Ivan Švogor, PhD

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Education and research

Montreal Polytechnic, Montreal, QC, Canada

- Postdoctoral fellowship at Montreal Polytechnic, Canada, January 2017 (1 year contract)

University of Zagreb, Croatia

- Ph.D. Information and Software Engineering, April 2016

    Thesis: *A framework for allocation of software components onto a heterogeneous computing systems*

    Advisers: Neven Vrček, University of Zagreb, Croatia and Ivica Crnković, Chalmers University of Technology, Sweden.
- M.A. Information and Software Engineer (*Cum Laude*), July 2010

    Thesis: *Software Development for Robot Platforms*
- B.A. Information Systems (*Cum Laude*), July 2008

Mälardalen University, Sweden

- External PhD Student

    Project: Ralf3 – Software for Embedded High Performance Architectures, 2012 – 2014

Employment history

- 2017 (January) – today: Postdoctoral Researcher, Montreal Polytechnic, QC, Canada, January 2017
- 2012 - 2014: Researcher, Malardalen University, Sweden (1 year research scholarship on a project RALF3).
- 2011 - 2016: Teaching/research assistant, PhD student, Faculty of Organization and Informatics, University of Zagreb, Croatia
- 2010 - 2011: Software Developer at Center for Information Systems development, University of Zagreb, Croatia

References (and recommendations from)

dr. Ivica Crnkovic, professor
Software Engineering Division,
Computer Science and Engineering
Chalmers University of Technology, Sweden
E: ivica.crnkovic@chalmers.se

dr. Lars Asplund,
CEO at Robyn Robotics AB, Sweden
Chairman of the Unibap, AB, Sweden
Malardalen University, Sweden, Professor Emeritus
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dr. Mikael Ekström, assoc. professor
Division of Intelligent Future Technologies,
Malardalen University, Sweden
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Publications

[1] I. Švogor, I. Crnković, N. Vrček. An Extended Model for Multi-Criteria Software Component Allocation on a Heterogeneous Embedded Platform. *Journal of Computing and Information Technology*, 21(4):211–222, 2013.

[2] I. Švogor. An initial performance review of software components for a heterogeneous computing platform. *ECSAW '15 Proceedings of the 2015 European Conference on Software Architecture Workshops*, ACM, 2015.

[3] I. Švogor; J. Carlson. SCALL: Software Component Allocator for Heterogeneous Embedded Systems. *ECSAW '15 Proceedings of the 2015 European Conference on Software Architecture Workshops*, ACM, 2015.

[4] I. Švogor, I. Crnković, N. Vrček. Multi–Criteria Software Component Allocation on a Heterogeneous Platform. *Proceedings of the ITI 2013 35th International Conference on Information Technology Interfaces*, IEEE Region 8, 2013.

[5] N. Vrček, I. Švogor, P. Vondra. Social Network Analysis and Software Evolution: A Perspective Method for Software Architecture Analysis? *Proceedings of the ITI 2013 35th International Conference on Information Technology Interfaces*, IEEE Region 8, 2013. t

[6] I. Švogor, T. Kišasondi. Two Factor Authentication using EEG Augmented Passwords. *Proceedings of the ITI 2012 34th International Conference on Information Technology Interfaces*, IEEE Region 8, 2012.

Awards & Honours

Awards
- University of Zagreb Rectors Award, 2009
- Faculty of Organization and Informatics Deans Award, 2009, 2010
- Best student mentorship award at Faculty of Organization and Informatics, 2015
- Best cooperation between Academy and Community Award, Croatian Ministry of Internal Affairs, 2015

Scholarships
- Croatian Ministry of Science Education and Sport, Research Assistant position (2011 – 2017)
- Malardalen University Sweden, Ralf3 Project – External Researcher Scholarship (2012 – 2014)

Competitions
- Microsoft Imagine Cup Finals, Cairo, Egypt 2009, Prize for best mobile app
- AUVSI RoboSub Autonomous Underwater Robot Challenge, San Diego, CA, USA, 2013, 2014, Semifinal entry (responsible for visual servoing and software architecture).

Professional Certificates
- Coursera course – University of Pennsylvania: Areal robotics, 2016
- Microsoft Certified Professional, TS:505, 2010

Teaching and professional experience

University of Zagreb, Croatia

- Software Engineering – *Laboratory instructor (and a coauthor lab. text materials)*: late undergraduate course focusing introduction to software engineering. The students are thought the theory of software development cycle and are required to develop a software product. In teams of three students, they are required to create a UML specification and database design, and along with the project and technical documentation deliver the software product in `C#`.
- Software Analysis and Design – *Laboratory instructor (and a coauthor lab. text and wiki materials)*: early masters study course focusing on software architecture of a software product with emphasis on software reusability and maintainability. Students are required do develop a mobile application, and deliver the full documentation (including documenting code, the project, the SCRUM procedure and GIT). The platform of choice is Android.

Professional / technical experience

- Experienced in C# for Windows desktop development
- Experienced in Java development, specifically for Android (including popular libs., e.g. Retrofit, ActiveAndroid, GSON, etc.) and Linux.
- Some experience with embedded development in C, C++ and Ada (Arduino multitasking libraries and PID control).
- Some experience with OpenCV (for object detection and visual servoing), OpenCL (for GPU development).
- Some experience in robotics (for Ph.D. thesis, custom mechanics, electronics and software was made), ROS, simulators (ARGoS) and swarms (worked with Buzz programming language for swarms).
- Limited experience with Python, Mathematica and Minitab (mainly for data analysis, visualization and scientific calculations).

Projects

Montreal Polytechnic, QC, Canada

- Software Ecosystem for Swarm Robotics

Mälardalen University, Sweden

- RALF3: Software for Embedded High Performance Architecture, funded by the Swedish Foundation for Strategic Research. (2012 – 2014)

University of Zagreb, Croatia

Scientific projects:

- Interoperability of information infrastructure, Croatian Ministry of Science (2011 - 2013)
- SiS Catalyst, FP7 (2010-2011)
- *Frequent participation on teams for project applications (most successful is positively evaluated, but unfortunately unfunded Horizon2020 project, between Chalmers University, Faculty of organization and informatics and L'Aquila University – Twinning in Software Engineering Research, Twister.)*

Professional and short term projects:

- Inhouse (Facutly of Organization and Informatics) projects: (software development, web development, participation on a strategic development committee, committee for quality, etc.).
- Scientific popularization: StratoberryPi (successful launch of RaspberryPi to stratosphere: https://youtu.be/QrZyqJ67FdM), FO1 (phone from off–the–shelf components), etc.
- Community outreach: Bicycle registration system development with Croatian Ministry of Internal Affairs and the Town of Varaždin, high-school Android development textbook coauthor through Heureka, an EU funded project, etc.
- TiWo: from scratch development of a tracked robot with a heterogeneous computing platform (CPU, GPU, FPGA) and a component based software architecture (University funded support for PhD students).

Personal

Research interests

- Software Architecture
- Cyber–Physical Systems
- Software for Autonomous Systems (areal and underwater – software algorithms for control and kinematics)

Languages

- Croatian, native language
- English, proficient user
- German, basic user