Eric Blais

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Research Interests

Complexity theory, Property testing, Probability theory, Analysis of boolean functions.

Education

Carnegie Mellon University, Pittsburgh, PA
Ph.D. candidate in Computer Science, 2006–Present.
Advisor: Ryan O'Donnell

McGill University, Montréal, QC
M.Sc. in Computer Science, 2006.
Thesis: Common substrings in random strings
Advisor: Mathieu Blanchette

University of Waterloo, Waterloo, ON
B.Math. in Computer Science, minor in Combinatorics & Optimization, 2002.

Awards

FQRNT Graduate Scholarship, 2006–2009.
NSERC Graduate Scholarship (declined), 2006
André Courtemanche Scholarship, McGill University, 2004–2006.
René Descartes National Scholarship, University of Waterloo, 1997–2002.

Refereed Publications

E. Blais, J. Brody, and K. Matulef
Property testing lower bounds via communication complexity.
To appear in *Computational Complexity*, 2012.
(Preliminary version appeared in CCC 2011.)

N. Alon and E. Blais
Testing boolean function isomorphism.
RANDOM 2010.

J. Aspnes, E. Blais, M. Demirbas, R. O'Donnell, A. Rudra, and S. Uurtamo
k^+ decision trees.
ALGOSENSORS 2010.

E. Blais and R. O'Donnell
Lower bounds for testing function isomorphism.
Conference on Computational Complexity (CCC) 2010.

E. Blais
Testing juntas nearly optimally.
STOC 2009.

E. Blais
Improved bounds for testing juntas.
RANDOM 2008.

E. Blais, R. O'Donnell, and K. Wimmer
Polynomial regression under arbitrary product spaces.
Machine Learning. 80(2–3), pp. 273–294, 2010.
(Preliminary version appeared in COLT 2008.)

G. Blin, E. Blais, D. Hermelin, P. Guillon, M. Blanchette, and N. El-Mabrouk
Gene maps linearization using genomic rearrangement distances.
Journal of Computational Biology. 14(4), pp. 394–407, 2007.
(Preliminary version appeared in RECOMB Comparative Genomics 2006.)

E. Blais and M. Blanchette
Common substrings in random strings.
Combinatorial Pattern Matching (CPM) 2006.

L. Chindelevitch, Z. Li, E. Blais, and M. Blanchette
On the inference of parsimonious indel scenarios.
Journal of Bioinformatics and Computational Biology. 4(3), pp. 721–744, 2006.

MANUSCRIPTS

E. Blais and D. Kane
Testing Properties of Linear Functions
Manuscript, 2011.

E. Blais, A. Weinstein, and Y. Yoshida
Partially Symmetric Functions are Isomorphism-Testable.
Manuscript, 2011. `http://arxiv.org/abs/1112.5741`

M.-F. Balcan, E. Blais, A. Blum, and L. Yang
Active testing.
Manuscript, 2011. `http://arxiv.org/abs/1111.0897`
(Preliminary version presented at the STOC poster session, 2011.)

N. Alon, E. Blais, S. Chakraborty, D. García-Soriano, and A. Matsliah
Nearly tight bounds for testing function isomorphism.
Submitted to *SIAM J. of Computing*, 2010.

P. Beame, E. Blais, and T. Huynh
Longest common subsequences in sets of permutations.
Manuscript, 2009. `http://arxiv.org/abs/0904.1615`

BOOK CHAPTER

E. Blais
Testing juntas: a brief survey.
Property testing: Current Research and Surveys, Ed. O. Goldreich
Springer, 2010.

PATENT APPLICATION

I. Ameline and E. Blais
Graphics processing method and system.
Patent application number 10/969878, 2004.

Research Experience	**Carnegie Mellon University**, Pittsburgh, PA, 2006 – Present. Working with Ryan O'Donnell on the analysis of boolean functions with applications in complexity theory and property testing.
	McGill University, Montréal, QC, 2004–2006. Worked with Mathieu Blanchette on the mathematical and algorithmic theory of sequence analysis with applications in computational biology.
Teaching Assistantships	Intensive introduction to computational complexity theory. V. Guruswami and R. O'Donnell, Carnegie Mellon University, 2009.
	Probability and computing. M. Harchol-Balter and R. O'Donnell, Carnegie Mellon University, 2008.
	Algorithms for mining biological sequences. M. Blanchette, McGill University, 2006.
	Algorithms and data structures. C. Crépeau, McGill University, 2005.
	Introduction to computer science. M. Blanchette, McGill University, 2004 and 2005.
Invited Talks	Microsoft Research New England, Cambridge, MA, 2011. University of Toronto, Toronto, ON, 2011. MIT, Cambridge, MA, 2011. Institute for Advanced Studies, Princeton, NJ, 2011. Pennsylvania State University, State College, PA, 2011. Workshop: analysis and geometry of boolean threshold functions, Princeton, NJ, 2010. ITCS mini-workshop on Property Testing, Beijing, 2010. Carnegie Mellon University, CS Theory lunch, 2008, 2009, 2010. University of Washington, CS Theory seminar, 2008. 2nd Barbados Workshop on Genomics and Gene Regulation, 2005.
Conference Talks	CCC, San Jose, CA, 2011. RANDOM, Barcelona, Spain, 2010. CCC, Cambridge, MA, 2010. STOC, Bethesda, MD, 2009. RANDOM, Cambridge, MA, 2008. CPM, Barcelona, Spain, 2006.
Journal Refereeing	Foundations and Trends in Theoretical Computer Science Random Structure and Algorithms Theory of Computing Transactions on Computation Theory
Conference Refereeing	ICALP, NIPS, RANDOM, SODA

Technical Experience

Software engineer, **Alias|Wavefront**, Toronto, ON, 2002–2004.
Developed the first versions of AutoDesk SketchBook Pro.

Intern software engineer, **AOL**, Mountain View, CA, 2000–2001.
Designed the 2nd generation text-to-speech engine for AOL-by-Phone.

Intern research software developer, **Side Effects Software**, Toronto, ON, 2000.
Developed custom projects and research prototypes for Houdini.

Intern software developer, **TrueRisk**, Toronto, ON, 1999.
Created a custom scenario portfolio performance analysis tool.

Intern software quality engineer, **Microsoft**, Cupertino, CA, 1998.
Ensured the quality of the draw components of Office 2000.

Intern software engineer, **Nortel**, Ottawa, ON, 1997.
Developed remote network monitoring software.