

## REPORT ON CIAA 2004

### 9th International Conference on Implementation and Application of Automata Kingston, Ontario, Canada, July 22–24, 2004

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The past academic year brought unexpected increase in the volume of new work in theoretical computer science. A mighty flow of papers swept through ICALP and MFCS, breaking all the records on the number of submissions. We at CIAA, having expected to receive about 40 submissions, got 62 in total, and the Program Committee was faced with an uneasy task of selecting papers to fit in the short timeframe of the conference.

Due to the fierce competition many good papers could be accepted only as posters. The scientific program consisted of 2 invited talks by Oscar Ibarra and by Jeffrey Shallit, 25 regular papers and 14 poster papers. The program of the conference is posted at <http://www.cs.queensu.ca/ciaa2004/>. The statistics on the distribution of submissions and authors by country is given in the following table, where the columns contain the number of (I)nvited papers, (S)ubmissions, (A)ccepted full papers and (P)osters accepted.

Country	I	S	A	P	Country	I	S	A	P	
Austria	1	1	1	1 1/2	Japan		2			
Brazil		1 <sup>2</sup> / <sub>5</sub>			Jordan		1			
Canada		9 <sup>2</sup> / <sub>3</sub>	6 <sup>2</sup> / <sub>3</sub>		Korea		1			
China		1			Netherlands		4 <sup>1</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>4</sub>	1	
Czech Republic		4 <sup>1</sup> / <sub>3</sub>	1/3		2	Portugal		1		1
Finland		3	1		1	Russia		1	1	
France		10 <sup>3</sup> / <sub>5</sub>	4		2	Slovakia		1	1	
Germany		5 <sup>1</sup> / <sub>2</sub>	4 <sup>1</sup> / <sub>2</sub>		1	South Africa		1		1
Hong Kong		2	2			Spain		2	1	1
Hungary		1				UK		2		1
India		2				USA	1	3 <sup>1</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>2</sub>
Israel		1				<i>total</i>	2	62	25	14

Every full paper and most of the posters were presented at the conference by one of the authors. The papers and the abstracts of the posters were included in the pre-proceedings that was distributed during the conference. The revised versions of the papers will be published in an LNCS proceedings volume. CIAA'04 was attended by 65 participants from 14 countries and regions; their distribution by country is given in the next table.

Austria	1
Canada	25
Czech Republic	2
Finland	2

France	10
Germany	6
Hong Kong	3
Italy	1

Netherlands	3
Russia	1
Slovakia	1
Spain	2

UK	1
USA	7



Oscar Ibarra

The first day of the conference, Thursday, July 22, started with a materialization of every organizer’s fears: the conference room’s data projector, which we have thoroughly tested a couple of days before, refused to operate in front of the audience. Our impatient attempts to resuscitate it were in vain, and a couple of minutes before the conference was supposed to be opened, the CIAA registration desk staff were amazed to see two thirds of the organizing committee frantically running out of the conference room! Having grabbed a backup projector from our department’s main office upstairs, we managed to install it almost in time.

In the first session, Oscar Ibarra gave an excellent invited lecture titled “Automata-Theoretic Techniques for Analyzing Infinite-State Systems” that provided fresh insights into work on counter automata as well as into applications of automaton models ranging from verification to molecular computing. After a coffee break, the Thursday morning’s scientific programme was continued with the talks by Bryan Krawetz on the state complexity of DFAs, by Fabien Coulon on NFA to DFA conversion, and by Olivier Carton on Hopcroft’s DFA minimization algorithm.

After a buffet lunch in Leonard Hall cafeteria there was an afternoon session, which included talks by Petr Sosík on a new language operation – substitution on trajectories, by Yonghua Han on a sequence matching algorithm, by Rudolf Freund on catalytic P systems, by Mathieu Giraud on weighted finite automata, by German Tischler on figure drawing using automata and by Wojciech Fraczak on a new class of automata called concatenation state machines.



The first event of the social program of the conference was held in the evening. A cruise over Lake Ontario on a triple deck boat “Island Queen”, took conference participants and guests along the Kingston waterfront and through western parts

of the world-renowned “Thousand Islands” in the mouth of St. Lawrence river. The weather forecast promised a rain storm during the cruise, which fortunately did not occur. The weather was hazy, and the more adventurous participants spent their time on the upper deck.

The second day of the conference, Friday, started with an invited talk given by Jeffrey Shallit, titled “Regular Expressions: Enumeration and State Complexity”. There a novel use of the Chomsky-Schutzenberger theorem for context-free languages was presented in order to obtain enumerations of regular languages recognized by regular expressions of a given length.

The morning session was continued with the talks by Ivan Zakharyashev on automaton-based equivalence testing for a model of programs, by Cyril Allauzen on a library for handling weighted automata, by Bruce Watson on a graphical software for manipulating automata, and by Alfons Geser on string rewriting systems. After the lunch we had talks by Anssi Yli-Jyrä on dependency parsing in natural language processing, by Manuel Vilares on error repair for spelling correction, and by Björn Borchardt on tree automata for programming language processing.

The CIAA general meeting chaired by Sheng Yu took place on Friday afternoon. The location of CIAA 2005 was announced to be Sophia Antipolis (Nice, France). Tentative plans for locations of CIAA conferences in the following years were discussed. During the general meeting the CIAA 2004 best paper award was presented to Lila Kari, Stavros Konstantinidis and Petr Sosík for their paper “Substitutions, Trajectories and Noisy Channels”. The award is sponsored by the University of California at Santa Barbara. The poster session was held right after the general meeting. The conference banquet took place in Ban Righ Dining hall on Queen’s campus on Friday evening.

The last day of the conference, Saturday, started with a discussion session on XML representation for finite automata. It was followed by the morning session that included talks by Yo-Sub Han on ex-



Jeffrey Shallit



Sheng Yu

pression automata – a generalization of NFAs, by Galina Jirásková on the state complexity of NFAs, by Florent Nicart on improved conversion of regular expressions to automata, by Sebastian John on minimization of  $\varepsilon$ -NFAs, and by Martin Kutrib on undecidable problems for restricted classes of context-free grammars.

Traditionally the CIAA conferences have lasted for two days and a half. Due to the larger number of submissions and accepted papers this time the program continued into Saturday afternoon. After the lunch, there were talks by Baozhen Shan on the use of graph grammars in biochemistry, by Zeshan Peng on sequence alignment algorithms, by Mark Daley on natural data compression found in the genome of the viruses, and by Harumichi Nishimura on quantum finite automata. The conference was closed at 3pm, and many of the CIAA participants, including the whole of the organizing committee, proceeded to London, Ontario (about 500 km west of Kingston) to attend to the 6th Workshop on Descriptive Complexity of Formal Systems (DCFS 2004) organized by Lucian Ilie and Detlef Wotschke.

CIAA 2004 was the ninth in the line of the Conferences on Implementation and Application of Automata, held annually since 1996. Started as a small workshop, the conference series has become well-established, with a growing number of submissions and participants, in accord with the *renaissance of automata theory* optimistically predicted by Sheng Yu in 2000. It has been a great pleasure for us to host CIAA this year and to welcome this renaissance within the walls of our university. We had three good days of automata theory in Kingston – see you at CIAA 2005 in Nice!

