ALEXANDER V. SMAL

CONTACT INFORMATION	Laboratory of Mathematical Logic St. Petersburg Department of Steklov Mathematical Institute Fontanka 27, St. Petersburg 191023, Russia Phone: +7-921-33-555-37 Email: smal@logic.pdmi.ras.ru Homepage: http://logic.pdmi.ras.ru/~smal

BIOGRAPHICAL DATA

Date of birth: April 20th 1985
Citizenship: Russia

EDUCATION

St. Petersburg Department of Steklov Mathematical Institute
Ph.D. student since 2008. Expected degree: Ph.D. in Computer Science

- Advisor: Edward A. Hirsch
- Area of study: proof complexity

St. Petersburg State University of Information Technologies, Mechanics and Optics
M.Sc. in Computer Science, 2006-2008

- Advisor: Edward A. Hirsch
- Thesis: "Automated proof search in Cutting Planes propositional proof system"

St. Petersburg State University of Information Technologies, Mechanics and Optics
B.Sc. in Computer Science, 2002-2006

- Advisor: Sergey Yu. Zhukov
- Thesis: "Illumination model for landscapes"

ADDITIONAL EDUCATION

Computer Science Student Club at PDMI, St. Petersburg
Active member

RESEARCH INTERESTS

Proof complexity, structural complexity, communication complexity, algorithms, cryptography, computational aspects of mathematical logic.

RESEARCH PAPERS

- Edward A. Hirsch, Dmitry Itsykson, Valeria Nikolaenko and Alexander Smal. "*Optimal heuristic algorithms for the image of an injective function*". ECCC, TR11-091, 2011
- Edward A. Hirsch, Dmitry Itsykson, Ivan Monakhov, and Alexander Smal. "*On optimal heuristic randomized semidecision procedures, with applications to proof complexity and cryptography*". ECCC, TR10-193, 2010.

TALKS AND POSTERS

- Talk "Optimal automatizable heuristic proof systems". Workshop on Complexity of Algorithms, Proofs, and Circuits St. Petersburg, Russia, 2010.
- Poster "Optimal automatizable heuristic proof systems". The fifth Microsoft Research Summer School. Cambridge, UK, 2010.
- Mini-course "Logical Foundations of Proof Complexity". Discrete Mathematics Seminar. St. Petersburg, Russia, 2009.
- Talk "Tree isomorphism". Joint Advanced Student School (JASS'2008). St. Petersburg, Russia, 2008.
- Poster "Illumination model for landscapes". 13th Estonian Winter School in Computer Science (EWSCS'2008). Palmse, Estonia, 2008.

STUDENT SCHOOLS	• Fall school of Logic & Complexity with emphasis on proof complexity. Prague, Czech Republic, 2011.
	• Fall school of Logic & Complexity with emphasis on proof complexity. Prague, Czech Republic, 2010.
	• Teaching assistant at Microsoft Data Structures and Algorithms School (MIDAS). St. Petersburg, Russia, 2010.
	• The fifth Microsoft Research Summer School. Cambridge, UK, 2010.
	• Computer Science E-Days, Theory (CSEDays. Theory 2010). Ekaterinburg, Russia, 2010.
	• JAIST Advanced School on Formal Specification and Systems Verification (JAIST-FSSV'2010). Kanazawa, Japan, 2010.
	• Fall school of Logic & Complexity with emphasis on proof complexity. Prague, Czech Republic, 2009.
	• NoNA Summer School on Complexity Theory (SCCT'09). St. Petersburg, Russia.
	• Spring School on Fixed Parameter and Exact Algorithms (AGAPE'09). Lozari, France, 2009.
	• Joint Advanced Student School (JASS'2009). St. Petersburg, Russia, 2009.
	• NoNA Spring School on Algorithms. Istanbul, Turkey, 2009.
	• 14th Estonian Winter School in Computer Science (EWSCS'2009). Palmse, Estonia, 2009.
	• Joint Advanced Student School (JASS'2008). St. Petersburg, Russia, 2008.
	• 13th Estonian Winter School in Computer Science (EWSCS'2008). Palmse, Estonia, 2008.

GRANTS AND AWARDS	• Winner of MALOA scholarship for participating in Prague Special Semester in Logic and Complexity (fall 2011).
	• Winner of PhD student personal grant contest by St. Petersburg government (2009).
	• Participant of grant of Federal Agency of the Science and Innovations of Russia, State Contract No. 02.740.11.5192.
	• Participant of grant of Federal Target Programme "Scientific and scientific-pedagogical personnel of the innovative Russia" (contract #П265 from 23.07.2009)
	• Participant of Russian Foundation for Basic Research (RFBR) grants

- 09-01-12137 "Application of combinatorial methods in mathematical logic and graph theory" (2009-2010).
- 09-01-91085 "Organization and realisation of the Russian-French seminar '*Complexity in Algorithmic Problems, Dynamic Systems and Bioinformatics*'" (2009-2010).
- 08-01-00640 "Complexity of circuits, proofs and protocols" (2008-2010).
- 06-01-00502 "Algorithms for automated design and analysis of algorithms for the Boolean satisfiability problem" (2006–2008).

	• Winner of "Prometheus Star" award (2002).
	• Several diplomas of physics and math school contests.

RESEARCH POSITION	• Early stage researcher at Charles University in Prague (fall 2011). Participant of Prague Special Semester in Logic and Complexity.

	• Intern at Microsoft Research Silicon Valley (summer 2011). Advisor: Ilya Mironov.
TEACHING EXPERIENCE	• C++ course at St. Petersburg Academic University (since 2008).
	• C++ and Java courses at St. Petersburg State University of Information Technologies, Mechanics and Optics (2008-2010).
	• Math teacher in mathematical club for talented schoolchildren (since 2002).

INDUSTRIAL EXPERIENCE

Transas
Senior C++ developer, 2005-2008.

Segmenta Media
Java developer, 2004-2005.

RELEVANT SKILLS

Programming Languages:

- C++
- Java
- Perl and PHP
- Haskell

LANGUAGES

- Russian: native
- English: fluent
- French: pre intermediate
- German: elementary