranged for special conference rates at the following alternate hotels. Current single-room rates for June 15 are shown, and are subject to change. Certain discounts may apply for you.

3. Buffalo/Niagara Marriott, 1340 Millersport Hwy., Amherst, NY 14221. Rate $129, $109 with AAA. (716) 689-6900; FAX (716) 689-0483. Reservations: 1-800-334-4040, 1-800-228-9290

   http://www.marriott.com/marriott/BUFNY/

4. Red Roof Inn Buffalo(Amherst); 42 Flint Road, Amherst, NY; Rate $57. (716) 689-7474; FAX (716) 689-2051. Reservations: 1-800-843-7663.

   http://www.redroof.com/

5. Buffalo/Amherst Super 8 Motel; 1 Flint Road, Amherst, NY 14226; Rate $49. (716) 688-0811; FAX (716) 688-2365. Reservations: 1-800-800-8000.

   http://www.super8.com/

There is also a dorm option at Governor's Residence Halls. The Halls are located 3/4 mile from the conference site; transportation will be provided in case of need. They are not air conditioned; while June is usually temperate in Buffalo, a heat wave is possible. 1 communal bathroom for every 4 rooms. Rates are $22.98/night single occupancy, or $18.50 per person/night double occupancy. Payment must be at time of check-in, but can be VISA, MASTERCARD, travelers' checks, or personal checks drawn on a US bank. You must fill a request form available from the conference homepage, or request the form with your registration.

Voluntary Contributions

In order to support expenses of a few interested researchers from currency-poor countries, each year, the Complexity Conference is seeking donations (any amount) from its participants. Please help continue this practice by including a donation with your registration fee.

Special Dietary/Accessibility Needs

UB Conference Operations can handle special dietary or accessibility needs. Please indicate special needs on the advance registration form. Contact the local arrangement chair if questions arise.

Additional Proceedings

These can be ordered on the registration form and will also be available for purchase on-site at $40.

Conference Information

Location Amherst is a big suburb of Buffalo. All conference functions will be held in the Center For Tomorrow, which is on the Amherst ("North") Campus, about a half-mile from its academic buildings. As often with U.S. suburbia, a car is required to reach most places of entertainment. Downtown Buffalo is reachable by bus-to-subway. The Hampton, Marriott, and University Inn can arrange excursions for their guests. The conference web pages have more information about local attractions.

Social Program *Sunday Night:* There will be a Welcoming Barbecue, Center For Tomorrow, 4pm to 9pm. Family of registered participants are invited at no extra cost.
Tuesday Afternoon: Excursion to Niagara Falls. Departure at 2pm from Center For Tomorrow. Family of participants are invited to join at no extra cost. Although no meal is included in this excursion, one can eat in the Falls area. Schedule for returning busses will be determined later.
Wednesday Night: Business Meeting at 6:00pm in Center For Tomorrow. Food will be served.

Getting There

By airplane: The conference is only about 7 miles from Buffalo airport. Car rentals and airline reservations for conference attendees can be made at discount rates through NFT Travel, 1 800 633 6782, STAR FILE BUFMTG, www.nfttravel.com.

By car: To drive from the airport, exit airport right (west) on Genesee St., left onto 33; first exit on right gets you onto 90 east; Exit 50 "290 Niagara Falls" (exit on right again); Exit 5B: Millersport Hwy North; get over 3 lanes and make first left at light onto Flint Road. The Marriott, Red Roof, Hampton, and Super-8 are there, and the Center For Tomorrow is just across Maple Road off Flint on the left. To reach the University Inn, continue on Flint into campus, left at the first light onto Audubon, right at the 4th light onto N. Forest, and it is on your right.

Complexity Abstracts

Each year, brief abstracts on current research on topics covered by the conference are made available electronically a week before the conference. Submission is open to all. June 10 is the submission deadline. For details of submissions format send email to abstract@cs.umd.edu or contact the Abstracts Editor: William Gasarch; Dept. of Comp. Sci.; Univ. of Maryland at College Park; College Park, Maryland, 20742, Email: gasarch@cs.umd.edu.

Messages & Additional Information

Center For Tomorrow: (716) 645-2018. The site is staffed during normal daytime hours. Internet access from the conference site will be provided.
UB Conference Operations: (716) 645-3705; or e-mail to wjw2@acsu.buffalo.edu.

Acknowledgments

Sponsors The conference is sponsored by the IEEE Computer Society Technical Committee for Mathematical Foundations of Computing in cooperation with ACM SIGACT and EATCS. Additional support was provided by the University at Buffalo, Computer Science Department and Faculty of Natural Sciences and Mathematics.

Local Arrangements Ken Regan (Chair), Jin-Yi Cai, Alan Selman.

Program Committee Joan Feigenbaum (Chair), Richard Beigel, Stephen Fenner, Judy Goldsmith, Martin Kummer, Elvira Mayordomo, Moni Naor, Steven Rudich, Dan Spielman, Alan Selman.

Conference Committee Eric Allender (Chair), Richard Beigel, Jin-Yi Cai, Anne Condon, Lance Fortnow, Steven Homer, Luc Longpré, Jacobo Torán, Avi Wigderson.

PROGRAM

All sessions will be in the Center for Tomorrow.

RECEPTION/REGISTRATION: Sunday from 4pm to 9pm, Center For Tomorrow.

8:50–9:00 Welcoming Remarks

SESSION 1: Monday, June 15, Morning
Chair: R. Beigel (Lehigh Univ.)

9:00–9:30 *On Membership Comparable Sets,* D. Sivakumar (Univ. Houston)

9:30–10:00 *Nonrelativizing Separations,* H. Buhrman (CWI), L. Fortnow (Univ. Chicago), T. Thierauf (Univ. Ulm)

10:00–10:30 *Two Queries,* H. Buhrman (CWI), L. Fortnow (Univ. Chicago)

10:30–11:00 Break

Survey Talk 1: Chair: J. Feigenbaum (AT&T Labs)

11:00–12:15 *The Status of* P *vs.* NP *and Lower Bounds,* S. Rudich (Carnegie Mellon Univ.)

SESSION 2: Monday, June 15, Afternoon
Chair: S. Rudich (Carnegie Mellon Univ.)

2:00–2:30 *Computational Indistinguishability: A Sample Hierarchy,* O. Goldreich (Weizmann Inst. and Mass. Inst. of Tech.), M. Sudan (Mass. Inst. of Tech.)

2:30–3:00 *Proofs of Membership vs. Proofs of Knowledge,* G. Di Crescenzo and R. Impagliazzo (UC San Diego)

3:00–3:30 *Approximating the SVP to within a factor* $(1+1/(dim^{\epsilon}))$ *is* NP*-hard under randomized reductions,* J.-Y. Cai and A. Nerurkar (Univ. at Buffalo)

3:30–4:00 Break

SESSION 3: Monday, June 15, Late Afternoon
Chair: M. Naor (Weizmann Inst.)

4:00–4:30 *Arthur-Merlin Games in Boolean Decision Trees,* R. Raz (Weizmann Inst.), G. Tardos (Math. Inst. of the Hungarian Acad. of Sci.), O. Verbitsky (Lviv Univ.), N. Vereshchagin (Moscow State Univ.)

4:30–5:00 *On Arithmetic Branching Programs,* A. Beimel (Harvard Univ.), A. Gal (UT Austin)

5:00–5:30 *The Satisfiability Problem for Probabilistic Ordered Branching Programs,* M. Agrawal (IIT Kanpur), T. Thierauf (Univ. Ulm)

TUESDAY

SESSION 4: Tuesday, June 16, Morning
Chair: D. Spielman (Mass. Inst. of Tech.)

9:00–9:30 *Isolation, Matching, and Counting,* E. Allender (Rutgers Univ.), K. Reinhardt (Univ. Tübingen)

9:30–10:00 *A Note on the Hardness of Tree Isomorphism,* B. Jenner (Univ. Tübingen and Univ. Ulm), P. McKenzie (Montréal Univ. and Univ. Tübingen), J. Torán (Univ. Ulm)

10:00–10:30 *Theory of Periodically Specified Problems: Complexity and Approximability,* M. Marathe (Los Alamos Natl. Lab.), H. Hunt, D. Rosenkrantz, R. Stearns (Univ. at Albany)

10:30–11:00 Break

Survey Talk 2: Chair: J. Feigenbaum (AT&T Labs)

11:00–12:15 *Formal Models of Computation in Complexity and Coding Theory,* D. Spielman (Mass. Inst. of Tech.)

TUESDAY AFTERNOON: Excursion to Niagara Falls. Departure at 2pm.

WEDNESDAY

SESSION 5: Wednesday, June 17, Morning
Chair: S. Fenner (Univ. Southern Maine)

9:00–9:30 *How to Encode a Logical Structure as an OBDD,* H. Veith (Tech. Univ. Wien)

9:30–10:00 *Complete Problems for Promise Classes by Optimal Proof Systems for Test Sets,* J. Köbler and J. Messner (Univ. Ulm)

10:00–10:30 *Lower Bounds for Computation with Limited Nondeterminism,* H. Klauck (Univ. Frankfurt)

10:30–11:00 Break

Survey Talk 3: Chair: J. Feigenbaum (AT&T Labs)

11:00–12:15 *DNA Computing,* R. Beigel and B. Fu (Lehigh Univ.)

SESSION 6: Wednesday, June 17, Afternoon
Chair: E. Mayordomo (Univ. Zaragoza)

2:00–2:30 *Hard Sets are Hard to Find,* H. Buhrman (CWI), D. van Melkebeek (CWI and Univ. Chicago)

2:30–3:00 *On the Resource Bounded Measure of* P/poly, J. Köbler and W. Lindner (Univ. Ulm)

3:00–3:30 *Probabilistic Martingales and* BPTIME *Classes,* K. Regan (Univ. at Buffalo), D. Sivakumar (Univ. Houston)

3:30–4:00 Break

SESSION 7: Wednesday, June 17, Late Afternoon
Chair: J. Goldsmith (Univ. Kentucky)

4:00–4:30 *Complexity Limitations on Quantum Computation,* L. Fortnow (Univ. Chicago), J. Rogers (DePaul Univ.)

4:30–5:00 *Relationships between quantum and classical space-bounded complexity classes,* J. Watrous (Univ. Wisconsin at Madison)

5:00–5:30 *Uniformly Hard Languages,* R. Downey (Victoria Univ.), L. Fortnow (Univ. Chicago)

BUSINESS MEETING: From 6pm in Center For Tomorrow.

RUMP SESSION: After the business meeting.

THURSDAY

SESSION 8: Thursday, June 18, Morning
Chair: A. Selman (Univ. at Buffalo)

9:00–9:30 *Resource-Bounded Measure,* J. Lutz (Iowa State Univ.)

9:30–10:00 *Randomness is Hard,* H. Buhrman (CWI) and L. Torenvliet (Univ. Amsterdam)

10:00–10:30 *Resource-Bounded Measure and Learnability,* W. Lindner and R. Schuler (Univ. Ulm), O. Watanabe (Tokyo Inst. of Tech.)

10:30–11:00 Break

Survey Talk 4: Chair: J. Feigenbaum (AT&T Labs)

11:00–12:15 *Complexity Issues in Markov Decision Processes,* J. Goldsmith (Univ. Kentucky), M. Mundhenk (Univ. Trier)