

# Milos Gligoric

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Electrical and Computer Engineering

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## RESEARCH INTERESTS

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**Software engineering, formal methods, and systems** with focus on improving software quality and developers' productivity.

## EDUCATION

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- 2009–2015      **Ph.D. in Computer Science**, University of Illinois at Urbana-Champaign (UIUC). Advisor: Prof. Darko Marinov
- 2007–2009      **M.Sc. in Software Engineering**, School of Electrical Engineering, University of Belgrade, Serbia. Advisor: Prof. Dragan Bojic
- 2003–2007      **B.Sc. in Computer Science and Engineering**, School of Electrical Engineering, University of Belgrade, Serbia

## PUBLICATIONS

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### Refereed Journal Articles

- CISESI 2021      [97] Christian Trott, Luc Berger-Vergiat, David Poliakoff, Sivasankaran Rajamanickam, Damien Lebrun-Grandie, Jonathan Madsen, Nader Al Awar, **Milos Gligoric**, Galen Shipman and Geoff Womeldorff: “*The Kokkos EcoSystem: Comprehensive Performance Portability For High Performance Computing*”. *Computing in Science and Engineering*, pages 1–9, November 2021.
- FTPL 2019      [96] Talia Ringer, Karl Palmkog, Ilya Sergey, **Milos Gligoric** and Zachary Tatlock: “*QED at Large: A Survey of Engineering of Formally Verified Software*”. *Foundations and Trends in Programming Languages*, pages 5(2-3):102–281, September 2019.
- ASEJ 2019      [95] Yi Li, Chenguang Zhu, **Milos Gligoric**, Julia Rubin and Marsha Chechik: “*Precise Semantic History Slicing through Dynamic Delta Refinement*”. *Automated Software Engineering Journal*, pages 757–793, September 2019.
- TOSEM 2015      [94] **Milos Gligoric**, Alex Groce, Chaoqiang Zhang, Rohan Sharma, Mohammad Amin Alipour and Darko Marinov: “*Guidelines for Coverage-Based Comparisons of Non-Adequate Test Suites*”. *Transactions on Software Engineering and Methodology*, pages 24(4):22:1–22:33, August 2015.
- STVR 2013      [93] **Milos Gligoric**, Vilas Jagannath, Qingzhou Luo and Darko Marinov: “*Efficient Mutation Testing of Multithreaded Code*”. *Software Testing, Verification and Reliability*, pages 23(5):375–403, August 2013.

### Refereed Conference Papers

- FSE 2024      [92] Zhiqiang Zang, Fu-Yao Yu, Aditya Thimmaiah, August Shi and **Milos Gligoric**: “*Java JIT Testing with Template Extraction*”. *Symposium on the Foundations of Software Engineering*, TO APPEAR, Porto de Galinhas, Brazil, July 2024.
- FSE Demo 2024      [91] Yu Liu, Aditya Thimmaiah, Owolabi Legunsen and **Milos Gligoric**: “*ExLi: An Inline-Test Generation Tool for Java*”. *Symposium on the Foundations of Software Engineering, formal tool demonstrations*, TO APPEAR, Porto de Galinhas, Brazil, July 2024.
- ICSE 2024      [90] Aditya Thimmaiah, Leonidas Lampropoulos, Christopher J. Rossbach and **Milos Gligoric**: “*Object Graph Programming*”. *International Conference on Software Engineering*, TO APPEAR, Lisbon, Portugal, April 2024.

- ICSE Demo 2024 [89] Zhiqiang Zang, Aditya Thimmaiah and **Milos Gligoric**: “*JOG: Java JIT Peephole Optimizations and Tests from Patterns*”. International Conference on Software Engineering, Tool Demonstrations Track, TO APPEAR, Lisbon, Portugal, April 2024.
- FSE 2023 [88] Jiyang Zhang, Pengyu Nie, Junyi Jessie Li and **Milos Gligoric**: “*Multilingual Code Co-evolution using Large Language Models*”. Symposium on the Foundations of Software Engineering, pages 695–707, San Francisco, USA, December 2023.
- ISSTA 2023 [87] Yu Liu, Pengyu Nie, Anna Guo, **Milos Gligoric** and Owolabi Legunsen: “*Extracting Inline Tests from Unit Tests*”. International Symposium on Software Testing and Analysis, pages 1458–1470, Seattle, USA, July 2023.
- ISSTA 2023 [86] Zhiqiang Zang, Aditya Thimmaiah and **Milos Gligoric**: “*Pattern-based Peephole Optimizations with Java JIT Tests*”. International Symposium on Software Testing and Analysis, pages 64–75, Seattle, USA, July 2023.
- ISSTA 2023 [85] Yu Liu, Jiyang Zhang, Pengyu Nie, **Milos Gligoric** and Owolabi Legunsen: “*More Precise Regression Test Selection via Reasoning about Semantics-Modifying Changes*”. International Symposium on Software Testing and Analysis, pages 664–676, Seattle, USA, July 2023. (This paper **won an ACM SIGSOFT Distinguished Paper Award**.)
- ICSE 2023 [84] Pengyu Nie, Rahul Banerjee, Junyi Jessie Li, Raymond J. Mooney and **Milos Gligoric**: “*Learning Deep Semantics for Test Completion*”. International Conference on Software Engineering, pages 2111–2123, Melbourne, Australia, May 2023.
- ICSE Demo 2023 [83] Zhiqiang Zang, Fu-Yao Yu, Nathaniel Wiatrek, **Milos Gligoric** and August Shi: “*JAttack: Java JIT Testing using Template Programs*”. International Conference on Software Engineering, Tool Demonstrations Track, pages 6–10, Melbourne, Australia, May 2023.
- ICSE Demo 2023 [82] Yu Liu, Zachary Thurston, Alan Han, Pengyu Nie, **Milos Gligoric** and Owolabi Legunsen: “*pytest-inline: An Inline Testing Tool for Python*”. International Conference on Software Engineering, Tool Demonstrations Track, pages 161–164, Melbourne, Australia, May 2023.
- Findings of EMNLP 2022 [81] Sheena Panthaplackel, Junyi Jessie Li, **Milos Gligoric** and Raymond J. Mooney: “*Using Developer Discussions to Guide Fixing Bugs in Software*”. Findings of the Conference on Empirical Methods in Natural Language Processing, pages 2292–2301, Abu Dhabi, United Arab Emirates, December 2022.
- SBACPAD 2022 [80] James Almgren-Bell, Nader Al Awar, Dilip Geethakrishnan, **Milos Gligoric** and George Biros: “*A Multi-GPU Python Solver for Low-Temperature Non-Equilibrium Plasmas*”. International Symposium on Computer Architecture and High Performance Computing, pages 140–149, Bordeaux, France, November 2022.
- SC 2022 [79] Lee Hochan, Ruys William, Yan Yineng, Stephens Sean, You Bozhi, Fingler Henrique, Henriksen Ian, Peters Arthur, Burtscher Martin, **Milos Gligoric**, Schulz Karl, Pingali Keshav, Christopher J. Rossbach, Mattan Erez and George Biros: “*A Python Orchestration System for Heterogeneous Architectures*”. The International Conference for High Performance Computing, Networking, Storage, and Analysis, pages 51:1–51:15, Dallas, USA, November 2022.
- ASE 2022 [78] Yu Liu, Pengyu Nie, Owolabi Legunsen and **Milos Gligoric**: “*Inline Tests*”. International Conference on Automated Software Engineering, pages 57:1–57:13, Oakland Center, USA, October 2022.
- ASE 2022 [77] Zhiqiang Zang, Nathaniel Wiatrek, **Milos Gligoric** and August Shi: “*Compiler Testing using Template Java Programs*”. International Conference on Automated Software Engineering, pages 23:1–23:13, Oakland Center, USA, October 2022. (This paper **won an ACM SIGSOFT Distinguished Paper Award**.)
- ASE 2022 [76] Jiyang Zhang, Pengyu Nie, Sheena Panthaplackel, Junyi Jessie Li and **Milos Gligoric**: “*CoditT5: Pretraining for Source Code and Natural Language Editing*”. International Conference on Automated Software Engineering, pages 22:1–22:12, Oakland Center, USA, October 2022.

- FSE Demo 2022 [75] Jiyang Zhang, Ristin Marko, Schanely Phillip, Wernher van de Venn Hans and **Milos Gligoric**: “*Python-by-Contract Dataset*”. Symposium on the Foundations of Software Engineering, formal tool demonstrations, pages 1652–1656, Singapore, November 2022.
- ACL 2022 [74] Pengyu Nie, Jiyang Zhang, Raymond J. Mooney, Junyi Jessy Li and **Milos Gligoric**: “*Impact of Evaluation Methodologies on Code Summarization*”. Association for Computational Linguistics, pages 4936–4960, Virtual, May 2022.
- Findings of ACL 2022 [73] Sheena Panthaplackel, Junyi Jessy Li, **Milos Gligoric** and Raymond J. Mooney: “*Learning to Describe Solutions for Bug Reports Based on Developer Discussions*”. Findings of the Association for Computational Linguistics, pages 2935–2952, Virtual, May 2022.
- AST 2022 [72] Jiyang Zhang, Yu Liu, **Milos Gligoric**, Owolabi Legunsen and August Shi: “*Comparing and Combining Analysis-Based and Learning-Based Regression Test Selection*”. International Conference on Automation of Software Test, pages 17–28, Virtual, May 2022.
- AST 2022 [71] Renan Greca, Breno Miranda, **Milos Gligoric** and Antonia Bertolino: “*Comparing and Combining File-based Selection and Similarity-based Prioritization towards Regression Test Orchestration*”. International Conference on Automation of Software Test, pages 115–125, Virtual, May 2022.
- ICSE Demo 2022 [70] Nader Al Awar, Steven Zhu, Neil Mehta, George Biros and **Milos Gligoric**: “*PyKokkos: Performance Portable Kernels in Python*”. International Conference on Software Engineering, Tool Demonstrations Track, pages 164–167, Virtual, May 2022.
- OOPSLA 2021 [69] Nader Al Awar, Kush Jain, Christopher J. Rossbach and **Milos Gligoric**: “*Programming and Execution Models for Parallel Bounded Exhaustive Testing*”. Conference on Object-Oriented Programming, Systems, Languages, and Applications, pages 1–28, Virtual, October 2021.
- ASE 2021 [68] Steven Zhu, Nader Al Awar, Mattan Erez and **Milos Gligoric**: “*Dynamic Generation of Python Bindings for HPC Kernels*”. International Conference on Automated Software Engineering, pages 92–103, Virtual, November 2021.
- ICS 2021 [67] Nader Al Awar, Steven Zhu, George Biros and **Milos Gligoric**: “*A Performance Portability Framework for Python*”. International Conference on Supercomputing, pages 467–478, Virtual, June 2021. (This paper **was nominated for the Best Paper Award.**)
- ICSE Demo 2021 [66] Pengyu Nie, Karl Palmkog, Junyi Jessy Li and **Milos Gligoric**: “*Roosterize: Suggesting Lemma Names for Coq Verification Projects Using Deep Learning*”. International Conference on Software Engineering, Tool Demonstrations Track, pages 21–24, Virtual, May 2021.
- AAAI 2021 [65] Sheena Panthaplackel, Junyi Jessy Li, **Milos Gligoric** and Raymond J. Mooney: “*Deep Just-In-Time Inconsistency Detection Between Comments and Source Code*”. Conference on Artificial Intelligence, pages 427–435, Virtual, February 2021.
- OOPSLA 2020 [64] Pengyu Nie, Marinela Parovic, Zhiqiang Zang, Sarfraz Khurshid, Aleksandar Milicevic and **Milos Gligoric**: “*Unifying Execution of Imperative Generators and Declarative Specifications*”. Conference on Object-Oriented Programming, Systems, Languages, and Applications, pages 217:1–217:26, Chicago, USA, November 2020.
- FSE 2020 [63] Jaeseong Lee, Pengyu Nie, Junyi Jessy Li and **Milos Gligoric**: “*On the Naturalness of Hardware Descriptions*”. Symposium on the Foundations of Software Engineering, pages 530–542, Sacramento, USA, November 2020.
- ISSTA 2020 [62] Pengyu Nie, Ahmet Celik, Matthew Coley, Aleksandar Milicevic, Jonathan Bell and **Milos Gligoric**: “*Debugging the Performance of Maven’s Test Isolation: Experience Report*”. International Symposium on Software Testing and Analysis, pages 249–259, Los Angeles, USA, July 2020.
- ACL 2020 [61] Sheena Panthaplackel, Pengyu Nie, **Milos Gligoric**, Junyi Jessy Li and Raymond J. Mooney: “*Learning to Update Natural Language Comments Based on Code Changes*”. Association for Computational Linguistics, pages 1853–1868, Seattle, USA, July 2020.

- IJCAR 2020 [60] Pengyu Nie, Karl Palmskog, Junyi Jessy Li and **Milos Gligoric**: “*Deep Generation of Coq Lemma Names Using Elaborated Terms*”. International Joint Conference on Automated Reasoning, pages 97–118, Paris, France, June 2020.
- ICSE Demo 2020 [59] Kush Jain, Karl Palmskog, Ahmet Celik, Emilio Jesus Gallego Arias and **Milos Gligoric**: “*mCoq: Mutation Analysis for Coq Verification Projects*”. International Conference on Software Engineering, Tool Demonstrations Track, pages 89–92, Seoul, South Korea, May 2020.
- ICSE NIER 2020 [58] Alyas Almaawi, Nima Dini, Cagdas Yelen, **Milos Gligoric**, Sasa Misailovic and Sarfraz Khurshid: “*Predictive Constraint Solving and Analysis*”. International Conference on Software Engineering, New Ideas and Emerging Results, pages 109–112, Seoul, South Korea, May 2020. (This paper won a New Ideas and Emerging Results Distinguished Paper Award.)
- TACAS 2020 [57] Karl Palmskog, Ahmet Celik and **Milos Gligoric**: “*Practical Machine-Checked Formalization of Change Impact Analysis*”. International Conference on Tools and Algorithms for the Construction and Analysis of Systems, pages 137–157, Dublin, Ireland, April 2020.
- AAAI 2020 [56] Sheena Panthaplackel, **Milos Gligoric**, Raymond J. Mooney and Junyi Jessy Li: “*Associating Natural Language Comment and Source Code Entities*”. Conference on Artificial Intelligence, pages 8592–8599, USA, New York, February 2020.
- OOPSLA 2019 [55] Ahmet Celik, Pengyu Nie, Christopher J. Rossbach and **Milos Gligoric**: “*Design, Implementation, and Application of GPU-based Java Bytecode Interpreters*”. Conference on Object-Oriented Programming, Systems, Languages, and Applications, pages 177:1–177:28, Athens, Greece, October 2019.
- ASE 2019 [54] Ahmet Celik, Karl Palmskog, Marinela Parovic, Emilio Jesus Gallego Arias and **Milos Gligoric**: “*Mutation Analysis for Coq*”. International Conference on Automated Software Engineering, pages 539–551, San Diego, USA, November 2019.
- FSE 2019 [53] Pengyu Nie, Rishabh Rai, Junyi Jessy Li, Sarfraz Khurshid, Raymond J. Mooney and **Milos Gligoric**: “*A Framework for Writing Trigger-Action Todo Comments in Executable Format*”. Symposium on the Foundations of Software Engineering, pages 385–396, Tallinn, Estonia, August 2019. (This paper **won an ACM SIGSOFT Distinguished Paper Award.**)
- ICSE 2019 [52] Chenguang Zhu, Owolabi Legunsen, August Shi and **Milos Gligoric**: “*A Framework for Checking Regression Test Selection Tools*”. International Conference on Software Engineering, pages 430–441, Montreal, Canada, May 2019.
- ICSE Demo 2019 [51] Ben Buhse, Thomas Wei, Zhiqiang Zang, Aleksandar Milicevic and **Milos Gligoric**: “*VeDebug: Regression Debugging Tool for Java*”. International Conference on Software Engineering, Tool Demonstrations Track, pages 15–18, Montreal, Canada, May 2019.
- ICST 2019 [50] Ben Fu, Sasa Misailovic and **Milos Gligoric**: “*Resurgence of Regression Test Selection for C++*”. International Conference on Software Testing, Verification, and Validation, pages 323–334, Xi’an, China, April 2019.
- ICST 2019 [49] Nima Dini, Cagdas Yelen, **Milos Gligoric** and Sarfraz Khurshid: “*Extension-Aware Automated Testing Based on Imperative Predicates*”. International Conference on Software Testing, Verification, and Validation, pages 25–36, Xi’an, China, April 2019.
- TACAS 2019 [48] Wenxi Wang, Kaiyuan Wang, **Milos Gligoric** and Sarfraz Khurshid: “*Incremental Analysis of Evolving Alloy Models*”. International Conference on Tools and Algorithms for the Construction and Analysis of Systems, pages 174–191, Prague, Czechia, April 2019.
- ICSE 2018 [47] Kaiyuan Wang, Chenguang Zhu, Ahmet Celik, Jongwook Kim, Don Batory and **Milos Gligoric**: “*Towards Refactoring-Aware Regression Test Selection*”. International Conference on Software Engineering, pages 233–244, Gothenburg, Sweden, May 2018.
- FSE Industry 2018 [46] Ahmet Celik, Young Chul Lee and **Milos Gligoric**: “*Regression Test Selection for TizenRT*”. Symposium on the Foundations of Software Engineering, Industrial Track, pages 845–850, Lake Buena Vista, USA, November 2018.

- ICSE Demo 2018 [45] Ahmet Celik, Karl Palmskog and **Milos Gligoric**: “*A Regression Proof Selection Tool for Coq*”. International Conference on Software Engineering, Tool Demonstrations Track, pages 117–120, Gothenburg, Sweden, May 2018.
- ISSTA 2018 [44] Karl Palmskog, Ahmet Celik and **Milos Gligoric**: “*piCoq: Parallel Regression Proving for Large-scale Verification Projects*”. International Symposium on Software Testing and Analysis, pages 344–355, Amsterdam, Netherlands, July 2018.
- ICST 2018 [43] Farah Hariri, August Shi, Owolabi Legunsen, **Milos Gligoric**, Sarfraz Khurshid and Sasa Misailovic: “*Approximate Transformations as Mutation Operators*”. International Conference on Software Testing, Verification, and Validation, pages 285–296, Vasteras, Sweden, April 2018.
- ASE 2017 [42] Ahmet Celik, Karl Palmskog and **Milos Gligoric**: “*iCoq: Regression Proof Selection for Large-Scale Verification Projects*”. International Conference on Automated Software Engineering, pages 171–182, Urbana-Champaign, USA, November 2017.
- OOPSLA 2017 [41] Ahmet Celik, Sreepathi Pai, Sarfraz Khurshid and **Milos Gligoric**: “*Bounded Exhaustive Test-Input Generation on GPUs*”. Conference on Object-Oriented Programming, Systems, Languages, and Applications, pages 94:1–94:25, Vancouver, Canada, October 2017.
- FSE 2017 [40] Ahmet Celik, Marko Vasic, Aleksandar Milicevic and **Milos Gligoric**: “*Regression Test Selection Across JVM Boundaries*”. Symposium on the Foundations of Software Engineering, pages 809–820, Paderborn, Germany, September 2017.
- FSE Industry 2017 [39] Marko Vasic, Zuhair Parvez, Aleksandar Milicevic and **Milos Gligoric**: “*File-level vs. Module-level Regression Test Selection for .NET*”. Symposium on the Foundations of Software Engineering, Industrial Track, pages 848–853, Paderborn, Germany, September 2017.
- ICSE NIER 2017 [38] **Milos Gligoric**, Sarfraz Khurshid, Sasa Misailovic and August Shi: “*Mutation Testing Meets Approximate Computing*”. International Conference on Software Engineering, New Ideas and Emerging Results, pages 3–6, Buenos Aires, Argentina, May 2017.
- FASE 2017 [37] Ripon Saha and **Milos Gligoric**: “*Selective Bisection Debugging*”. Fundamental Approaches to Software Engineering, pages 60–77, Uppsala, Sweden, April 2017.
- FSE 2016 [36] Ahmet Celik, Alex Knaust, Aleksandar Milicevic and **Milos Gligoric**: “*Build System with Lazy Retrieval for Java Projects*”. Symposium on the Foundations of Software Engineering, pages 643–654, Seattle, USA, November 2016.
- ISSRE 2016 [35] Nima Dini, Allison Sullivan, **Milos Gligoric** and Gregg Rothermel: “*The Effect of Test Suite Type on Regression Test Selection*”. International Symposium on Software Reliability Engineering, pages 47–58, Ottawa, Canada, October 2016.
- ISSTA 2015 [34] **Milos Gligoric**, Lamyaa Eloussi and Darko Marinov: “*Practical Regression Test Selection with Dynamic File Dependencies*”. International Symposium on Software Testing and Analysis, pages 211–222, Baltimore, USA, July 2015. (This paper **won an ACM SIGSOFT Distinguished Paper Award**.)
- ICSE Demo 2015 [33] **Milos Gligoric**, Lamyaa Eloussi and Darko Marinov: “*Ekstazi: Lightweight Test Selection*”. International Conference on Software Engineering, Tool Demonstrations Track, pages 713–716, Florence, Italy, May 2015.
- ASE 2014 [32] **Milos Gligoric**, Stas Negara, Owolabi Legunsen and Darko Marinov: “*An Empirical Evaluation and Comparison of Manual and Automated Test Selection*”. International Conference on Automated Software Engineering, pages 361–372, Vasteras, Sweden, September 2014.
- CAV 2014 [31] **Milos Gligoric**, Rupak Majumdar, Rohan Sharma, Lamyaa Eloussi and Darko Marinov: “*Regression Test Selection for Distributed Software Histories*”. International Conference on Computer Aided Verification, pages 293–309, Vienna, Austria, July 2014.
- FSE 2014 [30] August Shi, Alex Gyori, **Milos Gligoric**, Andrey Zaytsev and Darko Marinov: “*Balancing Trade-offs in Test-suite Reduction*”. Symposium on the Foundations of Software Engineering, pages 246–256, Hong Kong, China, November 2014.

- OOPSLA 2014 [29] **Milos Gligoric**, Wolfram Schulte, Chandra Prasad, Danny van Velzen, Iman Narasamdya and Benjamin Livshits: “*Automated Migration of Build Scripts using Dynamic Analysis and Search-Based Refactoring*”. Conference on Object-Oriented Programming, Systems, Languages, and Applications, pages 599–616, Portland, USA, October 2014.
- TACAS 2013 [28] **Milos Gligoric** and Rupak Majumdar: “*Model Checking Database Applications*”. International Conference on Tools and Algorithms for the Construction and Analysis of Systems, pages 549–564, Rome, Italy, March 2013.
- Onward! 2013 [27] Aleksandar Milicevic, **Milos Gligoric**, Darko Marinov and Daniel Jackson: “*Model-Based, Event-Driven Programming Paradigm for Interactive Web Applications*”. International Symposium on New Ideas, New Paradigms, and Reflections on Programming & Software, pages 17–36, Indianapolis, USA, October 2013.
- ISSTA 2013 [26] **Milos Gligoric**, Alex Groce, Chaoqiang Zhang, Rohan Sharma, Mohammad Amin Alipour and Darko Marinov: “*Comparing Non-Adequate Test Suites using Coverage Criteria*”. International Symposium on Software Testing and Analysis, pages 302–313, Lugano, Switzerland, July 2013. (This paper was **invited for journal submission**.)
- ECOOP 2013 [25] **Milos Gligoric**, Farnaz Behrang, Yilong Li, Jeffrey Overbey, Munawar Hafiz and Darko Marinov: “*Systematic Testing of Refactoring Engines on Real Software Projects*”. European Conference on Object-Oriented Programming, pages 629–653, Montpellier, France, July 2013.
- ASE 2013 [24] Lingming Zhang, **Milos Gligoric**, Darko Marinov and Sarfraz Khurshid: “*Operator-based and Random Mutant Selection: Better Together*”. International Conference on Automated Software Engineering, pages 92–102, Palo Alto, USA, November 2013.
- ISSTA 2013 [23] **Milos Gligoric**, Lingming Zhang, Cristiano Pereira and Gilles Pokam: “*Selective Mutation Testing for Concurrent Code*”. International Symposium on Software Testing and Analysis, pages 224–234, Lugano, Switzerland, July 2013.
- ICST 2012 [22] **Milos Gligoric**, Peter C. Mehrlitz and Darko Marinov: “*X10X: Model Checking a New Programming Language with an ‘Old’ Model Checker*”. International Conference on Software Testing, Verification, and Validation, pages 11–20, Montreal, Canada, April 2012. (This paper was **was nominated for the Best Paper Award**.)
- FASE 2011 [21] Rohan Sharma, **Milos Gligoric**, Andrea Arcuri, Gordon Fraser and Darko Marinov: “*Testing Container Classes: Random or Systematic?*”. Fundamental Approaches to Software Engineering, pages 262–277, Saarbrücken, Germany, March 2011.
- FSE 2011 [20] Vilas Jagannath, **Milos Gligoric**, Dongyun Jin, Qingzhou Luo, Grigore Rosu and Darko Marinov: “*Improved Multithreaded Unit Testing*”. Symposium on the Foundations of Software Engineering, pages 223–233, Szeged, Hungary, September 2011.
- ASE 2011 [19] Elton Alves, **Milos Gligoric**, Vilas Jagannath and Marcelo d’Amorim: “*Fault Localization Using Dynamic Slicing and Change-Impact Analysis*”. International Conference on Automated Software Engineering, Short paper, pages 520–523, Lawrence, USA, November 2011.
- ISSTA 2011 [18] **Milos Gligoric**, Darko Marinov and Sam Kamin: “*CoDeSe: Fast Deserialization via Code Generation*”. International Symposium on Software Testing and Analysis, pages 298–308, Toronto, Canada, July 2011.
- FSE Demo 2011 [17] **Milos Gligoric**, Sandro Badame and Ralph Johnson: “*SMutant: A Tool for Type-Sensitive Mutation Testing in a Dynamic Language*”. Symposium on the Foundations of Software Engineering, formal tool demonstrations, pages 424–427, Szeged, Hungary, September 2011.
- ICSE 2010 [16] **Milos Gligoric**, Tihomir Gvero, Vilas Jagannath, Sarfraz Khurshid, Viktor Kuncak and Darko Marinov: “*Test Generation through Programming in UDITA*”. International Conference on Software Engineering, pages 225–234, Cape Town, South Africa, May 2010. (This paper **won an ACM SIGSOFT Distinguished Paper Award**.) (This paper was **invited for journal submission**.)

- ICST 2010 [15] **Milos Gligoric**, Vilas Jagannath and Darko Marinov: “*MuTMuT: Efficient Exploration for Mutation Testing of Multithreaded Code*”. International Conference on Software Testing, Verification, and Validation, pages 55–64, Paris, France, April 2010. (This paper was **invited for journal submission**.)
- ICST 2009 [14] **Milos Gligoric**, Tihomir Gvero, Steven Lauterburg, Darko Marinov and Sarfraz Khurshid: “*Optimizing Generation of Object Graphs in Java PathFinder*”. International Conference on Software Testing, Verification, and Validation, pages 51–60, Denver, USA, April 2009.
- ICSE Demo 2008 [13] Tihomir Gvero, **Milos Gligoric**, Steven Lauterburg, Marcelo d’Amorim, Darko Marinov and Sarfraz Khurshid: “*State Extensions for Java PathFinder*”. International Conference on Software Engineering, Tool Demonstrations Track, pages 863–866, Leipzig, Germany, May 2008.

### Refereed Workshop Papers

- CAP Workshop 2020 [12] Jiyang Zhang, Sheena Panthaplackel, Pengyu Nie, Junyi Jessy Li, Raymond J. Mooney and **Milos Gligoric**: “*Leveraging Class Hierarchy for Code Comprehension*”. Workshop on Computer-Assisted Programming at NeurIPS, Virtual, December 2020.
- The Coq Workshop 2020 [11] Pengyu Nie, Karl Palmskog, Junyi Jessy Li and **Milos Gligoric**: “*Learning to Format Coq Code Using Language Models*”. The Coq Workshop, Paris, France, July 2020.
- JPF 2019 [10] Alyas Almaawi, Hayes Converse, **Milos Gligoric**, Sasa Misailovic and Sarfraz Khurshid: “*Quantifying the Exploration of the Korat Solver for Imperative Constraints*”. Java Pathfinder Workshop, pages 44(4):15–19, San Diego, USA, November 2019.
- IWoR 2019 [9] Jongwook Kim, Don Batory and **Milos Gligoric**: “*Code Transformation Issues in Move-Instance-Method Refactorings*”. International Workshop on Refactoring, pages 17–22, Montreal, Canada, May 2019.
- CoqPL 2019 [8] Karl Palmskog, **Milos Gligoric**, Lucas Pena and Grigore Rosu: “*Verifying Finality for Blockchain Systems*”. International Workshop on Coq for Programming Languages, Cascais/Lisbon, Portugal, January 2019.
- JPF 2018 [7] Kaiyuan Wang, Hayes Converse, **Milos Gligoric**, Sasa Misailovic and Sarfraz Khurshid: “*A Progress Bar for the JPF Search Using Program Executions*”. Java Pathfinder Workshop, pages 43(4):55–59, Lake Buena Vista, USA, November 2018.
- NLASE 2018 [6] Pengyu Nie, Junyi Jessy Li, Sarfraz Khurshid, Raymond J. Mooney and **Milos Gligoric**: “*Natural Language Processing and Program Analysis for Supporting Todo Comments as Software Evolves*”. Workshop on NLP for Software Engineering, Long presentation, pages 775–778, New Orleans, USA, February 2018.
- JPF 2017 [5] Kaiyuan Wang, Sarfraz Khurshid and **Milos Gligoric**: “*JPR: Replaying JPF Traces Using Standard JVM*”. Java Pathfinder Workshop, pages 42(4):1–5, Urbana-Champaign, USA, November 2017.
- Scala 2011 [4] Samira Tasharofi, **Milos Gligoric**, Darko Marinov and Ralph Johnson: “*Setac: A Framework for Phased Deterministic Testing of Scala Actor Programs*”. Scala Workshop, Stanford, USA, June 2011.
- IWMSE 2010 [3] Vilas Jagannath, **Milos Gligoric**, Dongyun Jin, Grigore Rosu and Darko Marinov: “*IMUnit: Improved Multithreaded Unit Testing*”. International Workshop on Multicore Software Engineering, pages 48–49, Cape Town, South Africa, May 2010.
- Mutation 2010 [2] Vilas Jagannath, **Milos Gligoric**, Steven Lauterburg, Darko Marinov and Gul Agha: “*Mutation Operators for Actor Systems*”. International Workshop on Mutation Analysis, pages 157–162, Paris, France, April 2010.
- CSTVA 2010 [1] Rohan Sharma, **Milos Gligoric**, Vilas Jagannath and Darko Marinov: “*A Comparison of Constraint-based and Sequence-based Generation of Complex Input Data Structures*”. Workshop on Constraints in Software Testing, Verification and Analysis, pages 337–342, Paris, France, April 2010.

## SCHOLARSHIPS AND AWARDS

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2023	ACM SIGSOFT Distinguished Paper Award for [85] (ISSTA 2023)
2022	ACM SIGSOFT Distinguished Paper Award for [77] (ASE 2022)
2022–present	Archie W. Straiton Endowed Faculty Fellowship, UT Austin
2021	Google Research Scholar
2020	New Ideas and Emerging Results Distinguished Paper Award for [58], International Conference on Software Engineering (ICSE-NIER 2020)
2020	Jack Kilby/Texas Instruments Endowed Faculty Fellowship in Computer Engineering, UT Austin
2020	Google Research Faculty Award
2019	ACM SIGSOFT Distinguished Paper Award for [53] (FSE 2019)
2019	Best Reviewer Award, International Conference on Software Engineering (ICSE 2019)
2016	ACM SIGSOFT Outstanding Doctoral Dissertation Award
2016	David J. Kuck Outstanding Ph.D. Thesis Award, Department of Computer Science, UIUC
2015	ACM SIGSOFT Distinguished Paper Award for [34] (ISSTA 2015)
2015	Google Research Faculty Award
2014–2015	Mavis Future Faculty Fellowship (MF3), College of Engineering, UIUC
2014	C.W. Gear Outstanding Graduate Student Award for Excellence in Research and Service given to one senior PhD student per year, Department of Computer Science, UIUC
2012	C.L. & Jane W-S. Liu Award for Exceptional Research Promise given to one junior PhD student per year, Department of Computer Science, UIUC
2010	ACM SIGSOFT Distinguished Paper Award for [16] (ICSE 2010)
2010	ITI Student Travel Scholarship, Information Trust Institute, UIUC
2010	Conference Travel Grant, Graduate College, UIUC
2009–2010	Fellowship, Saburo Muroga Fellowship, Department of Computer Science, UIUC
2008	Conference Travel Funding, SIGSOFT CAPS
2006–2007	Scholarship, EFG Eurobank Student Excellence Scholarship, EFG Eurobank Greece
2005–2007	Scholarship, Government of the City of Belgrade
2004–2007	Scholarship, Government of the Republic of Serbia

## COMMITTEE SERVICE

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ICSE NIER 2025	PC member, Conference on Software Engineering, new idea track
ISSTA 2024	PC member, Symposium on Software Testing and Analysis
OOPSLA 2024	PC member, Conference on Object-Oriented Programming, Systems, Languages, and Applications
LLM4Code 2024	PC member, LLM4Code Workshop
MAPS 2023	PC member, Symposium on Machine Programming
JPF 2023	<b>Co-chair</b> , Java PathFinder Workshop
CPP 2023	PC member, Conference on Certified Programs and Proofs
ICSE 2023	PC member, Conference on Software Engineering
ICSE 2022	PC member, Conference on Software Engineering
JPF 2022	PC member, Java PathFinder Workshop
ASE 2021	PC member, Conference on Automated Software Engineering
NLP4Prog 2021	Organizer, Workshop on Natural Language Processing for Programming

SySEPL 2020	PC member, Software Engineering and Programming Languages Workshop
ISSTA 2020	PC member, Symposium on Software Testing and Analysis
ISSTA 2020	Organization <b>Chair</b> , Symposium on Software Testing and Analysis
ICSE 2020	PC member, Conference on Software Engineering
ICSE 2020	Web <b>co-chair</b> , Conference on Software Engineering
ICST 2020	PC member, Conference on Software Testing, Verification and Validation
JPF 2019	PC member, Java PathFinder Workshop
CAV 2019	PC member, Conference on Computer Aided Verification
ISSTA 2019	PC member, Symposium on Software Testing and Analysis
ISSTA-DS 2019	PC member, Symposium on Software Testing and Analysis, doctoral symposium
ICSE 2019	PC member, Conference on Software Engineering
ICST 2019	PC member, Conference on Software Testing, Verification and Validation
JPF 2018	PC member, Java PathFinder Workshop
FSE-NIER 2018	PC member, Symposium on the Foundations of Software Engineering, new idea track
FSE-SRC 2018	PC member, Symposium on the Foundations of Software Engineering, student competition
ASE 2018	PC member, Conference on Automated Software Engineering
VST 2018	PC member, Workshop on Validation, Analysis and Evolution of Software Tests
SAC 2018	PC member, Symposium on Applied Computing
ICSE SCORE 2018	Project Sponsor, Conference on Software Engineering, SCORE
Mutation 2018	PC member, Workshop on Mutation Analysis
ASE 2017	Session chair, Conference on Automated Software Engineering
JPF 2017	Session chair, Java PathFinder Workshop
JPF 2017	PC member, Java PathFinder Workshop
ASE-ERP 2017	Expert review panel, Conference on Automated Software Engineering
ISSTA Demo 2017	PC member, Symposium on Software Testing and Analysis, demo track
Onward! 2017	PC member, Conference on Systems, Programming, Languages and Applications: Software for Humanity, Onward!
ASE 2017	Tutorials <b>co-chair</b> , Conference on Automated Software Engineering
ISSTA 2017	PC member, Symposium on Software Testing and Analysis
ICSE NIER 2017	PC member, Conference on Software Engineering, new idea track
FASE 2017	PC member, Conference on Fundamental Approaches to Software Engineering
Mutation 2017	PC member, Workshop on Mutation Analysis
ISSTA Demo 2016	PC member, Symposium on Software Testing and Analysis, demo track
Onward! 2016	PC member, Conference on Systems, Programming, Languages and Applications: Software for Humanity, Onward!
FSE-SRC 2016	PC member, Symposium on the Foundations of Software Engineering, student competition
FSE-VaR 2016	PC member, Symposium on the Foundations of Software Engineering, visions and reflections
ASE-ERP 2016	Expert review panel, Conference on Automated Software Engineering
Mutation 2016	PC member, Workshop on Mutation Analysis
ISSTA-AE 2016	Artifact evaluation committee member, Symposium on Software Testing and Analysis
ICST 2016	PC member, Conference on Software Testing, Verification and Validation
ICSE Demo 2016	PC member, Conference on Software Engineering, demo track
JPF 2016	<b>Co-chair</b> , Java PathFinder Workshop
FASE 2016	PC member, Conference on Fundamental Approaches to Software Engineering
JPF 2015	PC member, Java PathFinder Workshop

ASE Demo 2015	PC member, Conference on Automated Software Engineering, demo track
RV 2015	PC member, Conference on Runtime Verification
RV Demo 2015	PC member, Conference on Runtime Verification, demo track
ISSTA 2015	Session chair, Symposium on Software Testing and Analysis
ISSTA-AE 2015	Artifact evaluation <b>co-chair</b> , Symposium on Software Testing and Analysis
Mutation 2015	PC member, Workshop on Mutation Analysis
ISSTA-AE 2014	Artifact evaluation <b>co-chair</b> , Symposium on Software Testing and Analysis
ISSTA 2014	Session chair, Symposium on Software Testing and Analysis
ISSTA 2014	Helped organize the PC meeting, Symposium on Software Testing and Analysis
Mutation 2014	Session chair, Workshop on Mutation Analysis
OOPSLA 2013	Artifact evaluation committee member, Conference on Object-Oriented Programming, Systems, Languages, and Applications
CSTVA 2013	PC member, Workshop on Constraints in Software Testing Verification and Analysis

## PROFESSIONAL ACTIVITIES

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NSF	Proposal Review Panelist 2016 & 2017 & 2020 & 2023 & 2024 and Reviewer 2020, National Science Foundation
Senior Design Mentor	Senior Design Mentor at UT, 2016/2017 & 2018/2019 & 2019/2020 & 2020/2021 & 2021/2022 & 2022/2023 – mentoring several senior undergraduate students working on a year-long research project
SRC Judge	Judge for the Student Research Competition at FSE 2016 & 2018
External Reviewer	EAAI 2023, TSE 2022, TSE 2021, TSE 2020 ( $\times 2$ ), ASE 2019, JSME 2018, TSE 2018, TSE 2017, TOR 2017, STVR 2017, TACAS 2017, ICSE 2017, FORM 2016, EMSE 2016, TSE 2016 ( $\times 2$ ), SQJO 2015, FORM 2015, CAV 2015, ASE 2014, JSS 2014, TSE 2014 ( $\times 2$ ), ICSE 2014, ICST 2014, TOSEM 2013, TSE 2013, OOPSLA 2013, ISSTA 2013, CAV 2013, IPDPS 2013, HotNets 2012, RV 2012, ASE 2011, WODA 2011, SPIN 2011, ICSE 2011, SP&E 2010, ASE 2010, ISSTA 2010, MBT 2010, ABZ 2010, ASE 2009, ASE 2008, ICST Student Track 2008, ASE 2007
Workbook	Co-authored a workbook on expert systems by Dragan Bojic, Milos Gligoric, and Bosko Nikolic (published in Serbian by Akademska Misao, Belgrade, Serbia in 2009)
Book Reviewer	Commented on a manuscript of the book “Concurrent and Distributed Programming” by Zaharije Radivojevic, Igor Ikodinovic, and Zoran Jovanovic (published in Serbian by Akademska Misao, Belgrade, Serbia in 2008)
Advisory Council	Military and Veterans Advisory Council at UT, 2015-present. Additionally, designed and organized courses on programming for students veterans at UT, 2022
FAA Grad Student	Fellowships, Assistantships, and Admissions (FAA) Grad Student Volunteer at UIUC, reviewed Summer and Fall 2014 applicants for PhD and MS
Steering Committee	College Teaching Effectiveness Network (CTEN), 2013/2014
PhD Ambassador	Grad Student Ambassador at UIUC, 2010/2011 and 2011/2012 – communicated with several dozens of prospective PhD students
Student Volunteer	ICSE 2008 and SPLASH 2014
Panelist	“Academic job search for PhD and postdocs”
Panelist	Inspirations at SPLASH 2014 – gave an overview of my research to undergraduate and junior grad students

## PROFESSIONAL EXPERIENCE

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2021 May – 2023 Aug	<b>Principle Engineer and Engineering Manager QAOps</b> , KatanaGraph, Austin. Manager (and a developer) of a QAOps team responsible for test automation and release processes for a distributed graph database
2017 Jun–Jul	<b>Visiting Professor</b> , National Instruments (NI), Austin. Worked on build system and regression testing
2013 May–Sep	<b>Internship</b> , Microsoft (MS) and Microsoft Research (MSR), Redmond. Worked with Wolfram Schulte, Chandra Prasad, and Ben Livshits on cloud-based build system and automated migration from the existing build systems to the new build system [29]
2012 May–Jul	<b>Internship</b> , Max Planck Institute (MPI), Germany. Worked with Rupak Majumdar on model checking database applications [28]
2011 Aug–Dec	<b>Internship</b> , Intel, Santa Clara. Worked with Cristiano Pereira and Gilles Pokam on mutation testing for concurrent Java and C/C++ code [23]
2010 Jun–Aug	<b>Off-Campus internship</b> , National Aeronautics and Space Administration (NASA). Worked with Peter Mehlitz and Darko Marinov on model checking X10 programs [22]
2008 Jul–Sep	<b>Research visitor</b> , Swiss Federal Institute of Technology (EPFL), School of Computer and Communication Sciences. Worked with Viktor Kuncak on symbolic execution and model checking of Java programs [16]
2007 Jul–Oct	<b>Visiting scholar</b> , Information Trust Institute (ITI), University of Illinois at Urbana-Champaign (UIUC). Worked with Darko Marinov on automated test generation and model checking Java programs [13]

## STUDENTS AND POSTDOCS

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### Currently advising five PhD students and seven undergrad

PhD	Nader Al Awar (expected graduation in 2024)
PhD	Jiyang Zhang (expected graduation in 2025)
PhD	Yu Yuki Liu (expected graduation in 2024)
PhD	Aditya Thimmaiah (expected graduation in 2025)
	<b>Former members</b>
Postdoc	Karl Palmkog (first job: Researcher at KTH Royal Institute of Technology)
PhD	Ahmet Celik (graduated in 2019; first job: Facebook)
PhD	Pengyu Nie (graduated in 2023; first job: University of Waterloo, Cheriton School of Computer Science, Canada)
PhD	Zhiqiang Zang (graduated in 2024; first job: Meta)
MS	Ben Fu (graduated in 2018; first job: Capital One)
MS	Umair Shahzad (graduated in 2022; first job: Educative Inc.)
MS	Noah J. Thornton (graduated in 2020; co-supervised with Christopher J. Rossbach)
MS	Nathaniel Wiatrek (graduated in 2021)
MS	Steven Zhu (graduated in 2022; first job: Centaur Technology)
Visiting Scholar	Marinela Parovic (Fall 2018 and Spring 2019)
Undergrad	Ben Buhse (REU Summer 2018)
Undergrad	Jaime Garcia (Research Fall 2017)
Undergrad	Irfan Hasan (Research Spring 2017; REU Fall 2017)
Undergrad	Kush Jain (research Fall 2018; REU Spring 2019, Fall 2019, Spring 2020, Fall 2020, Spring 2021)
Undergrad	Shirley Liu (REU Summer 2017 and Fall 2017; TA Spring 2018; TA Spring 2019)
Undergrad	Kayvan Mansoorshahi (REU Summer 2018, Summer 2019; TA Spring 2019)

Undergrad	Neeley A Pate (REU Summer 2020; TA Spring 2021; TA Spring 2022)
Undergrad	Joseph B. Ryan (URA Spring 2020)
Undergrad	Rishabh Rai (REU Summer 2017, Fall 2017, Spring 2018, Fall 2018)
Undergrad	Sahil Vaidya (research Fall 2019, Spring 2020)
Undergrad	Thomas Wei (REU Summer 2018, Spring 2019)

## TEACHING EXPERIENCE

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Spring 2024	<b>Instructor</b> , University of Texas at Austin. Course taught: Software Design and Implementation I (EE 312)
Fall 2023	<b>Instructor</b> , University of Texas at Austin. Course taught: Programming Paradigms
Spring 2023	<b>Instructor</b> , University of Texas at Austin. Course taught: Software Design and Implementation I (EE 312H)
Fall 2022	<b>Instructor</b> , University of Texas at Austin. Course taught: Engineering Program Analysis (EE 361G)
Spring 2022	<b>Instructor</b> , University of Texas at Austin. Course taught: Software Design and Implementation I (EE 312H)
Fall 2021	<b>Instructor</b> , University of Texas at Austin. Course taught: Programming Paradigms
Spring 2021	<b>Instructor</b> , University of Texas at Austin. Course taught: Software Design and Implementation I (EE 312H)
Fall 2020	<b>Instructor</b> , University of Texas at Austin. Course taught: Software Evolution (EE 382V) & Option III Engineering Dynamic Program Analysis (EE 379K)
Spring 2020	<b>Instructor</b> , University of Texas at Austin. Course taught: Software Design and Implementation I (EE 312H)
Fall 2019	<b>Instructor</b> , University of Texas at Austin. Course taught: Engineering Dynamic Program Analysis (EE 379K)
Spring 2019	<b>Instructor</b> , University of Texas at Austin. Course taught: Software Design and Implementation I (EE 312H)
Fall 2018	<b>Instructor</b> , University of Texas at Austin. Course taught: Software Evolution (EE 382V)
Spring 2018	<b>Instructor</b> , University of Texas at Austin. Course taught: Software Design and Implementation I (EE 312)
Spring 2017	<b>Instructor</b> , University of Texas at Austin. Course taught: Software Design and Implementation I (EE 312)
Fall 2016	<b>Instructor</b> , University of Texas at Austin. Course taught: Software Evolution (EE 382V)
Fall 2015	<b>Instructor</b> , University of Texas at Austin. Course taught: Software Evolution (EE 382V)
2015–2017	<b>Seminar organizer</b> , University of Texas at Austin. Software Engineering Seminar
2009–2015	<b>Supervisor</b> , University of Illinois at Urbana-Champaign. Supervised 18 undergraduate, masters, and junior PhD students while at UIUC
Fall 2014	<b>Teaching assistant</b> , University of Illinois at Urbana-Champaign. Course taught: Topics in Software Engineering
2013	<b>Project mentor</b> , University of Illinois at Urbana-Champaign. CS527: Topics in Software Engineering, Prof. Tao Xie
2012	<b>Graduate seminar co-organizer</b> , University of Illinois at Urbana-Champaign. CS591: Software Engineering Seminar
2012	<b>Project mentor</b> , University of Illinois at Urbana-Champaign. CS498: Multicore Parallel Programming with Java, Prof. Danny Dig

2007–2009	<b>Teaching assistant</b> , School of Electrical Engineering, University of Belgrade. Courses taught: Introduction to Compilers, Expert Systems, Introduction to Programming, Principles of Software Engineering and Software Testing
2008–2009	<b>Guest lecturer</b> , Information Technology School (ITS), Belgrade. Course taught: Object-Oriented Programming
2007	<b>Guest lecturer</b> , (two-year) College of Electrical Engineering, Belgrade. Course taught: Internet Programming
2004–2006	<b>Lab assistant</b> , School of Electrical Engineering, University of Belgrade. Courses taught: Introduction to Programming, Algorithms and Data Structures, and Object-Oriented Programming

## PRESENTATIONS

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01/24	<i>PyKokos Tutorial</i> , at the NNSA-University Workshop on Exascale Simulation Technologies, USA (Albuquerque)
08/22	<i>Reasoning between Language and Code as Software Evolves</i> , USA (Urbana-Champaign)
04/21	<i>PyKokkos: A Performance Portability Framework for Python</i> , Exascale Computing Project (ECP), USA (Virtual)
03/21	<i>A Performance Portability Framework for Python</i> , Sandia National Laboratories, USA (Virtual)
04/20	<i>Design, implementation, and application of GPU-based Java bytecode interpreters</i> , University of Kragujevac, Serbia (Virtual)
01/20	<i>Systems-Based Test Acceleration</i> , at Microsoft Research, Redmond, USA
11/19	<i>Systems-Based Test Acceleration</i> , at the CHOOSE Forum, Zurich, Switzerland
11/19	<i>Systems-Based Test Acceleration</i> , University of Texas at San Antonio, San Antonio, TX, USA
10/19	[55] at OOPSLA 2019, Athens, Greece
09/19	<i>Regression Testing: Challenges and Opportunities</i> , uiPath, Tokyo, Japan
09/19	<i>Design, implementation, and application of GPU-based Java bytecode interpreters</i> , “Fuzzing and Symbolic Execution: Reflections, Challenges, and Opportunities”, Shonan Meeting, Japan
12/18	<i>Techniques for High-performance Regression Testing</i> , at Huawei, Urbana-Champaign, IL, USA
09/18	<i>Techniques for High-performance Regression Testing</i> , at Futurewei Academia Test Forum, Dallas, TX, USA
06/17	<i>Regression Testing: Past, Present, and Future</i> , National Instruments, Austin, TX, USA
10/16	<i>Practical Regression Test Selection with Dynamic File Dependencies</i> , at ISSRE, Ottawa, Ontario, Canada
10/16	<i>Build System with Lazy Retrieval for Java Projects</i> , Texas State, San Marcos, TX, USA
08/16	<i>Build System with Lazy Retrieval for Java Projects</i> , CMU, Pittsburgh, PA, USA
08/16	<i>Build System with Lazy Retrieval for Java Projects</i> , UIUC, Urbana, IL, USA
02/16	<i>Improving Software Quality</i> , University of Pennsylvania, Philadelphia, PA, USA
07/15	[34] at ISSTA 2015, Baltimore, MD, USA
07/15	[34] at Columbia University, New York, NY, USA
05/15	[33] at ICSE Demo 2015, Florence, Italy
04/15	<i>Regression Testing: Theory and Practice</i> , University of Toronto, Toronto, Canada
04/15	<i>Regression Testing: Theory and Practice</i> , UCSD, San Diego, CA, USA
04/15	<i>Regression Testing: Theory and Practice</i> , UMass, Amherst, MA, USA
03/15	<i>Regression Testing: Theory and Practice</i> , VirginiaTech, Blacksburg, VA, USA

03/15 *Regression Testing: Theory and Practice*, ETH, Zurich, Switzerland

03/15 *Regression Testing: Theory and Practice*, UCI, Irvine, CA, USA

03/15 *Regression Testing: Theory and Practice*, UT Dallas, Richardson, TX, USA

02/15 *Regression Testing: Theory and Practice*, UT Austin, Austin, TX, USA

02/15 *Regression Testing: Theory and Practice*, GeorgiaTech, Atlanta, GA, USA

02/15 *Regression Testing: Theory and Practice*, NCSU, Raleigh, NC, USA

02/15 *Regression Testing: Theory and Practice*, UIC, Chicago, IL, USA

02/15 *Regression Testing: Theory and Practice*, Purdue, West Lafayette, IN, USA

01/15 *Regression Testing at the Speed of Light*, guest lecture in CS498DM: Software Testing, UIUC, Urbana, IL, USA

12/14 *A New Start for Regression Testing*, Microsoft Research, Redmond, WA, USA

12/14 *A New Start for Regression Testing*, University of Pennsylvania, Philadelphia, PA, USA

12/14 *A New Start for Regression Testing*, Drexel University, Philadelphia, PA, USA

11/14 *A New Start for Regression Testing*, Shanghai Jiao Tong University, Shanghai, China

10/14 [29] at Oregon State University, Corvallis, OR, USA

10/14 [31] at Oregon State University, Corvallis, OR, USA

10/14 [29] at SPLASH 2014, Portland, OR, USA

10/14 [29] at SPLASH 2014, Portland, OR, USA (poster presentation)

10/14 [29] at Purdue University, West Lafayette, IN, USA

10/14 *Refactorings Demo*, guest lecture in CS427: Software Engineering I, UIUC, Urbana, IL, USA

09/14 *Regression Testing*, guest lecture in CS427: Software Engineering I, UIUC, Urbana, IL, USA

07/14 [31] at CAV 2014, Vienna, Austria

07/14 [31] at University of Belgrade, Belgrade, Serbia

07/14 [31] at Max Planck Institute for Software Systems, Kaiserslautern, Germany

10/13 [27] at SPLASH 2013, Indianapolis, IN, USA (poster presentation)

09/13 *Metamorphosis: Automatic Migration and Refactoring of Build Scripts*, Microsoft, Redmond, WA, USA

04/13 *Model Checking Database Applications*, I2PC seminar, UIUC, Urbana, IL, USA

03/13 [28] at TACAS 2013, Rome, Italy

03/13 *Synthesis of Interactive, Cloud-Based Heterogeneous Software Systems*, Qualcomm Research Center, NJ, USA

02/13 *Test Repair, Improved Fault Localization, and Failure Prediction*, Seminar 13061 “Fault Prediction, Localization, and Repair”, Dagstuhl, Germany

11/12 *Test Generation*, The University of Texas at Austin, Austin, TX, USA

10/12 *CoDeSe*, guest lecture in CS498DD: Introduction to Parallelism, UIUC, Urbana, IL, USA

06/12 *Java PathFinder*, Kaiserslautern University of Technology, Kaiserslautern, Germany

05/12 *IMUnit: Improved Multithreaded Unit Testing*, Kaiserslautern University of Technology, Kaiserslautern, Germany

04/12 *UDITA*, guest lecture at CS498DM: Software Testing, UIUC, Urbana, IL, USA

01/12 *Java PathFinder*, guest lecture at CS498DM: Software Testing, UIUC, Urbana, IL, USA

12/11 *Mutation Testing for Concurrent Code*, Intel, Santa Clara, CA, USA

12/11 *IMUnit: Improved Multithreaded Unit Testing*, NASA Ames, Moffett Field, CA, USA

03/11 [21] at FASE 2011, Saarbrücken, Germany

03/11 *Testing Container Classes: Random or Systematic?*, ETF, Belgrade, Serbia

03/11 *Test Generation through Programming in UDITA*, ETF, Belgrade, Serbia

03/11	<i>X10X: Systematic Testing of X10 Applications</i> , IBM, Hawthorne, NY, USA
02/11	<i>Test Generation through Programming in UDITA</i> , Google, New York, NY, USA
07/10	<i>Test Generation through Programming in UDITA</i> , MIT, Cambridge, MA, USA
05/10	[16] at ICSE 2010, Cape Town, South Africa
04/10	[1] at CSTVA 2010, Paris, France
05/08	[13] at ICSE 2008, Leipzig, Germany (poster presentation)

## OPEN SOURCE CONTRIBUTIONS

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2023	<b>gobash</b> , A bash library with a taste of Go - <a href="https://gobash.org">https://gobash.org</a>
2023	<b>Jog</b> , A tool for writing peephole optimizations for Java JIT in Java itself - <a href="https://github.com/EngineeringSoftware/jog">https://github.com/EngineeringSoftware/jog</a> (paper [86])
2023	<b>TeCo</b> , A tool for test completion using Large Language Models - <a href="https://github.com/EngineeringSoftware/teco">https://github.com/EngineeringSoftware/teco</a> (paper [84])
2023	<b>RTS++</b> , A tool for regression test selection for C++ - <a href="https://github.com/EngineeringSoftware/ekstazipp">https://github.com/EngineeringSoftware/ekstazipp</a> (paper [50])
2022	<b>InlineTests</b> , A tool for writing tests for individual lines - <a href="https://github.com/EngineeringSoftware/inlinetest">https://github.com/EngineeringSoftware/inlinetest</a> (paper [78])
2022	<b>CoditT5</b> , A tool for writing tests for individual lines - <a href="https://github.com/EngineeringSoftware/CoditT5">https://github.com/EngineeringSoftware/CoditT5</a> (paper [76])
2022	<b>JAttack</b> , A tool for writing test templates for testing compilers - <a href="https://github.com/EngineeringSoftware/jattack">https://github.com/EngineeringSoftware/jattack</a> (paper [77])
2021	<b>WayOut</b> , A tool for dynamic generation of Python bindings for HPC kernels - <a href="https://github.com/EngineeringSoftware/wayout">https://github.com/EngineeringSoftware/wayout</a> (paper [68])
2021	<b>PyKokkos</b> , a performance portability framework for Python - <a href="https://github.com/kokkos/pykokkos">https://github.com/kokkos/pykokkos</a> (paper [67])
2020	<b>Roosterize</b> , a tool for suggesting lemma names in verification projects that use the Coq proof assistant - <a href="https://github.com/EngineeringSoftware/roosterize">https://github.com/EngineeringSoftware/roosterize</a> (paper [60])
2020	<b>mCoq</b> , mutation tool for Coq verification projects - <a href="http://cozy.ece.utexas.edu/mcoq">http://cozy.ece.utexas.edu/mcoq</a> (papers [54, 59])
2019	<b>RTSCheck</b> , regression debugging tool for Java - <a href="http://cozy.ece.utexas.edu/rtscheck">http://cozy.ece.utexas.edu/rtscheck</a> (paper [52])
2019	<b>VeDebug</b> , regression debugging tool for Java - <a href="https://github.com/EngineeringSoftware/VeDebug">https://github.com/EngineeringSoftware/VeDebug</a> (paper [51])
2019	<b>Selfection</b> , regression test selection (RTS) tool for C - <a href="https://github.com/ahmet-celik/Selfection">https://github.com/ahmet-celik/Selfection</a> (paper [46])
2017	<b>iCoq</b> , regression proof selection tool for Coq - <a href="http://cozy.ece.utexas.edu/icoq">http://cozy.ece.utexas.edu/icoq</a> (paper [42])
2017	<b>Ekstazi#</b> , regression test selection tool for .NET - <a href="https://github.com/marko-vasic/ekstaziSharp">https://github.com/marko-vasic/ekstaziSharp</a> (paper [39])
2014	<b>Ekstazi</b> , lightweight and scalable Java library for regression test selection - <a href="http://ekstazi.org">http://ekstazi.org</a> (papers [31, 33, 34])
2013	<b>CoCo</b> , tool for measuring coverage (statement, branch, intra-method path, acyclic intra-method path, predicate) - <a href="http://mir.cs.illinois.edu/coco">http://mir.cs.illinois.edu/coco</a> (paper [26])
2011	<b>Javalanche extension</b> , extension of the mutation testing tool with some mutation operators for concurrent code - <a href="https://github.com/david-schuler/javalanche">https://github.com/david-schuler/javalanche</a> (paper [93])
2011	<b>IMUnit</b> , framework for writing and executing multithreaded unit tests in Java - <a href="http://mir.cs.illinois.edu/imunit">http://mir.cs.illinois.edu/imunit</a> (paper [20])

- 2011 **SMutant**, mutation testing tool for Smalltalk - <http://www.squeaksource.com/smutant.html> (paper [17])
- 2011 **CoDeSe dataset**, used to evaluate CoDeSe that employs a new format based on code to improve serialization/deserialization - <http://mir.cs.illinois.edu/codese> (paper [18])
- 2011 **Setac**, testing framework for Scala actor programs that allows specifying constraints on schedules - <http://mir.cs.illinois.edu/setac> (paper [4])
- 2011 **Container Classes**, collection of container classes with instrumentation for predicate coverage - <http://mir.cs.illinois.edu/coverage> (paper [21])
- 2010 **UDITA**, language that combines expressive strengths of filtering and generating test abstractions to create more expressive test generation programs - <http://mir.cs.illinois.edu/udita> (paper [16])
- 2010 **Delayed extension**, postpones non-deterministic choice of values until they are used, reducing the size of the state space in explicit-state model checking. Contributed to Java PathFinder (JPF) model checker, the first open-source software from NASA - <http://babelfish.arc.nasa.gov/trac/jpf/wiki/projects/jpf-delayed> (paper [16])
- 2008–present **Numerous bug fixes and enhancements for Java PathFinder** - <http://mir.cs.illinois.edu/jpf>
- 2007 **Untracked state extension**, provides new functionality for storing and restoring JPF state during model checking. The code was committed to the JPF core - [http://javapathfinder.svn.sourceforge.net/viewvc/\\*checkout\\*/javapathfinder/trunk/doc/Untracked.html](http://javapathfinder.svn.sourceforge.net/viewvc/*checkout*/javapathfinder/trunk/doc/Untracked.html) (paper [13])