

Ayrat Khalimov

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Research Interests

Reactive synthesis: linear & branching logics, bounded synthesis, register automata, parameterized synthesis and verification.

Research Experience

March 2018 – Oct 2018	Post-doc (with O.Kupferman)	Hebrew University, Israel
Jan 2012 – Jan 2018	PhD (with R.Bloem)	Graz University of Technology, Austria

Work Experience

Apr 2011 – Sep 2011	Intern (symb.execution)	Dependable Systems Lab, EPFL, Switzerland
March 2009 – Dec 2010	C# dev (full-time)	Consult Invest, Moscow, Russia
Aug 2007 – Aug 2008	C++ dev (part-time)	CellTroy Technologies, Moscow, Russia
Aug 2006 – Aug 2007	Java dev (part-time)	Institute of Precision Mechanics, Moscow, Russia

Education

July 2007 – July 2009	Master	Moscow Institute of Physics and Technology, Russia
Sep 2003 – July 2007	Bachelor	Moscow Institute of Physics and Technology, Russia
Sep 1993 – Sep 2003	Scholar	Schools 73 and 68, physics classes, Ulyanovsk, Russia

Community Service

- Sub-reviewer for CAV'12, FMCAD'12, CAV'13, FMCAD'13, FoSSaCS'13, Acta'14, CAV'15, CONCUR'15, CAV'16, AAMAS'16, IPL'16, ICTCS'17, SAS'17, DATE'17, VMCAI'17, FMCAD'17, ATVA'18, CAV'18, FMCS'18, TCS'18
- Co-organizer of RiSE workshop <http://arise.or.at/rise-workshop-2016/>

Teaching

- Co-lecturing semester course “Selected Topics in Design and Verification” in 2013–2017.
- Co-tutoring semester course “Verification and Testing” in 2013–2017.

Software

All the tools are available at <https://github.com/5nizza/>

- PARTY: synthesizer from LTL and CTL* (winner at SYNTCOMP'17)
- SDF: synthesizer from AIGER format

Publications

Ayrat Khalimov, Benedikt Maderbacker, and Roderick Bloem. **Bounded Synthesis of Register Transducers**. In *ATVA*. 2018.

Ayrat Khalimov. *Reactive synthesis: branching logic & parameterized systems*. PhD dissertation, Graz University of Technology, 2018.

P. Klampfl, R. Koenighofer, R. Bloem, A. Khalimov, A. Abu-Yonis, and S. Moran. **OpenSEA: Semi-Formal Methods for Soft Error Analysis**. *ArXiv e-prints*, 2017.

Roderick Bloem, Sven Schewe, and Ayrat Khalimov. **CTL* Synthesis via LTL Synthesis**. In *SYNT Workshop*. EPTCS, 2017.

Ayrat Khalimov and Roderick Bloem. **Bounded Synthesis for Streett, Rabin, and CTL***. In *Computer Aided Verification - 29th International Conference, CAV 2017, Heidelberg, Germany, July 24-28, 2017, Proceedings, Part II*, pages 333–352, 2017.

Roderick Bloem, Swen Jacobs, Ayrat Khalimov, Igor Konnov, Sasha Rubin, Helmut Veith, and Josef Widder. **Decidability in Parameterized Verification**. *SIGACT News*, 47(2):53–64, 2016.

Simon Außerlechner, Swen Jacobs, and Ayrat Khalimov. **Tight Cutoffs for Guarded Protocols with Fairness**. In *Verification, Model Checking, and Abstract Interpretation - 17th International Conference, VMCAI 2016, St. Petersburg, FL, USA, January 17-19, 2016. Proceedings*, pages 476–494, 2016.

Roderick Bloem, Swen Jacobs, Ayrat Khalimov, Igor Konnov, Sasha Rubin, Helmut Veith, and Josef Widder. *Decidability of Parameterized Verification*. Synthesis Lectures on Distributed Computing Theory. Morgan & Claypool Publishers, 2015.

Ayrat Khalimov. **Specification Format for Reactive Synthesis Problems**. In *Proceedings Fourth Workshop on Synthesis, SYNT 2015, San Francisco, CA, USA, 18th July 2015.*, pages 112–119, 2015.

Benjamin Aminof, Swen Jacobs, Ayrat Khalimov, and Sasha Rubin. **Parameterized Model Checking of Token-Passing Systems**. In *Verification, Model Checking, and Abstract Interpretation - 15th International Conference, VMCAI 2014, San Diego, CA, USA, January 19-21, 2014, Proceedings*, pages 262–281, 2014.

Roderick Bloem, Swen Jacobs, and Ayrat Khalimov. **Parameterized Synthesis Case Study: AMBA AHB**. In *Proceedings 3rd Workshop on Synthesis, SYNT 2014, Vienna, Austria, July 23-24, 2014.*, pages 68–83, 2014.

Ayrat Khalimov, Swen Jacobs, and Roderick Bloem. **PARTY Parameterized Synthesis of Token Rings**. In *Computer Aided Verification - 25th International Conference, CAV 2013, Saint Petersburg, Russia, July 13-19, 2013. Proceedings*, pages 928–933, 2013.

Ayrat Khalimov, Swen Jacobs, and Roderick Bloem. **Towards Efficient Parameterized Synthesis**. In *Verification, Model Checking, and Abstract Interpretation, 14th International Conference, VMCAI 2013, Rome, Italy, January 20-22, 2013. Proceedings*, pages 108–127, 2013.