

Aliaksei M. Tsitovich

CONTACT INFORMATION

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PROFESSIONAL EXPERIENCE

University of Lugano (Università della Svizzera italiana), Lugano, Switzerland

Research Assistant

November 2006 – present

The focus of my Ph.D. research was on the development of techniques for software verification. With the help of formal methods I was tackling the problems of program termination and correctness of memory operations in string-manipulating ANSI-C programs.

I am also involved with the development of the open-source Satisfiability Modulo Theories solver — OPENSMT, C++-based framework for the state-of-the-art experiments in the field of decision procedures.

Research Interests: software verification and validation, static analysis, model checking, decision procedures, SMT-solving, information security, software protection.

Teaching Assistant:

- Computer Aided Verification, Fall 2009
- Information Security and Privacy, Spring 2009
- Verification and Validation, Fall 2007 – Spring 2008, Spring 2009, Spring 2010
- Software Verification and Security, Fall 2007
- Automata and Formal Languages, Spring 2007
- Theory of Computation, Fall 2006

ATUS AG, Neerach, Switzerland

Software Developer

January 2005 – September 2006

As a part of internship, carried out several projects in a field of financial software, developed the module to connect PowerBuilder-based “Obolus” asset accounting software with Microsoft Office.

Altoros Systems, Minsk, Belarus

Software Developer and Team Leader

June 2004 – January 2005

Worked on a number of web-projects as a ASP/PHP-developer and as a team leader.

JUKOLA-INFO, Minsk, Belarus

Software Developer and Team Leader

June 2000 – June 2003

Worked in a development team, carried out and led a number of web-applications and web-sites.

EDUCATION

University of Lugano, Switzerland

Ph.D., Computer Science, February 2011

- Dissertation Topic: “Scalable Abstractions for Efficient Security Checks”
- Adviser: Prof. Natasha Sharygina

Belarusian State University of Informatics and Radioelectronics, Minsk, Belarus

MSc., Computer Science, September 2005

Belarusian State University, Minsk, Belarus

Diploma in Applied Mathematics and Informatics, June 2004

Diploma in Economics, July 2004

PUBLICATIONS

- Tsitovich, A., Sharygina, N., Wintersteiger, C.M., Kroening, D.: *Loop Summarization and Termination Analysis*. International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS), Saarbrücken, Germany, 2011.
- Sharygina, N., Tonetta, S., Tsitovich, A.: *An abstraction refinement approach combining precise and approximated techniques*. International Journal on Software Tools for Technology Transfer (STTT), Springer, 2011 (in press).
- Bruttomesso, R., Rollini, S.F., Sharygina, N., Tsitovich, A.: *Flexible Interpolation with Local Proof Transformations*. International Conference of Computer Aided Design (ICCAD), San Jose, USA, 2010.
- Kroening, D., Sharygina, N., Tsitovich, A., Wintersteiger, C.M.: *Termination Analysis with Compositional Transition Invariants*. International Conference on Computer-Aided Verification (CAV), Edinburgh, UK, 2010.
- Bruttomesso, R., Pek, E., Sharygina, N., Tsitovich, A.: *The OpenSMT solver*. International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS), Paphos, Cyprus, 2010.
- Kroening, D., Sharygina, N., Tonetta, S., Tsitovich, A., Wintersteiger, C.M.: *Loopfrog: A Static Analyzer for ANSI-C Programs*. IEEE/ACM International Conference on Automated Software Engineering, Auckland, New Zealand, 2009.
- Sharygina, N., Tonetta, S., Tsitovich, A.: *The Synergy of Precise and Fast Abstractions for Program Verification*. Annual ACM Symposium on Applied Computing (ACM SAC), Honolulu, USA, 2009.
- Tsitovich, A.: *Detection of Security Vulnerabilities using Guided Model Checking (extended abstract)*. International Conference on Logic Programming (ICLP), Udine, Italy, 2008.
- Kroening, D., Sharygina, N., Tonetta, S., Tsitovich, A., Wintersteiger, C.M.: *Loop Summarization Using Abstract Transformers*. International Symposium on Automated Technology for Verification and Analysis (ATVA), Seoul, South Korea, 2008.
- Tsitovich A.: *Control-flow Obfuscation Complexity Metrics Based on Graph Cyclomatic Complexity*. Belarusian Engineering Academy Proceedings, 2005 #2(20)1, pp.40–42 (in Russian).
- Tsitovich A.: *Methods of Software Protection Based on Modern Obfuscation Technologies*. Collection of materials of 61st student scientific workshop of BSU, 17–20 of May 2004, in 3 parts, part 1, p. 212 (in Russian).

OTHER

- Languages: English – fluent, German and Italian – basic, Russian/Belarusian – mother-tongue.
- Other languages: C/C++, C#, VB.NET, VB, variety of database- and web-oriented technologies.
- Open-source projects: The OPENSMT solver.
- Main hobby: sport orienteering (member of CO AGET Lugano and OK BSU).