

Yury Lifshits

CONTACT INFORMATION	Yahoo! Research 2821 Mission College Blvd. Santa Clara, CA 95054 United States of America	<i>Cell phone:</i> +1 626 354 3675 <i>Fax:</i> +1 408 349 2270 <i>E-mail:</i> yury@yury.name <i>WWW:</i> http://yury.name
BIOGRAPHICAL DATA	Citizenship: Russia Date and place of birth: 20th January 1984, Leningrad, USSR	
RESEARCH INTERESTS	<ul style="list-style-type: none"> • Areas: web research, theory of algorithms • Keywords: similarity search, algorithms on compressed texts, program obfuscation, connectivity in graphs, finite automata and regular languages, combinatorics on words, parity games 	
EDUCATION	Steklov Institute of Mathematics , St.Petersburg, Russia Ph.D. in theoretical computer science, October 2005 — May 2007. (GPA: 5.0/5.0) <ul style="list-style-type: none"> • Thesis Topic: "Algorithms and Complexity Analysis for Processing Compressed Texts" • Advisor: Yuri Matiyasevich St.Petersburg State University , St.Petersburg, Russia M.Sc., Mathematics (Algebra), 2000-2005. (GPA: 5.0/5.0) <ul style="list-style-type: none"> • M.Sc. Thesis: "On the complexity of the embedding of compressed texts". English translation 	
EMPLOYMENT	Yahoo! Research Research Scientist, October 2008 — present time California Institute of Technology , Center for the Mathematics of Information Postdoc, September 2007 — September 2008 Member of Paradise group and of Theory group	
PUBLICATIONS	Journals: <ol style="list-style-type: none"> 1. Yury Lifshits, Shay Mozes, Oren Weimann, and Michal Ziv-Ukelson Speeding up HMM decoding and training by exploiting sequence repetitions. Algorithmica, 2009. 2. Benjamin Hoffmann, Mikhail Lifshits, Yury Lifshits, and Dirk Nowotka Maximal Intersection Queries in Randomized Input Models. Theory of Computing Systems, 2008. 3. Yury Lifshits and Dmitri Pavlov, Potential theory for mean payoff games. Journal of Mathematical Sciences, 145(3):4967–4974, Springer, 2007. Translated from Zapiski Nauchnyh Seminarov POMI, 340:61–75, 2006. 4. Yu.M. Lifshits, Partitioning a k-connected graph, Discrete Mathematics and Applications, Volume 15, No. 4, pp. 365–377, VSP, 2005. 5. Yuri Lifshits, A lower bound on the size of epsilon-free NFA corresponding to a regular expression. Information Processing Letters, vol 85/6, pp. 293-299, Elsevier, 2003. Reviewed conferences: <ol style="list-style-type: none"> 1. Ravi Kumar, Yury Lifshits, and Andrew Tomkins, Evolution of Two-Sided Markets. WSDM'10. 2. Yury Lifshits, Combinatorial Approach to Similarity Search. SISAP'09. 	

3. Alina Beygelzimer, John Langford, Yury Lifshits, Gregory Sorkin, and Alex Strehl, [Conditional Probability Tree Estimation Analysis and Algorithms](#). UAI'09.
4. Yury Lifshits and Shengyu Zhang, [Combinatorial Algorithms for Nearest Neighbors, Near-Duplicates and Small World Design](#). SODA'09.
5. Navin Goyal, Yury Lifshits and Hinrich Schütze, [Disorder inequality: A combinatorial approach to nearest neighbor search](#). WSDM'08.
6. Benjamin Hoffmann, Yury Lifshits and Dirk Nowotka, [Maximal intersection queries in randomized graph models](#). CSR'07, LNCS 4649, pp 227-236, Springer-Verlag, 2007.
7. Yury Lifshits and Dirk Nowotka, [Estimation of the click volume by large scale regression analysis](#). CSR'07, LNCS 4649, pp 216-226, Springer-Verlag, 2007.
8. Danièle Beauquier, Marie Duflot and Yury Lifshits, [Decidability of parameterized probabilistic information flow](#). CSR'07, LNCS 4649, pp 82-91, Springer-Verlag, 2007.
9. Yury Lifshits, [Processing compressed texts: a tractability border](#). CPM'07, LNCS 4580, pp 228-240, Springer-Verlag, 2007.
10. Juhani Karhumäki, Yury Lifshits, Wojciech Rytter, [Tiling periodicity](#). CPM'07, LNCS 4580, pp 295-306, Springer-Verlag, 2007.
11. Yury Lifshits and Markus Lohrey, [Querying and embedding compressed texts](#). Proc. of MFCS'06, LNCS 4162, pp. 681-692, Springer-Verlag, 2006.
12. Patrick Cégielski, Irène Guessarian, Yury Lifshits, and Yuri Matiyasevich, [Window subsequence problems for compressed texts](#). Proc. of CSR'06, LNCS 3967, pp. 127-136, Springer-Verlag, 2006.

Other:

1. Juhani Karhumäki, Yury Lifshits and Wojciech Rytter, Tiling periodicity. Journal version, submitted.
2. Yury Lifshits, [Guaranteed slowdown, generalized encryption schemes and function sharing](#). Proc. of Institute of System Programming of Russian Academy of Science, Vol. 10, pp. 119-129, 2006.
3. Yury Lifshits, Processing compressed texts. Proc. of XVI Workshop on Synthesis and Complexity of Circuits, pp. 64-68, MSU Press, 2006.

TEACHING ACTIVITIES

I created and taught the following courses:

In English:

- [Fall 2007, Caltech CS101.2] [Algorithmic Problems Around the Web](#)
- [Summer 2007, RuSSIR'07] Tutorial [Algorithms for Nearest Neighbor Search](#)
- [Spring 2007, Stuttgart University] Tutorial [A Guide to Web Research](#)
- [Spring 2006, Tartu University] Tutorial [Cryptographic Approach to Program Obfuscation](#)

In Russian:

- [Fall 2006, SPbSU ITMO] [Algorithms for Internet](#)
- [Summer 2006, Summer school "Contemporary Mathematics"] Tutorial [String Algorithms](#)
- [Fall 2005, SPbSU] [Modern Problems of Cryptography](#)
- [Fall 2005, SPbSU ITMO] [Modern Problems of Theoretical Computer Science](#) (Yandex Award!)
- [Spring 2005, SPbSU] [Course on Program Obfuscation](#)
- [2004,2005,2007] Business tutorial [Effective Internet Search](#)
- [2003-2005, SPbSU] Organizer and leader of popular student seminar [Invitation to Computer Science](#)
- Lecturing in summer mathematical camps for high school students in Saint-Petersburg (2000-2003), Tver (2001), Kirov (2001).

AWARDS

- Similarity Search and Applications, **Invited speaker**, 2009.
- **New Concept Award**, Yahoo! HackDay 2009.
- **Best Paper Award** in Applications/Technology Track of 2nd International Symposium “Computer Science in Russia”, 2007.
- Yandex Teaching Award (2006) for my course “Modern Problems of Theoretical Computer Science” — russian **Top8 university courses** in information retrieval and related subjects
- Finalist of Moebius Contest (2005) — russian **Top7 student papers** in all mathematical subjects; Honorable mention (8th-11th place) in 2006.
- Finalist of “New Reality” Internet Award 2005, site <http://cs-seminar.spb.ru>
- St.Petersburg Youth Prize (2002) awarded by St.Petersburg Public Council
- President of Russia Prizes in 2000 and 2001.
- Two gold medals at **International Mathematical Olympiads** (Bukharest'99, Taejong'00)
- Three absolute championships at Russian Mathematical Olympiads in 1998-2000.
- Scholarships:
 - INTAS Young Scientist Fellowship (2007-2008) - **Top100 PhD students** from former Soviet Union in all natural sciences
 - Intel Student Research Scholarship (2005)
 - Scholarship for leadership and creativity from Potanin Foundation (2004-2005) — **Top40 students** out of 20000 in St.Petersburg State University
 - Olympic Scholarship from Potanin Foundation (2000-2005).

RESEARCH VISITS

- Microsoft Research (Redmond), December 2007. Host: Yuri Gurevich
- MIT, November 2007. Host: Piotr Indyk
- McGill University, July 2007. Host: Denis Thérien
- [Yandex LLC](#), August 2007. Host: Ilya Segalovich
- Stuttgart University, February-April 2007. Host: Markus Lohrey
- Paris-12 University, May 2006. Host: Anatol Slissenko
- Turku University, February 2006. Host: Juhani Karhumäki
- Stuttgart University, February 2005. Hosts: Volker Diekert, Markus Lohrey

RESEARCH GRANTS AND PROJECTS

- Russian Foundation for Basic Research, grant N 06-01-00584-a “Methods for Program Obfuscation” (2006-2008)
- President's Grant “Leading Scientific Schools NSh-8464.2006.1” (2006-2008)
- Consulting for [NebuAd Inc.](#) (2007)
- INTAS project N 04-77-7173 “Data Flow Systems: Algorithms and Complexity” (2005-2007)
- Federal Agency of Science and Innovation, contract N 02.442.11.7290 (2006)
- Federal Agency of Science and Innovation, contract N 02.442.11.7291 (2006)
- SPRINT Lab Project (supported by Intel) [Code Plagiarism Detection: Critical Survey](#) (2006)
- Competitive Center of Fundamental research grant for young scientists (2005)
- President's Grant “Leading Scientific Schools NSh-2203.2003.1” (2003-2005)
- SPRINT Lab project (supported by Intel) “Program Protection Based on Code Obfuscation” (2005)

WEB PROJECTS

- [Webnumbr](#) — a web service for aggregating, tracking and charting numbers from anywhere on the Web.
- [Semabox Photo Reader](#) —aggregation service for photo of the day streams.
- [Shopping2.ru](#) — the first Russian social shopping website.
- [Csin.ru](#) — portal for computer science community in Russia
- [Nearest Neighbors and Similarity Search](#) — a website dedicated to educational materials, software, literature, researchers, open problems and events related to NN searching

TALKS, CONFERENCES AND SCHOOLS

Seminar and colloquium talks:

- **2009:** Stanford, Berkeley, UCLA, Caltech, Microsoft! Research + Yandex, Moscow Independent University, Steklov Institute of Mathematics.
- **2008:** Stanford, Berkeley, UCSD, Microsoft Research (Silicon Valley), Microsoft Live Labs, Yahoo!, Helsinki University, Steklov Institute of Mathematics.
- **2007:** MIT, University of Washington, University of Toronto, McGill University, Microsoft Research (Redmond and Silicon Valley), Google, IBM Almaden Research Center, St.Petersburg Mathematical Society, Yandex LLC, Moscow State University.

- **2006:** Paris-6, Tallin Institute of Technology, Tartu University, University of Turku, Moscow State University, Independent University of Moscow, Institute of Information Transmission Problems.
- **2005:** Intel, Stuttgart University, St.Petersburg Institute for Informatics and Automation.

International conferences/workshops:

- "Similarity Search and Applications" (SISAP'09, **Invited speaker**)
- "Symposium on Discrete Algorithms" (SODA'09)
- First International Symposium "Web Search and Data Mining" (WSDM'08)
- 2nd International Symposium "Computer Science in Russia" (CSR'07)
- Workshop on Computational, Descriptive and Proof Complexity, and Algorithms, Moscow, Russia, 2007
- 18th Annual Symposium on Combinatorial Pattern Matching (CPM'07)
- International Symposium "Mathematical Foundations of Computer Science" (MFCS'06)
- 1st International Symposium "Computer Science in Russia" (CSR'06)
- Dagstuhl seminar "Combinatorial and Algorithmic Foundations of Pattern and Association Discovery", May 2006
- "Symposium on Theoretical Aspects of Computer Science" (STACS'05)

Workshops, student schools, national conferences:

- Caltech CMI Retreat, Fall 2009
- IPAM program "Search Engines and Mathematics of Knowledge", UCLA, Fall 2007
- SISL/Yahoo! Theory Workshop, Huntington Beach, November 2007
- 1st Russian Summer School in Information Retrieval, Ekaterinburg, Russia, September 2007
- Summer school "Modern Mathematics", Dubna, Russia, July 2006
- XVI Workshop "Sintez and Complexity of Circuits", St.Petersburg, Russia, June 2006
- Spring School in Computer Science EPIT'06, Ile-de-Re, France, May 2006
- Russian-French Conference of Young Scientists, Moscow, April 2006
- 11th Estonian Winter School in Computer Science, March 2006
- Summer Student Conference at Intel Corp., Nizhniy Novgorod, August 2005
- Workshop on Theoretical and Practical Aspects of Program Obfuscation, Moscow, May 2005
- 9th Estonian Winter School in Computer Science, 2004
- International Seminar "Discrete Mathematics and Applications", Moscow, 2004
- Joint Advanced Student School, St.Petersburg, 2004
- FerienAkademie, Germany, 2003
- 8th Estonian Winter School in Computer Science, 2003
- First German-Russian Student School, St.-Petersburg, 2003

COMMUNITY SERVICE

Program Committees: ICDM'08, RuSSIR'08, WPRRS'08, Young Scientists in Information Retrieval'08 and '09.

Reviewing articles for "International Journal of Information Security", "Zapiski seminarov POMI", STACS'05, STACS'06, IWPEC'06, CSR'06, CSR'07, STACS'07, CPM'07, AutoMathA'07, ESA'07, FOCS'07, CSR'09, RANDOM'09, SODA'10, LATIN'10 conferences.

Scientific advising of B.Sc. theses of Dmitri Pavlov and Alexandr Kotov (2005) at St.Petersburg University of Information Technologies, Mechanics and Optics (SPbSU ITMO).

Chair of HackDay St. Petersburg 2009. Local organizer of German-Russian Joint Advanced Student School 2004, member of organizing committee of CSR'06, and co-organizer of the workshop "Theoretical and Practical Aspects of Program Obfuscation", 2005.

Mathematical competition organization: Russian National Olympiad, member of jury and methodical committee 2001-2002. International mathematical competition "Kangaroo", member of methodical committee 2001-2002.

INTERNSHIPS

MEDesign Ltd, St.Petersburg, Russia

C++ developer

July, 2004 - September, 2004

Development of some features of search engine Directrix.ru. Key accomplishment: design and implementation of web-page topic categorization procedure.

MEDesign Ltd, St.Petersburg, Russia

Product manager

September, 2004 - May, 2005

Internet-projects management: planning and control. Key accomplishment: development of StartSite.ru (the first personalized starting page in Russia).

COMPUTER SKILLS

Python, c++, perl, javascript, Django, HTML/CSS, XML/XPath/XSLT, Apache, MySQL, Hadoop, Windows/Linux, Audacity, L^AT_EX, Maple, Adobe Photoshop

REFERENCES

[Yuri Matiyasevich](#) (Steklov Institute), [Jehoshua \(Shuki\) Bruck](#) (Caltech), [Ravi Kumar](#) (Yahoo! Research),

[Leonard Schulman](#) (Caltech), [Anatol Slissenko](#) (Paris-12), [Markus Lohrey](#) (University of Leipzig)