Milos Gligoric

Assistant Professor
Electrical and Computer Engineering

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Research Interests

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

Education

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

Refereed Journal Articles

FTPL 2019 [66] Talia Ringer, Karl Palmskog, 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 [65] 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 [64] **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 [63] **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 2020 [62] Jaeseong Lee, Pengyu Nie, Junyi Jessy Li and **Milos Gligoric**: *"On the Naturalness of Hardware Descriptions"*. Symposium on the Foundations of Software Engineering, TO APPEAR, Sacramento, USA, November 2020.

ISSTA 2020 [61] 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, TO APPEAR, Los Angeles, USA, July 2020.

ACL 2020 [60] 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, TO APPEAR, Seattle, USA, July 2020.

IJCAR 2020 [59] 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, TO APPEAR, Paris, France, June 2020.

ICSE Demo 2020 [58] 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, TO APPEAR, Seoul, South Korea, May 2020.

ICSE NIER 2020 [57] 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, TO APPEAR, Seoul, South Korea, May 2020. (This paper won a New Ideas and Emerging Results Distinguished Paper Award.)

TACAS 2020 [56] 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 [55] 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 [54] 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 [53] 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 [52] 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 [51] 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 [50] 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 [49] 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 [48] 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 [47] 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 [46] 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 [45] 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 [44] 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 [43] 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 [42] 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 [41] 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 [40] 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 [39] 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 [38] 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 [37] **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 [36] Ripon Saha and **Milos Gligoric**: *"Selective Bisection Debugging"*. Fundamental Approaches to Software Engineering, pages 60–77, Uppsala, Sweden, April 2017.

FSE 2016 [35] 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 [34] 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 [33] **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 [32] **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 [31] **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 [30] **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 [29] 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 [28] **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 [27] **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 [26] 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 [25] **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 [24] **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 [23] 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 [22] **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 [21] **Milos Gligoric**, Peter C. Mehlitz 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 nominated for the Best Paper Award**.)

FASE 2011 [20] 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, Saarbrucken, Germany, March 2011.

FSE 2011 [19] 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 [18] 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 [17] **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 [16] **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 [15] **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 [14] **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 [13] **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 [12] 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

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, TO APPEAR, 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.

NL4SE 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

2020 New Ideas and Emerging Results Distinguished Paper Award for [57], International Conference on Software Engineering (ICSE-NIER 2020)

2020 Google Research Faculty Award

2019 ACM SIGSOFT Distinguished Paper Award for [52] (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 [33] (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 [15] (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

SySEPL 2020	PC member, Software Engineering and Programming Languages Workshop
ISSTA 2020	PC member, Symposium on Software Testing and Analysis
ISSTA 2020	Organization **Chair**, Symposium on Software Testing and Analysis
ICSE 2020	PC member, Conference on Software Engineering
ICSE 2020	Web **co-chair**, 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 **co-chair**, 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	**Co-chair**, 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 **co-chair**, Symposium on Software Testing and Analysis
Mutation 2015	PC member, Workshop on Mutation Analysis
ISSTA-AE 2014	Artifact evaluation **co-chair**, 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

NSF	Proposal Review Panelist 2016 & 2017 and Reviewer 2020, National Science Foundation
Senior Design Mentor	Senior Design Mentor at UT, 2016/2017 & 2018/2019 & 2019/2020 – 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	ASE 2019, JSME 2018, TSE 2018, TSE 2017, TOR 2017, STVR 2017, TACAS 2017, ICSE 2017, FORM 2016, EMSE 2016, TSE 2016 (×2), SQJO 2015, FORM 2015, CAV 2015, ASE 2014, JSS 2014, TSE 2014 (×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
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	Inspirations at SPLASH 2014 – gave an overview of my research to undergraduate and junior grad students

Professional Experience

2017 Jun–Jul	**Visiting Professor**, National Instruments (NI), Austin. Worked on build system and regression testing
2013 May–Sep	**Internship**, 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 [28]
2012 May–Jul	**Internship**, Max Planck Institute (MPI), Germany. Worked with Rupak Majumdar on model checking database applications [27]
2011 Aug–Dec	**Internship**, Intel, Santa Clara. Worked with Cristiano Pereira and Gilles Pokam on mutation testing for concurrent Java and C/C++ code [22]
2010 Jun–Aug	**Off-Campus internship**, National Aeronautics and Space Administration (NASA). Worked with Peter Mehlitz and Darko Marinov on model checking X10 programs [21]
2008 Jul–Sep	**Research visitor**, 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 [15]
2007 Jul–Oct	**Visiting scholar**, Information Trust Institute (ITI), University of Illinois at Urbana-Champaign (UIUC). Worked with Darko Marinov on automated test generation and model checking Java programs [12]

Students and Postdocs

	Currently advising 3 PhD students and several undergrads
PhD	Jaeseong Lee (expected graduation in 2022)
PhD	Pengyu Nie (expected graduation in 2022)
PhD	Zhiqiang Zang (expected graduation in 2023)
Undergrad	Kush Jain (REU Spring 2019)
Undergrad	Kayvan Mansoorshahi (REU Summer 2018, Summer 2019; TA Spring 2019)
	Former members
Postdoc	Karl Palmskog
PhD	Ahmet Celik (graduated in 2019, first job: Facebook)
BSEE/MSE	Ben Fu (graduated in 2018, first job: Capital One)
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	Shirley Liu (REU Summer 2017 and Fall 2017; TA Spring 2018; TA Spring 2019)
Undergrad	Rishabh Rai (REU Summer 2017, Fall 2017, Spring 2018, Fall 2018)
Undergrad	Thomas Wei (REU Summer 2018, Spring 2019)

Teaching Experience

Spring 2020	**Instructor**, University of Texas at Austin. Course taught: Software Design and Implementation I (EE 312H)
Fall 2019	**Instructor**, University of Texas at Austin. Course taught: Engineering Dynamic Program Analysis (EE 379K)
Spring 2019	**Instructor**, University of Texas at Austin. Course taught: Software Design and Implementation I (EE 312H)
Fall 2018	**Instructor**, University of Texas at Austin. Course taught: Software Evolution (EE 382V)
Spring 2018	**Instructor**, University of Texas at Austin. Course taught: Software Design and Implementation I (EE 312)
Spring 2017	**Instructor**, University of Texas at Austin. Course taught: Software Design and Implementation I (EE 312)
Fall 2016	**Instructor**, University of Texas at Austin. Course taught: Software Evolution (EE 382V)
Fall 2015	**Instructor**, University of Texas at Austin. Course taught: Software Evolution (EE 382V)
2015–2017	**Seminar organizer**, University of Texas at Austin. Software Engineering Seminar
2009–2015	**Supervisor**, University of Illinois at Urbana-Champaign. Supervised 18 undergraduate, masters, and junior PhD students while at UIUC
Fall 2014	**Teaching assistant**, University of Illinois at Urbana-Champaign. Course taught: Topics in Software Engineering
2013	**Project mentor**, University of Illinois at Urbana-Champaign. CS527: Topics in Software Engineering, Prof. Tao Xie
2012	**Graduate seminar co-organizer**, University of Illinois at Urbana-Champaign. CS591: Software Engineering Seminar
2012	**Project mentor**, University of Illinois at Urbana-Champaign. CS498: Multicore Parallel Programming with Java, Prof. Danny Dig
2007–2009	**Teaching assistant**, 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	**Guest lecturer**, Information Technology School (ITS), Belgrade. Course taught: Object-Oriented Programming
2007	**Guest lecturer**, (two-year) College of Electrical Engineering, Belgrade. Course taught: Internet Programming
2004–2006	**Lab assistant**, School of Electrical Engineering, University of Belgrade. Courses taught: Introduction to Programming, Algorithms and Data Structures, and Object-Oriented Programming

Presentations

04/20	*Design, implementation, and application of GPU-based Java bytecode interpreters*, University of Kragujevac, Serbia (via Zoom)
01/20	*Systems-Based Test Acceleration*, at Microsoft Research, Redmond, USA
11/19	*Systems-Based Test Acceleration*, at the CHOOSE Forum, Zurich, Switzerland
11/19	*Systems-Based Test Acceleration*, University of Texas at San Antonio, San Antonio, TX, USA

10/19 *[54]* at OOPSLA 2019, Athens, Greece

09/19 *Regression Testing: Challenges and Opportunities*, uiPath, Tokyo, Japan

09/19 *Design, implementation, and application of GPU-based Java bytecode interpreters*, "Fuzzing and Symbolic Execution: Reflections, Challenges, and Opportunities", Shonan Meeting, Japan

12/18 *Techniques for High-performance Regression Testing*, at Huawei, Urbana-Champaign, IL, USA

09/18 *Techniques for High-performance Regression Testing*, at Futurewei Academia Test Forum, Dallas, TX, USA

06/17 *Regression Testing: Past, Present, and Future*, National Instruments, Austin, TX, USA

10/16 *Practical Regression Test Selection with Dynamic File Dependencies*, at ISSRE, Ottawa, Ontario, Canada

10/16 *Build System with Lazy Retrieval for Java Projects*, Texas State, San Marcos, TX, USA

08/16 *Build System with Lazy Retrieval for Java Projects*, CMU, Pittsburgh, PA, USA

08/16 *Build System with Lazy Retrieval for Java Projects*, UIUC, Urbana, IL, USA

02/16 *Improving Software Quality*, University of Pennsylvania, Philadelphia, PA, USA

07/15 *[33]* at ISSTA 2015, Baltimore, MD, USA

07/15 *[33]* at Columbia University, New York, NY, USA

05/15 *[32]* at ICSE Demo 2015, Florence, Italy

04/15 *Regression Testing: Theory and Practice*, University of Toronto, Toronto, Canada

04/15 *Regression Testing: Theory and Practice*, UCSD, San Diego, CA, USA

04/15 *Regression Testing: Theory and Practice*, UMass, Amherst, MA, USA

03/15 *Regression Testing: Theory and Practice*, 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 *[28]* at Oregon State University, Corvallis, OR, USA

10/14 *[30]* at Oregon State University, Corvallis, OR, USA

10/14 *[28]* at SPLASH 2014, Portland, OR, USA

10/14 *[28]* at SPLASH 2014, Portland, OR, USA (poster presentation)

10/14 *[28]* 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 *[30]* at CAV 2014, Vienna, Austria

07/14 *[30]* at University of Belgrade, Belgrade, Serbia

07/14 *[30]* at Max Planck Institute for Software Systems, Kaiserslautern, Germany

10/13 *[26]* 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 *[27]* 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 *[20]* at FASE 2011, Saarbrucken, 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 *X10X: Systematic Testing of X10 Applications*, IBM, Hawthorne, NY, USA

02/11 *Test Generation through Programming in UDITA*, Google, New York, NY, USA

07/10 *Test Generation through Programming in UDITA*, MIT, Cambridge, MA, USA

05/10 *[15]* at ICSE 2010, Cape Town, South Africa

04/10 *[1]* at CSTVA 2010, Paris, France

05/08 *[12]* at ICSE 2008, Leipzig, Germany (poster presentation)

Open Source Contributions

2020 **Roosterize**, a tool for suggesting lemma names in verification projects that use the Coq proof assistant - `https://github.com/EngineeringSoftware/roosterize` (paper [59])

2020 **mCoq**, mutation tool for Coq verification projects - `http://cozy.ece.utexas.edu/mcoq` (papers [53, 58])

2019 **RTSCheck**, regression debugging tool for Java - `http://cozy.ece.utexas.edu/rtscheck` (paper [51])

2019 **VeDebug**, regression debugging tool for Java - `https://github.com/EngineeringSoftware/VeDebug` (paper [50])

2019 **Selfection**, regression test selection (RTS) tool for C - `https://github.com/ahmet-celik/Selfection` (paper [45])

2017 **iCoq**, regression proof selection tool for Coq - `http://cozy.ece.utexas.edu/icoq` (paper [41])

2017 **Ekstazi#**, regression test selection tool for .NET - `https://github.com/marko-vasic/ekstaziSharp` (paper [38])

2014 **Ekstazi**, lightweight and scalable Java library for regression test selection - `http://ekstazi.org` (papers [30, 32, 33])

2013 **CoCo**, tool for measuring coverage (statement, branch, intra-method path, acyclic intra-method path, predicate) - `http://mir.cs.illinois.edu/coco` (paper [25])

2011 **Javalanche extension**, extension of the mutation testing tool with some mutation operators for concurrent code - `https://github.com/david-schuler/javalanche` (paper [63])

2011 **IMUnit**, framework for writing and executing multithreaded unit tests in Java - `http://mir.cs.illinois.edu/imunit` (paper [19])

2011 **SMutant**, mutation testing tool for Smalltalk - `http://www.squeaksource.com/smutant.html` (paper [16])

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 [17])

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 [20])

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 [15])

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 [15])

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` (paper [12])