

Milena Vujošević Janičić

Curriculum Vitae

Milena Vujošević Janičić

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1 EDUCATION

2008–2013 PHD IN COMPUTER SCIENCE at the Department of Computer Science, Faculty of Mathematics, University of Belgrade. PhD thesis „Automated generation and checking of verification conditions” under supervision of prof. Dušan Tošić and in collaboration with prof. Viktor Kuncak, EPFL (Switzerland).

2005–2008 MSc IN COMPUTER SCIENCE at the Department of Computer Science, Faculty of Mathematics, University of Belgrade. Master thesis ”Automated Detection of Buffer Overflows in Programming Language C”, under supervision of prof. Dušan Tošić. Grade point average 10.00 (out of 10.00).

1999–2004 BACHELOR OF COMPUTER SCIENCE at the Department of Computer Science, Faculty of Mathematics, University of Belgrade. Grade point average 9.86 (out of 10.00).

AWARDS DURING STUDIES

2004 Faculty of Mathematics Award for outstanding results.

2000/01–2003/04 Scholarship ”Support for Youth in Sciences Foundation of the Republic of Serbia”.

2003 ”Royal Home Of Karađorđević” scholarship as one of the top 101 students in Serbia, Montenegro and Republic of Srpska.

2002 Norwegian government Scholarship as one of the top 500 students in Serbia.

2001/2002 Scholarship of the Government of Republic of Serbia.

1995–1999 MATHEMATICAL GYMNASIUM, Belgrade. Grade point average 5.00 (out of 5.00), ”Vuk Karadžić” award.

2 POSITIONS

2020– **ASSOCIATE PROFESSOR** at the Department of Computer Science, Faculty of Mathematics, University of Belgrade.

2015–2020 **ASSISTANT PROFESSOR** at the Department of Computer Science, Faculty of Mathematics, University of Belgrade.

COURSES:

2020 – „Compilers”

2018 – „Software verification”

2015 – „Programming paradigms”

2015 – „Design of Programming Languages”

2015 – „Research Methods and Professional Skills”

2017 – 2018 „Technical and scientific writing”

2015 – 2017 „Introduction to Programming 1 (Programming language C)”

2015 – 2016 „Introduction to Programming 2 (Programming language C)”

Coordinating technical courses:

2020 Programming language P4 (Syrmia)

2016 – 2019 Testing in software development (Zuehlke)

2016 – 2019 Andorid (RT-RK)

2015 Linux (RT-RK)

2004–2014 **TEACHING ASSISTANT** at the Department of Computer Science, Faculty of Mathematics, University of Belgrade. Courses:

- Computer Architecture and Operating Systems
- Introduction to Computer Architecture
- Computer Networks
- Introduction to Computer Systems
- Object oriented programming (Programming language C++)
- Introduction to Programming 2 (Programming language C)
- Introduction to Programming 1 (Programming language C)

ADDITIONAL ACTIVITIES AND PART TIME JOBS

2020 – 2021 IT consultancy for Syrmia. Part-time. Compiler tech lead.

2015 – 2020 IT consultancy for RT-RK, LLVM related projects. Part-time. Compiler tech lead.

2020 Reviewer of Serbian edition of *Refactoring: Improving the Design of Existing Code*, (2nd edition), by Martin Fowler.

2019 – Member of admissions committee for master studies

2017 – 2019 Jury member at the programming competition *MatHackathon*

2017 Coauthor of a program for professional development of teachers ”Teaching programming in schools” of public interest based on the decision of the Ministry of Education, Science and Technological Development.

2016 Reviewer of a textbook for Informatics in high schools

2015 – 2016 Industry Relations Coordinator, Faculty of Mathematics, University of Belgrade.

2004 – Participation in numerous activities of the Faculty of Mathematics in promoting mathematics, informatics and computer science.

2006 Leading Teams of the Faculty of Mathematics at the ACM Regional Programming Competition for Southeastern European Students (Bucharest, Romania).

3 TEACHING ACTIVITIES

TEACHING MATERIALS

BOOKS (in Serbian only)

1. PROGRAMIRANJE 1 — ZBIRKA ZADATAKA SA REŠENJIMA.
Izdavač: Matematički fakultet. ISBN: 78-86-7589-107-9 (474. strane), Beograd 2019.
AUTHORS: Milena Vujošević Janičić, Jovana Kovačević, Danijela Simić, Anđelka Zečević, Aleksandra Kocić.
2. PROGRAMIRANJE 2 — ZBIRKA ZADATAKA SA REŠENJIMA.
Izdavač: Matematički fakultet. ISBN: 978-86-7589-139-0 (361. strana), Beograd 2016.
AUTHORS: Milena Vujošević Janičić, Jelena Graovac, Nina Radojičić, Ana Spasić, Mirko Spasić, Anđelka Zečević.

Electronic notes (available from the following web pages, in Serbian only):

1. Programming paradigms
<http://www.programskijezici.matf.bg.ac.rs/ProgramskeParadigmeR.html>
<http://www.programskijezici.matf.bg.ac.rs/ProgramskeParadigmeI.html>
2. Design of programming languages
<http://www.programskijezici.matf.bg.ac.rs/DizajnProgramskihJezika.html>
3. Software verification
<http://www.verifikacijasoftera.matf.bg.ac.rs/>

MENTORING I mentored one PhD thesis and 17 master theses. Master thesis by Branislava Živković was awarded by Mathematical Institute of the Serbian Academy of Sciences and Arts as a best master thesis in computer science in 2017. Master thesis by Ivan Ristović was praised by Mathematical Institute of the Serbian Academy of Sciences and Arts as one of the top best master thesis in computer science in 2020.

All theses are available from the following address (in Serbian only):

<http://www.matf.bg.ac.rs/~milena/master.htm>.

PHD THESES:

1. Mirko Spasić. *Modelling of query languages and applications in code refactoring and code optimization*. March 23, 2021.

MASTER THESES:

1. Miloš Samardžija. *A microservice based application for Android with the Lumen framework*. September 21, 2021.
2. Lazar Mladenović. *Automated bug-fixing of bugs detected by Memcheck tool*. December 30, 2020.
3. Strahinja Stanojević. *Extending symbolic execution tool KLEE with a new search algorithm*. September 23, 2020.
4. Ivan Ristović. *Language independent checking of semantic equivalence of structurally similar segments of code*. July 03, 2020
5. Milena Dukanac. *Advantages of the programming language Elixir in genome sequencing algorithms*. September 25, 2019.
6. Đorđe Todorović. *Support for advanced analysis of TLS (thread local storage) variables within GNU GDB*. June 17, 2019.
7. Marina Nikolić. *Collection and presentation of profiling data*. June 4, 2019.
8. Nikola Vidič. *Machine learning in software verification*. February 8, 2019.
9. Ana Mitrović. *Parallelisation of fuzz testing within programming language Scala*. February 8, 2019.

10. Đorđe Milićević. *Implementation of the programming language aKcent for programming ATmega328P micro-controller within LLVM infrastructure*. September 28, 2018.
11. Nenad Lazić. *Remote control of robot from an Android device*. September 17, 2018.
12. Ana Đorđević. *Automated test case generation by static code analysis and Z3 solver*. Jun 13, 2018.
13. Miloš Mitrović. *Concurrency in the programming language Go*. January 31, 2018.
14. Nikola Prica. *Support for software profiling on embedded devices*. January 30, 2018.
15. Aleksandra Karadžić. *Valgrind – implementation of FPXX convention for MIPS architecture*. January 30, 2018.
16. Branislava Živković. *Parallelisation of static software analysis*. September 22, 2017.
17. Stefana Cerovina. *Virtual machine Dartino – implementation of an interpreter for MIPS architecture*. October 27, 2016.

4 RESEARCH INTERESTS

- Software Analysis and Verification, Compilers, Automated Bug Finding
- Semantics of programming languages

5 NATIONAL AND INTERNATIONAL SCIENTIFIC PROJECTS

- 2020** – COST Action CA19122 „European Network for Gender Balance in Informatics – EUGAIN”
- 2016** – **2020** COST Action CA15123 „The European research network on types for programming and verification (EUTypes)“
- 2010** – **2019** Ministry of Education, Science and Technological Development of Serbia, 174021 ”Automated Reasoning and Data Mining”
- 2010** – **2013** Swiss fund SNF’s SCOPES grant IZ73Z0_127979 “Decision Procedures: from Formalizations to Applications”
- 2009** – **2013** COST Action IC0901 „Rich-Model Toolkit - An Infrastructure for Reliable Computer Systems“
- 2006** – **2010** Ministry of Science of Serbia, 144030 ”Automated Reasoning and Advanced Processing of Huge Amounts of Data and Text”
- 2005** Ministry of Science of Serbia, project no. 1858.

6 SELECTED PUBLICATIONS

JOURNAL PAPERS

1. Mirko Spasić, Milena Vujošević Janičić. Verification supported refactoring of embedded SQL. *Software Quality Journal* (2020). Springer. DOI: <https://doi.org/10.1007/s11219-020-09517-y>. Category: M22
2. Milena Vujošević Janičić. Concurrent Bug Finding Based on Bounded Model Checking. *International Journal of Software Engineering and Knowledge Engineering*. Vol. 30, No. 05, pp. 669-694 (2020). DOI: <https://doi.org/10.1142/S0218194020500242>. Category: M23

3. Milena Vujošević Janičić, Filip Marić. Regression Verification for Automated Evaluation of Students Programs. *Computer Science and Information Systems*. 17(1): 205-227 (2020). DOI: <https://doi.org/10.2298/CSIS181220019V>
Category: M23
4. Dusan Vujošević, Ivana Kovačević, Milena Vujošević Janičić. The learnability of the dimensional view of data and what to do with it. *Aslib J. Inf. Manag.* 71(1): 38-53 (2018) DOI: <https://doi.org/10.1108/AJIM-05-2018-0125>
Category: M22
5. Đorđe Pešić, Marko Mišić, Jelica Protić, Milena Vujošević Janičić. Prototype Implementation of Segment Assembling Software. *Serbian Journal of Electrical Engineering*, Vol. 15, No. 1, Feb. 2018. DOI: <https://doi.org/10.2298/SJEE1801071P>
Category: M24
6. Milena Vujošević Janičić. Regression Verification Using the LAV System. *InfoM*, no 49, March 2014.
Category: M52
7. Milena Vujošević Janičić, Mladen Nikolić, Dušan Tošić, Viktor Kuncak. Software Verification and Graph Similarity for Automated Evaluation of Students' Assignments. *Information and Software Technology*, Volume 55, Issue 6, Pages 1004–1016. Elsevier, 2013. doi: <http://dx.doi.org/10.1016/j.infsof.2012.12.005>
Category: M21
8. Milena Vujošević Janičić, Filip Marić, Dušan Tošić. Using Simplex Method in Verifying Software Safety. *Yugoslav Journal of Operations Research*, Volume 19, no 1. June, 2009.
Category: M24
9. Milena Vujošević Janičić, Dušan Tošić. The Role of Programming Paradigms in the First Programming Courses. *The Teaching of Mathematics*. Issue XI_2, pages 63–83, 2008.
Category: M53
10. Milena Vujošević Janičić, Jelena Tomašević, Predrag Janičić. Random k-GD-SAT Model and its Phase Transition. *Journal of Universal Computer Science*. Volume 13, Issue 4, pages 572 – 591. April, 2007.
Category: M23
11. M. Živković, S. Malkov, S. Zarić, M. V. Janičić, J. Tomašević, G. Predović, N. Blažić, M. V. Beljanski. Statistical Dependence of Protein Secondary Structure on Amino Acid Bigrams. *Chemical Industry & Chemical Engineering Quarterly*, Volume 12, Issue 1, 82 – 85, 2006.
Category: M24

CHAPTER IN A BOOK

1. Pedro Quaresma, Predrag Janičić, Jelena Tomašević, Milena Vujošević Janičić, Dušan Tošić. XML-based Format for Geometry — XML-based Format for Descriptions of Geometrical Constructions and Geometrical Proofs. *Chapter in Communicating Mathematics in Digital Era*, edited by. J. M. Borwein, E. M. Rocha and J. F. Rodrigues, pages 183 – 197, 2008.
Category: M14

CONFERENCE PAPERS

1. Milena Vujošević Janičić. Modern software verification techniques and their applications. Proceedings of the 13th international conference ITeO 2021, Banja Luka, Republika Srpska. KEYNOTE LECTURE
2. Mirko Spasić, Milena Vujošević Janičić, SpeCS — SPARQL Query Containment Solver, 2020 Zooming Innovation in Consumer Technologies Conference (ZINC), Novi Sad, Serbia, 2020, pp. 31-35, DOI: <https://doi.org/10.1109/ZINC50678.2020.9161435>.

3. Dorđe Milićević, Mirko Brkušanin, Milena Vujošević Janičić, Teodora Novković, Petar Jovanović. Extending Clang to support standard MISRA/AUTOSAR. (Ic)Etran 2019. pages RT2.1.1-6. Best paper award.
4. Dorđe Pešić, Jelica Protić, Milena Vujošević Janičić, Marko Mišić. Ispitivanje kvaliteta softverski generisanih segmenata u oblasti vremenske složenosti algoritama za automatizovano sastavljanje ispita. XXV Skup Trendovi razvoja: "Kvalitet visokog obrazovanja". Trend 2019.
5. Mirko Spasić and Milena Vujošević Janičić. First steps towards proving functional equivalence of embedded SQL. 24th International Conference on Types for Proofs and Programs, TYPES 2018.
6. Petar Avramović, Milena Vujošević Janičić, Gordana Cmiljanović and Marija Antić. Adding support for global instruction selection pass for MIPS32 architecture in LLVM. (Ic)ETTRAN 2018. Pages 1106–1111. Jun 2018.
7. Djordje Pešić, Marko Mišić, Jelica Protić, Milena Vujošević Janičić. System for segment assembling with predefined time complexity. Etran 2017. pages RT3.1.1-6. Best paper award (in category of young researchers).
8. Branislava Živković and Milena Vujošević Janičić. Parallelization of Software Verification Tool LAV. TYPES 2017.
9. Milena Vujošević Janičić. Modelling Program Behaviour within Software Verification Tool LAV TTT 2017 (within POPL 2017).
10. Milena Vujošević Janičić. System LAV and Automated Evaluation of Students' Programs, *Dagstuhl Reports*, Volume 4, Issue 8, 2014.
11. Milena Vujošević Janičić, Viktor Kuncak. Development and Evaluation of LAV: an SMT-Based Error Finding Platform. *Proceedings of Verified Software: Theories, Tools, Experiments*. January 28–29, 2012. Philadelphia, USA. Lecture Notes in Computer Science, Volume 7152, Springer 2012.
12. Milena Vujošević Janičić. Ensuring Safe Usage of Buffers in Programming Language C. *Proceedings of ICSOFT 2008 — Third International Conference on Software and Data Technologies*. Volume PL/DPS/KE, pages 29–36. Porto, Portugal. July 5–8, 2008.
13. Milena Vujošević Janičić, Jelena Tomašević. Phase Transition In Random SAT Problems. In proceedings of SYMOPIS, pages 305–308. Banja Koviljača, Serbia. October 3–6, 2006.
14. Jelena Tomašević, Milena Vujošević Janičić. TemidaLib — Multiprecision Arithmetic Library. In proceedings of SYMOPIS, pages 301–304. Banja Koviljača, Serbia. October 3–6, 2006.
15. Tibor Bakota, Aleksandra Rakić, Milena Vujošević Janičić, Zoran Perić, Marko Miladinović, Wojciech Okrasinski. Lake Fish Harvesting Model. *Proceedings of the Modelling Week*, pages 11–18, Novi Sad, Serbia. June 30 — July 6, 2005.

7 CONFERENCES, SEMINARS, SCIENTIFIC AND PROFESSIONAL DEVELOPMENT

PROGRAM COMMITTEE MEMBER

2017, 2018, 2019, 2020, 2021 Zooming Innovation in Consumer Electronics International Conference (IEEE).

<https://www.gozinc.org/>

2016, 2017, 2018 Belgrade Test Conference <https://bg-testconference.rs/>

EDITORIAL BOARD MEMBER

2021 — Journal of Information Technology and Applications, www.jita-au.com

TALKS AT CONFERENCES AND WORKSHOPS (WITHOUT PROCEEDINGS)

1. Milena Vujošević Janičić. 2020 LLVM Developers' Meeting. Extending Clang for Checking Compliance With Automotive Coding Standards. October 8, 2020.
2. Milena Vujošević Janičić. A calculus for a LLVM-based software verification tool LAV. EUTypes meeting, Nijmegen, Netherlands, January 22-24, 2018.
3. Milena Vujošević Janičić. Testing as a way of thinking. Belgrade test conference. November 9-10, 2018. Belgrade, Serbia. INVITED LECTURE.
4. Milena Vujošević Janičić. Modern approaches to software verification. *ENTER: ACM Celebration of Women in Computing*, April 25, 2017. Belgrade, Serbia. INVITED LECTURE.
5. Milena Vujošević Janičić. Importance of Software Verification and Testing QA meet up. November 28, 2017. Belgrade, Serbia. INVITED LECTURE.
6. Panel discussion. Belgrade Test Conference, Belgrade, Serbia, 2017.
7. Progress in Decision Procedures: From Formalizations to Applications. System LAV and its Applications. March 30, 2013, Belgrade, Serbia.
8. Fifth Workshop on Formal and Automated Theorem Proving and Applications. Automated Evaluation of Students' Programs: Testing, Verification and Similarity. February 3-4, 2012, Belgrade, Serbia.
9. Fourth Workshop on Formal and Automated Theorem Proving and Applications. A New Verification Tool: From LLVM Code to SMT Formulae, Belgrade, February 4-5, 2011.
10. Second Workshop on Formal and Automated Theorem Proving and Applications. Using SMT Solver in Detection of Buffer Overflow Bugs, Belgrade, January 30 - January 31, 2009.

CONFERENCES AND WORKSHOPS

1. Zooming Innovation in Consumer Electronics International Conference, May 2020 (IEEE).
2. Heapcon. Belgrade, Serbia. September 26-27, 2019.
3. Zooming Innovation in Consumer Electronics International Conference, May 2018 (IEEE). Chairing the session: *Software Safety and Security*.
4. TYPES 2018. Braga, Portugal, June 18-21, 2018.
5. Heapcon. Belgrade, Serbia. October 18-19, 2018.
6. TYPES 2017. Budapest, Hungary, 29 May - 1 June 2017.
7. Zooming Innovation in Consumer Electronics International Conference, May 2017 (IEEE). Chairing the session: *User Experience & HMI*.
8. Workshop on Syntax and Semantics of Type Theory, February 1-2, 2017.
9. TTT 2017. Paris, France, January 15, 2017.
10. TYPES 2016. Novi Sad, Serbia. May 25-26, 2016.
11. FMCAD 2014. Lausanne, Switzerland. October 21-24, 2014.
12. Next Generation Static Software Analysis Tools, Dagstuhl Seminar 14352, Germany, August 24-29, 2014.
13. Progress in Decision Procedures: From Formalizations to Applications. Belgrade, Serbia. March 30, 2013.
14. Fifth Workshop on Formal and Automated Theorem Proving and Applications. Belgrade, February 3-4, 2012.
15. Verified Software: Theories, Tools and Experiments (VSTTE), Philadelphia, USA, January 28-29, 2012.

16. Fourth Workshop on Formal and Automated Theorem Proving and Applications. Belgrade, February 4–5, 2011.
17. Third Workshop on Formal and Automated Theorem Proving and Applications. Belgrade, January 29–30, 2010.
18. Second Workshop on Formal and Automated Theorem Proving and Applications. Belgrade, January 30–31, 2009.
19. Third International Conference on Software and Data Technologies — ICSoft, Porto, Portugal, July 5–8, 2008.
20. First Workshop on Formal Theorem Proving and Applications. Belgrade, January 29 - February 1, 2008.
21. SYMOPIS, Banja Koviljača, October 3–6, 2006.

SEMINAR PRESENTATIONS

1. Mathematics Colloquium, Mathematical Institute of the Serbian Academy of Sciences and Arts, May 25, 2018.
2. Computer Science Seminar at Faculty of Mathematics, September 26, 2013.
3. Computer Science Seminar at Faculty of Mathematics, January 31, 2013.
4. ARGO Seminar, Seminar for Automated Reasoning and Applications, December 8, 2011.
5. ARGO Seminar, Seminar for Automated Reasoning and Applications, December 26, 2007

SUMMER SCHOOLS

1. Third International SAT/SMT Summer School, Espo, Finland. July 3–5, 2013.
2. Winter School on Verification, Vienna, Austria. February 6–10, 2012,
3. Foundations of Information Technologies, Summer school. Novi Sad, June 18–19, 2009.
4. Mathematical Modelling Week, Tempus Project, University of Novi Sad, Serbia. July 1–10, 2005.
5. ICCL Summer School Proof Theory and Automated Theorem Proving and Proof, Computation, Complexity Workshop, Technical University Dresden, Germany. June 13–20, 2004.
6. Six weeks visit to Polytechnical University in Hong Kong (within IAESTE programme). August – September 2002.

RESEARCH VISITS

1. Research visit to EPFL, Lausanne, Switzerland. December, 2011.
2. Eight weeks visit to the Department for Applied Mathematics, Iowa State University, USA. July – August 2000.