

Krzysztof Onak

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Education

- **Massachusetts Institute of Technology**, Sep 2005–present
Candidate for the PhD degree in Computer Science
Advisor: Prof. Ronitt Rubinfeld
- **Warsaw University**, Oct 2000–Jun 2005
Master of Science in Computer Science, June 2005
Thesis title: “Searching in Graphs—Generalization of Binary Search”
Advisor: Prof. Krzysztof Diks
Bachelor of Science in Mathematics, November 2004
Thesis title: “Testing Fundamentality of a System of Units in $\mathcal{U}(\mathbb{Z}C_p)$ ”
Advisor: Prof. Zbigniew Marciniak
Bachelor of Science in Computer Science, October 2003

Research interests

Algorithms for massive data sets, sublinear algorithms, property testing, parallel computation, streaming, approximation algorithms, graph algorithms.

Publications

- Huy N. Nguyen, Krzysztof Onak
Constant-Time Approximation Algorithms via Local Improvements
The 49th Annual Symposium on Foundations of Computer Science (FOCS 2008).
- Nicholas Harvey, Jelani Nelson, Krzysztof Onak
Sketching and Streaming Entropy via Approximation Theory
The 49th Annual Symposium on Foundations of Computer Science (FOCS 2008).
- Krzysztof Onak
Testing Properties of Sets of Points in Metric Spaces
The 35th International Colloquium on Automata, Languages and Programming (ICALP 2008).
- Krzysztof Onak, Anastasios Sidiropoulos
Circular Partitions with Applications to Visualization and Embeddings
The 24th Annual ACM Symposium on Computational Geometry (SoCG 2008).
- Shay Mozes, Krzysztof Onak, Oren Weimann
Finding an Optimal Tree Searching Strategy in Linear Time
The 19th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA 2008).
- Ilias Diakonikolas, Homin K. Lee, Kevin Matulef, Krzysztof Onak, Ronitt Rubinfeld, Rocco A. Servedio, Andrew Wan
Testing for Concise Representations
The 48th Annual Symposium on Foundations of Computer Science (FOCS 2007).
- David Karger, Krzysztof Onak
Polynomial Approximation Schemes for Smoothed And Random Instances of Multidimensional Packing Problems
The 18th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA 2007).
- Krzysztof Onak, Paweł Parys
Generalization of Binary Search: Searching in Trees and Forest-Like Partial Orders
The 47th Annual Symposium on Foundations of Computer Science (FOCS 2006).
- Several articles on Computer Science Olympiad problems.

*Work
experience*

- **Research Intern at Microsoft Research Silicon Valley**, May–Aug 2008
Worked on decision optimization algorithms and streaming algorithms.
- **Research Intern at Google Research, New York City**, Jun–Aug 2007
Worked on parallel algorithms. In particular, developed techniques for fast parallel computation of the agglomerative clustering. The algorithms can be implemented in any parallel architecture similar to Google’s MapReduce.
- **Teaching Assistant at Warsaw University**, 2003–2005
Taught recitations and programming labs (in total 150 hours). Prepared and graded problem sets, exams and final projects. Courses: Algorithms and Data Structures, Advanced Algorithms, Introduction to Programming, Concurrent Programming.
- **Summer Intern at Microsoft Corporation**, Summer 2004
Worked as a software design engineer in the Windows CE Networking group. Developed remote control over Bluetooth, and implemented an audio codec.
- **Independent Programmer at Collabo Technology**, Summer 2003
Worked on remote collaboration software. Designed and implemented, among other things, persistent data structures and tunneling over HTTP.
- **Member of the Jury of Polish Olympiad in Informatics**, 2001–2005
Prepared problems, key solutions and test data sets. Edited and typeset books with solution descriptions. Gave lectures at training camps.
- **Tutor at Workshops and Camps of Polish Children’s Fund**, 2001–2005
Gave lectures for gifted high school students.

Awards

- **Symantec Fellowship**, Fall 2008
- **Akamai Presidential Fellowship**, 2005–2006
- **Polish Minister of Education Scholarship**, 2003–2005
- **Comarch R&D Center Scholarship**, 2003–2004
- **Diploma of the Polish Minister of Foreign Affairs for Exceptional Contribution to the Promotion of Poland in the World**, Sep 2003
- **World Champion in ACM International Collegiate Programming Contest**, Mar 2003
- **International Olympiad in Informatics: gold medal** (Sep 2000), **silver medal** (Oct 1999)

*Talks
(except
conference
talks)*

- *Testing Rich Representation Classes by Implicit Learning*, Warsaw University, Dec 2006
- *Parallel Hierarchical Agglomerative Clustering*, Google NYC, Aug 2007
- *Testing for Concise Representations*, MIT, Algorithms and Complexity Seminar, Oct 2007
- *Testing for Concise Representations*, Brown University, Nov 2007
- *Sketching and Streaming Entropy via Approximation Theory*, Microsoft Research Silicon Valley, Jun 2008
- *The Oil Searching Problem*, Microsoft Research Silicon Valley, Aug 2008
- *Constant-Time Approximation Algorithms via Local Improvements*, Dagstuhl Sublinear Algorithms Seminar, Aug 2008

*Scientific
visits*

- Columbia University, Jun–Aug 2006

*Community
service*

- Refereed for journals: Algorithmica, Discrete Optimization, SICOMP, Theoretical Computer Science
- Refereed for conferences: ICALP, Random/Approx, SODA, STOC