Matei David

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Education

Ph.D. Computer Science, University of Toronto. Expected completion time November 2009. Title: *Multiparty Communication Complexity.* Supervised by Professor Toniann Pitassi.

M.Sc. Computer Science, University of Toronto, 2004. Title: *Wait-free Linearizable Queue Implementations.* Supervised by Professor Faith Ellen.

Hon.B.Sc. Computer Science and Applied Mathematics, University of Toronto, 2001.

Research Interests

Communication complexity, complexity, information theory, game theory, streaming, distributed computing.

Publications

Journals

- *Improved Separations between Nondeterministic and Randomized Multiparty Communication.* With Toniann Pitassi and Emanuele Viola. To appear in Transactions on Computation Theory, 2009.

- *Separating Deterministic from Randomized Multiparty Communication Complexity.* With Paul Beame, Toniann Pitassi, and Philipp Woelfel. Submitted to Theory of Computing, 2008.

Conferences

- *Improved Separations between Nondeterministic and Randomized Multiparty Communication.* With Toniann Pitassi and Emanuele Viola. International Workshop on Randomization and Computation (RANDOM) 2008. LNCS 5171, 371–384.

- *Separating Deterministic from Nondeterministic NOF Multiparty Communication Complexity.* With Paul Beame, Toniann Pitassi, and Philipp Woelfel. International Colloquium on Automata, Languages and Programming (ICALP) 2007. LNCS 4596, 134–145.

- *Restricted Stack Implementations.* With Alex Brodsky and Faith Ellen. International Symposium on Distributed Computing (DISC) 2005. LNCS 3724, 137–151.

- *A Single-enqueuer Wait-free Queue Implementation.* International Symposium on Distributed Computing (DISC) 2004. LNCS 3274, 132–143.

Technical Reports

- *Polynomial Time with Limited Randomness.* With Periklis Papakonstantinou. Manuscript, 2009.

Refereeing

CCC, FOCS, PODC, Distributed Computing.

Talks and Presentations

RANDOM 2008, Ontario Combinatorics Workshop 2008, ICALP 2007, DISC 2005, DICS 2004, Theory Student Seminar.

Teaching Experience

- Course Instructor at the University of Toronto:

  - CSC 373: *Algorithm Design and Analysis.* Summer 2009, Summer 2008.
  - CSC 363: *Computational Complexity and Computability.* Spring 2009, Summer 2007, Spring 2007, and Summer 2005.
  - CSC 165: *Mathematical Expression and Reasoning for Computer Science.* Fall 2008.
  - CSC 310: *Information Theory.* Fall 2007.

- Teaching Assistant at the University of Toronto:

  - CSC 263/265/378: *Data Structures and Algorithm Analysis.* Fall 2006, Fall 2005 - Pitassi. Spring 2005, Spring 2004, Fall 2002, Fall 2001 - Ellen. Spring 2003 - Farzard. Summer 2003 - van Bussel.
  - CSC 363: *Computational Complexity and Computability.* Spring 2006 - Pitt. Summer 2004 - Connamacher. Spring 2004 - Molloy. Spring 2002 - Pitassi.
  - CSC 373: *Algorithm Design and Analysis.* Fall 2004 - Molloy.
  - CSC 238: *Discrete Mathematics for Computer Science.* Spring 2001 - Penn. Fall 2000 - Levesque.
  - CSC 270: *Fundamental Data Structures and Techniques.* Spring 2000 - Hayes.

Relevant Experience

- Participated in the ACM Inter-Collegiate Programming Contest World Finals in Honolulu, 2002, and Beverly Hills, 2003, both times representing the University of Toronto. Teams consisting of three members are presented with about eight problems to solve in five hours, using one computer. Strong problem solving and programming (in C, C++ and Java) skills, quick decision taking, performance under the clock and team work are essential to succeed in this competition. In both years, our team successfully passed two qualifying sessions, first at the university level and second at the regional level, competing with the best teams from top universities such as University of Waterloo and Carnegie Melon University. At the highly competitive World Finals, our team ranked 18th in the world in 2002 and 30th in the world in 2003.

- Held an NSERC Undergraduate Student Research Award (USRA) in the summer of 2000 at the University of Toronto, supervised by Professor Faith Ellen. The work consisted of implementing (in C, C++) several data structures with good theoretical performance, and comparing them with known data structures used in practice.

Skills

- Strong programming skills in C, C++, Java and UNIX scripts. Proficient in Windows and UNIX operating systems.

- Fluent in English, French and Romanian.

Background

Canadian and Romanian (European Union) citizenships.