Aliaksei M. Tsitovich, Ph.D. **+4176 424 85 20 / aliaksei.tsitovich@gmail.com**

Professional Experience

Sonova AG, Stäfa, Switzerland

Tech Lead eSolutions **May 2017 – present**

The new role followed naturally from the previous "startup team", which grew along the management decision to deliver "digital journey" as a full-scale product. In the new unit I help more than 20 developers by acting primarily in system architect and business analyst roles, albeit keeping coding myself whenever possible. .NET Core became our main stack for backend, TypeScript-based Angular is a primary tool for frontend.

Tech Lead Digital Health **July 2014 – April 2017**

I moved from the fitting software team to a newly created small team within Sonova, Phonak's parent company. The goal of this startup-like formation was to explore, build and trial "digital health journey" for a novice hearing aid user. In this setup I acted as a full-stack developer and as a tech lead by coding myself and helping others to code. On the technical side, we used Angular to build UX-appealing Single Page Applications, Cordova and Xamarin – to develop mobile apps, and .NET/C# to support all those with REST and Socket-based APIs. We carefully split functionality in microservices and employed variety of Azure managed services to organize hosting and data interplay: Azure Web Apps, Azure ServiceBus, Azure DocumentDB, Azure SQL Server, Azure Redis. The team did grow from 4 to 10 people in this period.

Phonak AG, Stäfa, Switzerland

Software Engineer in Test **December 2011 – June 2014**

Straight from Ph.D. graduation I joined verification team of the fitting software unit of the world leading manufacturer of hearing aids. I built tools to notice and visualize regressions in Class II medical software – Phonak Target. The latter is a several millions lines of code .NET/WPF application, to which I was adding my C# code. I also ensured that TeamCity-based continuous integration for the project notifies all the developers about regressions in a timely and clear manner.

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

Research Assistant **November 2006 – October 2011**

The focus of my Ph.D. research was on the development of techniques for software verification and static analysis. 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 was also involved with the development of the open-source Satisfiability Modulo Theories solver — OpenSMT, C++-based framework for the state-of-the-art experiments with decision procedures.

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

Teaching Assistant for Courses: Information Security and Privacy, Computer-Aided Verification, Automata and Formal Languages, Verification and Validation, Software Atelier IV (Scala/Lift), Software Verification and Security, Theory of Computation.

ATUS AG, Neerach, Switzerland

Software Developer **January 2005 – September 2006**

My focus during post-Master internship at ATUS was on connecting PowerBuilder-based "Obolus" asset accounting software with Microsoft Office. As result I learned a lot about marshaling data to/from .NET framework.

Altoros Systems, Minsk, Belarus

Software Developer and Team Leader **June 2004 – January 2005**

I worked on several web-projects as a ASP/PHP-developer as well as a development team leader (team size ≤ 5).

JUKOLA-INFO, Minsk, Belarus
Software Developer **June 2000 – June 2003**
In parallel with university courses, I worked in a small web-development team. I coded a lot in ASP(VB), JS and SQL, as well as gained initial experience in leading multi-person projects.

Education

University of Lugano, Switzerland

Ph.D., Computer Science, September 2011

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

Belarusian State University of Informatics and Radioelectronics, Minsk, Belarus

M.Sc., Computer Science, September 2005

Belarusian State University, Minsk, Belarus

Diploma in Applied Mathematics and Informatics, June 2004
Diploma in Economics, July 2004

Publications

- Kroening, D., Sharygina, N., Tonetta, S., Tsitovich, A., Wintersteiger, C.M.: *Loop Summarization using State and Transition Invariants.* Formal Methods in System Design (FMSD), Journal, Volume 42, issue 3, Springer, 2013.
- 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, 2012.
- Tsitovich, A.: *Scalable Abstractions for Efficient Security Checks, Ph.D. Thesis*, Faculty of Informatics, University of Lugano, 2011.
- 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.
- 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.

Other

- Languages: English – fluent, German and Italian – basic, Russian/Belarusian – mother-tongue.
- Other languages: C#, C++, JS (I prefer Angular+TypeScript), variety of database technologies.
- Open-source projects: The OpenSMT solver.
- Main hobby: sport orienteering (member of CO AGET Lugano and OLG Stäfa).