

Alexander Knop

Curriculum Vitae

mobile: +1(619)8181772
e-mail: aaknop@gmail.com
📄 www.math.ucsd.edu/~aknop/

General

Name Alexander Knop
Place of birth Saint Petersburg, Russia
Date of birth 06 Mar 1991

Education

2008–2013 **Master in Mathematics**, *St Petersburg State University*, St Petersburg
2013 – 2016 **Ph.D in Mathematics**, *St Petersburg Department of Steklov Mathematical Institute*, St Petersburg
2011–2013 **Advanced Education**, *Computer Science Center*, St Petersburg

Master Thesis

Title *Circuit Lower Bounds for Heuristic MA*
Supervisors Edward A. Hirsch

Ph.D Thesis

Title *Complexity of Heuristic Computation and Interactive Protocols*
Supervisors Edward A. Hirsch

Teaching Experience

Sep 2007 – **Teacher**, JUNIOR MATHEMATICAL SCHOOL, St. Petersburg
Jun 2013 Math teacher in mathematical club for talented schoolchildren
Sep 2013 – **Teacher**, SCHOOL NUMBER 533, St. Petersburg
Jun 2015 Algebra and Mathematical Logic courses
Sep 2013 **Teacher Assistant**, ST PETERSBURG ACADEMIC UNIVERSITY, St. Petersburg
Math Logic, Complexity Theory, Algebra, Combinatorics, Expanders and Graph Theory courses

Work Experience

Jun 2008 – **Intern**, DEVEXPERTS, St. Petersburg
Jul 2008 Developing 3D Graph plotter. Duties included developing current release using Java and OpenGL

- Feb 2010 – **Developer**, YANDEX, St. Petersburg
 Sep 2010 Developing of robots for semi-automatic extraction of information and framework for it. Duties included developing current release using Java and supporting of existing robots.
- Sep 2013– **Developer**, GGA SOFTWARE, St. Petersburg
 Jul 2014 Developing software for drug discovery robots. Duties included developing current release using Java.
- Feb 2017– **Junior Researcher**, ST PETERSBURG DEPARTMENT OF STEKLOV MATHEMATICAL INSTITUTE, St. Petersburg
 Jun 2017

since Jul 2017 **SEW Assistant Professor**, UC SAN DIEGO, San Diego, California

Talks

- Oct 1 – Nov 10 2012 Leonhard-Euler Scholarship Programme, St. Petersburg School in Probability and Statistical Physics, Bielefeld, Germany
- Feb 26 – Mar 2, 2012 17th Estonian Winter School in Computer Science (EWSCS'2012), Palmse, Estonia
- Feb 2 – Feb 9 2012 Winter School in Mathematics of Higher School of Economics, Moscow, Russia
- Jun 21 – Jun 23, 2013 Franco-Russian workshop on Algorithms, complexity and applications, Moscow, Russia
- Jun 29 – Jul 01, 2013 CSEDays 2013, Ekaterinburg, Russia
- Sep 23 – Sep 27, 2013 Eighth International Conference on Computability, Complexity and Randomness, Moscow, Russia
- Mar 1 – Mar 6, 2015 20th Estonian Winter School in Computer Science (EWSCS'2015), Palmse, Estonia
- Jul 13 – Jul 17, 2015 The 10th International Computer Science Symposium in Russia (CSR'2015), Listvyanka, Russia
- Dec 9 – Dec 11, 2015 The 26th International Symposium on Algorithms and Computation (ISAAC 2015), Nagoya, Japan
- Dec 3, 2015 ELC Mini Workshop, Tokyo, Japan
- Aug 22 – Aug 26, 2016 41st International Symposium on Mathematical Foundations of Computer Science (MFCS 2016), Krakow, Poland
- Dec 12 – Dec 14, 2016 The 27th International Symposium on Algorithms and Computation (ISAAC 2016), Sydney, Australia

Conference Proceedings

- 2017 Dmitry Itsykson, Alexander Knop, Andrey Romaschenko, Dmitry Sokolov. **On OBDD based algorithms and proof systems that dynamically change order of variables**, Proceedings of STACS'17

- 2017 Dmitry Itsykson, Alexander Knop. **Hard satisfiable formulas for splittings by linear combinations**, Proceedings of SAT'17
- 2016 Dmitry Itsykson, Alexander Knop, Dmitry Sokolov. **Complexity of distributions and average-case hardness**, Proceedings of ISAAC'16
- 2016 Alexander Golovnev, Edward Hirsch, Alexander Knop, Alexander Kulikov. **On the limits of gate elimination**, Proceedings of MFCS'16
- 2015 Dmitry Itsykson, Alexander Knop, Dmitry Sokolov. **Heuristic time hierarchies via hierarchies for sampling distributions**, Proceedings of ISAAC'15
- 2015 Alexander Knop. **Circuit Lower Bounds for Average-Case MA**, Proceedings of CSR'15, Lecture Notes in Computer Science Volume 9139, 2015, pp. 283–295

Journal Articles

- 2013 Alexander Knop. **Diophantine hierarchy**, Journal of Mathematical Sciences 188(1) (2013), pp. 59–69

Preprints

- 2017 Sam Buss, Alexander Knop. **Strategies for Stable Merge Sorting**, arXiv, <https://arxiv.org/abs/1801.04641>
- 2017 Dmitry Itsykson, Alexander Knop. **Hard satisfiable formulas for splittings by linear combinations**, ECCC - Electronic Colloquium on Computational Complexity, <https://eccc.weizmann.ac.il/report/2017/117/>
- 2017 Alexander Knop. **IPS-like Proof Systems Based on Binary Decision Diagrams**, ECCC - Electronic Colloquium on Computational Complexity, <https://eccc.weizmann.ac.il/report/2017/179/>
- 2017 Kamil Khadiev, Aliya Khadiev, Alexander Knop. **Exponential Separation between Quantum and Classical Ordered Binary Decision Diagrams, Reordering Method and Hierarchies**, ECCC - Electronic Colloquium on Computational Complexity, <https://eccc.weizmann.ac.il/report/2017/176/>
- 2016 Alexander Golovnev, Edward Hirsch, Alexander Knop, Alexander Kulikov. **On the limits of gate elimination**, ECCC - Electronic Colloquium on Computational Complexity, <https://eccc.weizmann.ac.il/report/2016/119/>
- 2015 Dmitry Itsykson, Alexander Knop, Dmitry Sokolov. **Complexity of distributions and average-case hardness**, ECCC - Electronic Colloquium on Computational Complexity, <http://eccc.hpi-web.de/report/2015/174/>
- 2014 Dmitry Itsykson, Alexander Knop, Dmitry Sokolov. **Heuristic time hierarchies via hierarchies for sampling distributions**, ECCC - Electronic Colloquium on Computational Complexity, <http://eccc.hpi-web.de/report/2014/178/>

Awards

- 2011 Winner of contest research for students by High School of Economics
- 2012 – 2013 Increased Academic Scholarship

2012 – 2013 Computer science center Scholarship
2015 – 2016 Rokhlin Scholarship

Languages

Russian **Native speaker**

English **Upper-Intermediate**

Hebrew **Pre-Intermediate**

Spanish **Basic**

Con conversationally fluent

Con conversationally fluent

Basic words and phrases only