

MARJAN SIRJANI

Curriculum Vitae

Professor in Software Engineering
School of Innovation, Design and Engineering
Mälardalen University
Västerås, Högscoleplan 1
Västerås, Sweden
Tel: +46 2110 1300
marjan.sirjani@mdu.se
http://www.es.mdu.se/staff/3242-Marjan_Sirjani
<https://marjansirjani.github.io/Marjan-Sirjani/>

Fields of Interest:

Software Engineering, Formal Methods, Cyber-Physical Systems Analysis, Model Checking, Distributed Systems, Applying Formal Methods in System Design

Positions and Education:

- Professor, School of Innovation, Design and Engineering, Mälardalen University, Västerås, Sweden. (2016 –)
- Professor, School of Computer Science, Reykjavik University, Reykjavik, Iceland. (2013 – 2016), (2016 – 2020 parttime)
- Assistant and Associate Professor, School of Computer Science, Reykjavik University, Reykjavik, Iceland. (2008 - 2010, 2010 - 2013)
- Member of Expert Panel on Engineering, Technical Science and Physical Sciences - RANNÍS - The Icelandic Centre for Research. (2011 - 2013, 2015)
- Fulbright Visiting scholar, EECS, University of California at Berkeley, USA, Visiting Prof. Edward Lee (May-August 2015)
- Visiting scholar, Department of Computer Science, University of Illinois at Urbana-Champaign, USA, Visiting Prof. Gul Agha. (Fall 2012)
- Head of Research and Graduate Studies Council, School of Computer Science, Reykjavik University, Reykjavik, Iceland. (2010 – 2012, 2014-2015)
- Member of Research Council, Reykjavik University, Reykjavik, Iceland. (2011 – 2012)
- Assistant Professor, School of Electrical and Computer Engineering, University of Tehran, Tehran, Iran. (2004 – 2008)

- Head of Software Engineering Department, School of Electrical and Computer Engineering, University of Tehran, Tehran, Iran. (2005-2008)
- Lecturer, School of Electrical and Computer Engineering, University of Tehran, Tehran, Iran. (1998-2004)
- Senior Researcher, School of Computer Science, Institute for Studies in Theoretical Physics and Mathematics (IPM), Tehran, Iran (2004-2008).
- Founder and leader of Formal Methods Lab., School of Electrical and Computer Engineering, University of Tehran, Tehran, Iran. (2004 –)
- PostDoc position at SEN3 department of CWI, Amsterdam, Netherlands, 2003.
- Ph.D. in Computer Engineering, Computer Engineering Department, Sharif University of Technology, Tehran, Iran, 2004, graduated with excellent degree.
Thesis: Formal Specification and Verification of Concurrent and Reactive Systems
- Master of Science in Computer Engineering, Sharif University of Technology, Tehran, Iran, January 1994, graduated among top three in class.
Thesis: Analysis, Design and Implementation of a Dental Expert System
- Bachelor of Science in Computer Engineering, Shahid Beheshti University, Tehran, Iran, May 1989, graduated first in class

Achievements:

- Receiving the multi-disciplinary research grant from the Human-Centered Technology initiative at IDT for “Human-Centered Technology for Sustainable Future Industry”, 2024-2026, as the PI together with Anna Granlund, 12 million SEK.
- Receiving the Synergy project grant from the Knowledge Foundation Sweden (KKS), for SACSys project: Safe and Secure Adaptive Collaborative Systems, 2019-2024, as the Project Leader, 19 million SEK
- Receiving the Framework project grant from Swedish Foundation for Strategic Research, SSF, for Serendipity – Safe and Reliable Platforms for Autonomy, 2018-2024, 28 million SEK, as one of the four sub-project leaders
- Receiving Sharif University of Technology distinguished alumni award on the occasion of university’s 50th anniversary, as one of the 50 individuals out of 48,000 graduates in the last 50 years, 2016

- Receiving the SEADA research project grant from Icelandic National Research Institute (Rannis), 2016-2020
- Receiving the Fulbright Grant as a Fulbright Scholar in 2013, to visit University of California at Berkeley, May to August 2015.
- Receiving the largest research project grant from Icelandic National Research Institute (Rannis), TARO: Timed Asynchronous Reactive Objects in Distributed Systems, 2011-2015.
- Receiving one of the most competitive research grants from HiTec Institute in Iran in 2006.
- The only recipient of University of Tehran Scholarship for Ph.D. program in Computer Engineering in 1999, with appointment as a faculty member in advance.
- British Chevening Scholarship from the British Chevening Scholarship, March-April 2002.
- Graduated top three in class, M.S. program.
- Graduated first in class, B.S. program.
- Admitted and studied in Gifted Talented High School of Tehran

Leadership:

- Leader of Cyber-Physical Systems Analysis Research Group at Embedded Systems, Mälardalen University, since 2016.
- Establishing and leading Rebeca Group, a research group designing and maintaining the modeling language Rebeca and developing analysis tools for modeling, verification and performance analysis of concurrent and distributed systems using Rebeca, applying compositional verification, working on theory and tools for actor-based languages, since 2002. (<http://www.rebeca-lang.org/>)
- Co-founder and co-leader of the Icelandic Center for Research on Software Engineering, at the School of Computer Science, Reykjavik University, since 2008. (<http://labs.ru.is/rose/>)
- Head of Software Engineering Department, School of Electrical and Computer Engineering, University of Tehran, Tehran, Iran, June 2005 to September 2008, building up the department and make it one of the top three SE departments in the country.
- Initiating, organizing and chairing the first international conference on Fundamentals of Software Engineering (FSEN) in 2005, which is the first and

only highly credible international conference in the field of Computer Science and Software Engineering in the country with Springer LNCS publication and ACM and IFIP support (hold biannually since 2005).

- Establishing and leading the Formal Methods Research Lab., at the School of ECE, Univ. of Tehran, since 2004.

Academic Experience:

Research Projects with competitive grants

- Co-PI: Human-Centered Technology for Sustainable Future Industry, 2024-2026, MDU-IDT human-centered multi-disciplinary initiative, 2024-2026, 12 million SEK.
- Principal Investigator: Safe and Secure Adaptive Collaborative Systems (SACSys), Synergy project from the Knowledge Foundation Sweden (KKS), (2019-2024), 19 million SEK
- Co-leader: Serendipity - Secure and dependable platforms for autonomy, the Swedish SSF Framework Grant, 2018-2024, 28M SEK (2.8M EUR), together with Mikael Sjodin, Kristina Lundqvist, Elisabeth Uhlemann
- Leading the project: MACMa: Modeling and Analyzing Event-based Autonomous Systems, 2016 – 2023, Software Center, Sweden.
- Leading the project: Self-Adaptive Actors: SEADA, RANNIS project nr. IRF - 163205-051, the Icelandic Research Fund, 2016-2018, ~400,00K ISK (315K EUR), co-applicants: Edward Lee, Carolyn Talcott, Narges Khakpour.
- Isavia research fund for: Calculating Loss of Separation Using Earth Centered Vectors, 2840 þKR, 2015-2017
- Isavia research fund for: Test Case Generation for ISAVIA CPAR, 2015-2016
- Rannis NSN- Student Innovation Fund for: Systematic Test of Air Traffic Control Software using Logic-based Test Criteria, total 1530 þKR, 2014
- Isavia research fund for: Systematic Test of Air Traffic Control Software using Logic-based Test Criteria, salary for 3 students for 3 months for a total of 1530 þKR, 2014
- Rannis NSN - Student Innovation Fund for: Analyzing Network Scheduling Model of Icelandair, total 1020 þKR, 2014
- Icelandair research fund for: Analyzing Network Scheduling Model of Icelandair, salary for one student for 3 months for a total of 850 þKR, 2014
- The Icelandic Research Fund, for my PhD student Ali Jafari, 2.5 years' salary, 2012

- RU development fund number T10005, Checking the Correctness of Software Encoding Techniques for Detection of Hardware Errors, Reykjavik University, 2010
- Leading the project: Timed Asynchronous Reactive Objects in Distributed Systems: TARO, RANNIS project nr. 110020021, the Icelandic Research Fund, 2011-2013, 100K ISK (130k EUR), co-applicants: Luca Aceto, Anna Ingolfsson, Carolyn Talcott, Ramtin Khosravi, Frank de Boer.
- Leading the project: Reactive Objects in Real-time Applications: RORA, the pilot project, RU Development fund number T09006, Reykjavik University, 2009.
- Leading the project: Sysfier – SystemC Verifier (Grant from Hitec Centre 2006-2008) <http://www.rebeca-lang.org/wiki/pmwiki.php/Tools/Afra>, Formal Methods Lab. of ECE Dept. of Tehran University, Developing an integrated environment for modeling and verifying SystemC designs by formalizing SystemC semantics and providing model checking tools. Rebeca is used as the intermediate language and Rebeca verification tool set is used as the back-end model checkers.
- Collaborating on the Dutch-German project: Syanco - Synthesis and Analysis of Component Connectors (Grant from DFG-NWO 2006-2008) Joint project of CWI and Technische Universität Dresden. Working on formal semantics and formal verification methods for coordination language Reo.
- Collaborating on the European project Credo – Modeling and Analysis of Evolutionary Structures for Distributed Services, where the core language is based on Rebeca and actors.
- Leading the project: Analysis and Comparison of Coordination Models, IPM School of Computer Science, 2008.
- Leading the project: Analysis of Different Approaches in Formal Verification of Networks, IPM School of Computer Science, 2007
- Leading the project: Formal Verification of Network Protocols, IPM School of Computer Science, 2006.
- Leading the project: Component-based Correct Development of Distributed Systems, IPM School of Computer Science, 2005.

Research activities

- Cyber-Security. With Mikael Sjodin, Kristina Lundqvist, Elisabeth Uhlemann, external advisor: Edward Lee, David Garlan.

- Self-adaptive systems and their safety assurance. With Edward Lee and Ali Movaghar.
- Timed and Probabilistic actors, performance analysis and model checking. With Holger Hermanns.
- Working on the computational models and analysis of real-time and embedded systems, defining a real-time actor-based modeling language together with its formal semantics as SOS rules, different case studies, and mapping to Erlang language and Timed Automata. School of Computer Science at Reykjavik University, Reykjavik, with Luca Aceto and Anna Ingolfsson, since 2008.
- Working on formal semantics and compositional verification approaches for Rebeca, an actor-based (concurrent object-based) language; using Rebeca in different areas, including agent-based systems, web services, network protocols, security protocols, hardware/software co-design, and real-time systems. ECE Dept. of Tehran University and CE Dept. of Sharif University of Technology, Tehran, since 2001.
- Working on extracting interaction and coordination patterns from actor-based models, Software Engineering Dept., CWI, Amsterdam, with Carolyn Talcott and Farhad Arbab, since 2006.
- Working on formal semantics and formal verification methods for coordination language Reo. Software Engineering Dept., CWI, Amsterdam, with Farhad Arbab, Jan Rutten and Christel Baier, 2003-2006.
- Using Reo for modeling web services and hardware/software co-design, at ECE Dept. of Tehran University, since 2005.
- Compositional modeling and verification approaches, joining UML and Rebeca as a part of European IST project Omega, Software Engineering Dept., CWI, Amsterdam, with Frank de Boer, 2003.
- Model checking algorithms for Constraint Automata, Software Engineering Dept., CWI, Amsterdam and Institut für Informatik, Universität Bonn, Bonn, with Christel Baier, since 2003.
- Model checking tools and algorithms, using Rebeca and Alloy in verifying security protocols, Applied Semantics for Assured Software Group, Department of Computing, Imperial College of Science, Technology, and Medicine, London, 2002, work with Michael Huth.
- Formal methods for verification of distributed real-time systems, reviewing and comparing CCS, CSP, Unity, RML, and Actors, Computer Engineering Dept., Sharif University of Technology, Tehran; with Ali Movaghar, 2001.

- Designed a type-checker for specifications in Constructive-Z, Computer Engineering Dept., Sharif University of Technology, Tehran, with Seyed Hassan Mirian, 1998.

International Visits

- Visiting Ptolemy group at University of California at Berkeley, EECS Dept., May 2016, February 2017, October 2017, June 2019, June 2023. Visiting Edward Lee
- Fulbright visiting Scholar Ptolemy group at University of California at Berkeley, EECS Dept., May-August 2015. Visiting Edward Lee.
- Visiting Ptolemy group at University of California at Berkeley, EECS Dept., June 2013. Visiting Stavros Tripakis.
- Visiting Scholar at University of Illinois at Urbana-Champaign (UIUC), USA, Sept. to Dec. 2012 (Sabbatical). Visiting Gul Agha.
- Visit Stanford Research Institute (SRI), Menlo Park, USA, Nov. 2011. Work with: Carolyn Talcott.
- Visit University of Illinois at Urbana-Champaign (UIUC), USA, Nov. 2011. Work with Gul Agha.
- Guest Researcher at Coordination Languages Group (invited), Software Engineering Department, National Research Institute for Mathematics and Computer Science in the Netherlands (CWI), Amsterdam, January-February 2005, July and November 2006, July – August 2007, July 2008, July 2009. Work with: Farhad Arbab, Frank de Boer, Jan Rutten, Christel Baier, Carolyn Talcott.
- Guest Researcher at Coordination Languages Group (invited), Software Engineering Department, National Research Institute for Mathematics and Computer Science in the Netherlands (CWI), Amsterdam, May- June 2004. Work with: Farhad Arbab, Frank de Boer, Jan Rutten.
- Visiting Institut für Informatik (invited), Universität Bonn, Bonn, June 2004. Work with: Christel Baier.
- Researcher at Coordination Languages Group (PostDoc position), Software Engineering Department, National Research Institute for Mathematics and Computer Science in the Netherlands (CWI), Amsterdam, February-November 2003. Work with: Farhad Arbab, Jan Rutten.
- Visiting Institut für Informatik (invited), Universität Bonn, Bonn, July 2003. Work with: Christel Baier.

- Visiting member of the Applied Semantics for Assured Software Group, Department of Computing, Imperial College of Science, Technology, and Medicine, London, March-April 2002. Work with: Michael Huth.

Teaching

Have taught one or two courses each semester, from 1992 to 2008, in top four universities of Tehran on the following topics: Programming Languages, System Analysis and Design, Object Oriented Analysis and Design, Software Engineering, Advanced Topics in Software Engineering (graduate level), and Modeling and Verification of Concurrent Systems (graduate level).

Have taught at School of Computer Science, Reykjavik University, 2008 - 2016. Designed and taught two graduate level courses for MSc and PhD level students on Advanced Software Engineering, and Modeling and Verification. Designed and taught a BSc level course on Software Testing.

- Software Engineering II, School of Computer Science, Reykjavik University, Spring Semester 2009- 2016.
- Advanced Software Engineering (graduate level), School of Computer Science, Reykjavik University, Spring Semester 2009- 2016.
- Research Methodologies (graduate level), School of Computer Science, Reykjavik University, Fall Semester 2009- 2013.
- Modeling and Verification of Concurrent Systems (graduate level), Electrical and Computer Engineering Dept., University of Tehran, Spring semesters, 2005 - 2008. <http://ece.ut.ac.ir/Classpages/S86/ECE658/>
- Advanced Software Engineering (graduate level), Electrical and Computer Engineering Dept., University of Tehran, Fall semesters, 2006 - 2008. <http://ece.ut.ac.ir/Classpages/F86/ECE649/>
- System Analysis and Design, Electrical and Computer Engineering Dept., University of Tehran, Spring semesters, 1998 - 2008. <http://ece.ut.ac.ir/classpages/S85/SystemAnalysis/>
- Programming Languages Analysis and Design, Electrical and Computer Engineering Dept., University of Tehran, Fall semesters, 1998 - 2008. <http://ece.ut.ac.ir/Classpages/F85/ProgrammingLanguagesDesign/>
- Object Oriented Analysis and Design, Electrical and Computer Engineering Dept., University of Tehran, two semesters 1999 - 2000.
- Software Engineering Laboratory, Computer Engineering Dept., Sharif University of Technology, four semesters 1999 - 2001.

- Software Engineering, Computer Science Dept., Shahid Beheshti University, eight semesters 1994 - 1998.
- Software Engineering, Electrical and Computer Engineering Dept., University of Tehran, one semester 1997.
- Software Engineering, Computer Engineering Dept., Amir Kabir University of Technology, one semester 1997.
- Introduction to Computer Science, Computer Engineering Dept., Sharif University of Technology, five semesters 1992 - 1997.

Supervising

Supervised more than 60 undergraduate projects (BS final projects) in top three universities of Iran, Reykjavik University, and Mälardalen University:

- Mälardalen University, 2016 – now.
- Reykjavik University, 2008 – 2016.
- University of Tehran, 1998 - 2008;
- Sharif University of Technology, 2001- 2003;
- Shahid Beheshti University, 1994 - 1998.

Projects including:

- Model checking different versions of MIPS in SystemC using Afra, 2008
- Modeling and model checking rail-road control charts using Rebeca, 2008
- Mapping BPEL to Reo, 2007 (resulted in publication no. 32 below).
- Coordinating reactive objects using Reo, 2007.
- SOS semantics for Rebeca, 2007.
- Defining a UML profile for Rebeca, 2006 (resulted in publications no. 24, 30).
- Modeling RTL hardware using Rebeca, 2005 (resulted in publication no. 34).
- Modeling and verification of an agent-based system, 2004.
- Analysis, design and implementation of a tool for automated join/hide operations on Constraint Automata, 2004 (resulted in publication no. 17).
- Extending Rebeca to support synchronous messages, 2004 (resulted in publication no. 13).
- Analysis, design, and implementation of Rebeca to Promela translator, 2003 (resulted in publication no. 11).
- Multiple case studies for using Rebeca in modeling and verification of distributed and open systems, 2003 (resulted in publication no. 9).
- Analysis, design, and implementation of Rebeca to SMV translator, 2002 (resulted in publication no. 6, 7).
- Comparing CSP, RML, and Rebeca in specification and verification of concurrent systems, case studies, 2002.
- Converting Rebeca codes into Java and model checking their properties, 2001.
- Development of a web site for advertisement, following USDP and using UML and Rational Rose tool for development. 2000.

- Development of a web site for florists, using Power Designer tool for development, 2000.
- Development of a schoolteacher assistant program, 1998.
- Development of an expert system for diagnosis of dental diseases, 1998.
- Development of an expert system for diagnosis of psychological diseases using Exsys shell, 1997.

Supervising of graduate projects (MS thesis) - finished and on-going:

- Tool Orchestration for Modeling, Verification, and Analysis of Collaborating Autonomous Machines, Pavle Mrvaljevic, Malardalen University, 2020
- Software for Safe Mobile Robots with ROS 2 and Rebeca, Kostiantyn Sharovarskyi, Malardalen University, 2020
- Mapping UML Diagrams to the Reactive Object Language (Rebeca) - Master Thesis, Malardalen University, 2019
- RoboRebeca: A New Framework to Design Verified ROS-Based Robotic Programs, Saeid Dehnavi, Malardalen University, 2019
- Modeling and Analyzing Collaborating Heavy Machines, Jayasoorya Jayanthi Surendran Nair, Mälardalen University, 2017
- Modeling Hadoop Schedulability using Timed Rebeca, Helgi Leifsson, 2014
- Moving towards analyzability in Fisheries system management, Ástvaldur Sigurðsson, 2013.
- Simulation-based Analysis of Timed Rebeca using Te-Prop and SQL, Brynjar Magnusson, 2012.
- Event-based Analysis of Real-Time Actor Models, Haukur Kristinnson, 2012.
- From Axiomatic Systems to REPLICODE, to Non-Axiomatic Systems, Olafur Hlynsson, co-supervisor Kristinn Thorisson, 2011.
- Applying Game Search Heuristics in Model Checking, Steinar Hugi Sigurdarson, co-supervisor Yngvi Bjornsson, 2010. (Resulted in publication no. 53)
- Executing Timed Rebeca Models using Erlang (mapping and further analysis), Arni Hermann Reynisson 2010. (Resulted in publication no. 50)
- Distributed Product of Constraint Automata using CUDA, Gunnar Kristinn Vilbergsson, 2009.
- Analyzing Timed Rebeca using UPPAAL, Mohammad Javad Izadi, 2009.

- Web Service Composition using Reo (mapping BPEL to Reo and analyze the model using constraint automata), Farzad Mahdikhani, 2008. (Resulted in publication no. 41)
- Abstracting Rebeca Models for Formal Verification (incorporating abstraction techniques in Rebeca model checker tool), Hamideh Sabouri, 2008. (Resulted in publication no. 40)
- Using Artificial Intelligence in Model Checking Rebeca Models, Raziieh Behjati, 2008. (Resulted in publication no. 43)
- Study and Apply Reduction Techniques in Rebeca CTL Model Checker, Hooman BandehMoghaddam, 2008.
- Developing CTL Model Checker for Rebeca, Mehdi Sarmadi, 2007.
- Formal Verification of Object-based Systems using Process Algebra (using mCRL2 to verify Rebeca and SystemC codes), Hossein Hojjat, 2007. (Resulted in publication no. 29)
- Using Software Techniques in Hardware Verification (using Reo and constraint automata for hardware/software co-design), Niloofar Razavi, 2006. (Resulted in publications no. 25, 28)
- Investigating the Analyzability of the Coordination Language Reo (studying different semantics of Reo and classifying different kinds of priorities which can be considered in Reo and constraint automata), Samira Tasharofi, 2006.
- Modeling and Verification of Security Protocols using Rebeca, Ali Abdolrahmani, 2006.

Co-supervising of graduate projects (in different universities)- finished and on-going:

- Formal Verification of Hyperledger Fabric Smart Contracts, Elmira Ebrahimi, University of Tehran, 2021
- Modeling and Analysis of Systems based on Communication Patterns, Mahsa Zarneshan, University of Tehran, 2020
- A Framework for Formal Analysis of Warning Message Dissemination Schemes in VANETs Using an Extension of Rebeca, Farnaz Yousefi, University of Tehran, 2018
- SmartHub: an agent based simulation framework for validating smart mobility solutions, J. de Berardinis, C. Castagnari. G. Forcina, (Camerino-RU double degree), 2016
- Mapping Timed Rebeca to Real-Time Maude, Zeynab Sabahi, University of Tehran, 2012

- Performance Analysis and Deadlock Detection of NoC, Zeynab Sharifi, University of Tehran, 2011
- Distributed Model Checking of Rebeca, Ehsan Khamespanah, AmirKabir University of Technology, 2008.
- Using SAT-Solvers to Model Check Rebeca for Data-Centric Applications, Marieh Jahania, Sharif University of Technology, 2008.
- Model checking Rail-Road Control Charts using Rebeca, Mohammad Bemani Yazdi, Iranian University of Science and Technology, 2008.
- Compositional Semantics for Rebeca using Constraint Automata and Implementing a Tool for Automatic Conversion, Mahmood Farokhian, Sharif University of Technology, 2005.
- Verification of Rebeca models using Partial-Order and Symmetry Techniques, Mohammad Mahdi Jaghouri, , Sharif University of Technology, 2005. (Resulted in publications no. 14, 15)

Post-Docs:

Zahra Moezkarimi, 2023

Maryam Bagheri, 2021

Sara Abbaspour, 2019-2021

Ali Sedaghat, 2018-2019

Ehsan Khamespanah, 2017-2019

Ali Jafari, Self-adaptive Actors, at RU, 2016 - 2018.

Ute Schiffl, Analyzing Software Encoding Techniques: ASET, at RU, 2011-2012

PhD Graduates:

Fereidoun Moradi - Automated Vulnerability Discovery and Attack Detection Framework for Cyber-Physical Systems - MDU, graduated 2024

Maryam Bagheri - Compositional Verification of Adaptive Coordinated Actors - Sharif University of Technology, graduated 2021

Ehsan Khamespanah – Model Checking Timed Actors - University of Tehran, and RU, started 2010, graduated Jan. 2017

Ali Jafari - Performance Evaluation of Timed Asynchronous Reactive Objects in Distributed Systems – RU, graduated April 2016

Narges Khakpour – Modeling and Analysis of Self-Adaptive Systems, University of Tarbiat Moddaress, Tehran, graduated in April 2012 (is granted the double-degree offer from Leiden)

PhD Students:

Hiep Hong Trinh, Mälardalen University, started 2024
Stefan Marksteiner, Mälardalen University, started 2021
Maghsood Salimi, Mälardalen University, started 2020
Giorgio Forcina, Mälardalen University, started 2017
Zeinab Sharifi, University of Tehran, started 2016

A member of PhD committee for several students, including:

Chris Shaver (UC Berkeley), Peter Dinges (UIUC), Young-joo Moon (Leiden), Jordi Bieger (Reykjavik), Mohammad Izadi (Leiden), Arild Torjesen (Oslo), Meriem Oderi (Malaga), Francesco Marconi (Politecnico di Milano, 2018), Paolo Francesco Sciammarella (University of Calabria, 2019), Behrooz Nobakht (Leiden, 2019), Faranak Nejati (Putra Malaysia, 2019), Behnaz Changizi (Leiden, 2020), Xin Zhao (KTH, 2021), Zeinab Ganjei (Linköping U., 2021), Andrei Munteanu (University of Verona, 2021), Rodothea Myrsini Tsoupidi (KTH, 2023), Jens Henriksson (Chalmers, 2023), Farzane Karami (Univ. of Oslo, 2023), Erling Rennemo Jellum (Norwegian University of Science and Technology, NTNU, Trondheim, Norway, 2024), Abdullah Aziz (Luleå University, Sweden), Christian Lidstrom (KTH, Sweden, 2024), Mohammad Naeem (Aalborg, Denmark, 2024), Bian Jinting (Leiden, Netherlands, 2024), Cong Quy Trinh (Uppsala, Sweden, 2024), Arash Sheikhlari (Reykjavik University, Iceland) 2024

Other Experience

- Establishing Cyber-Physical Analysis Research Group, IDT Group, Mälardalen University, 2016.
- Establishing IceRose Research Lab, School of Computer Science, Reykjavik University, 2008.
- Established Formal Methods Lab, School of Electrical and Computer Engineering, University of Tehran, 2004.
- Established Software Engineering Laboratory, School of Electrical and Computer Engineering, University of Tehran, 2001.
- Established Software Engineering Laboratory, Computer Engineering Dept., Sharif University of Technology, 1999.

Publications:

h-index: 28 (Nov. 2024)

i10-index: 72

source: <https://scholar.google.com/citations?user=TKnSrTQAAAAJ&hl=en>

Peer-reviewed journal papers:

39. Fereidoun Moradi, Sara Abbaspour Asadollah, Bahman Pourvatan, Zahra Moezkarimi, Marjan Sirjani, CRYSTAL framework: Cybersecurity assurance for cyber-physical systems, Journal of Logical and Algebraic Methods in Programming, 139, Elsevier, 2024

38. Fereidoun Moradi, Bahman Pourvatan, Sara A. Asadollah, M Sirjani: Tiny Twins for detecting cyber-attacks at runtime using concise Rebeca time

- transition system, *Journal of Parallel and Distributed Computing* 184, 104780, 2024
37. Mahsa Zarneshan, Fatemeh Ghassemi, Ehsan Khamespanah, Marjan Sirjani, John Hatcliff: Specification and Verification of Timing Properties in Interoperable Medical Systems. *Log. Methods Comput. Sci.* 18(2) (2022)
 36. M. Bagheri, M. Sirjani, E. Khamespanah, C. Baier, and A. Movaghar. Magnifier: A compositional analysis approach for autonomous traffic control. *IEEE Transactions on Software Engineering*, 2022
 35. Iman Jahandideh, Fatemeh Ghassemi, Marjan Sirjani: An Actor-based Framework for Asynchronous Event-based Cyber-Physical Systems, *Software and Systems Modeling*, 2021
 34. Marjan Sirjani, Luciana Provenzano, Sara Abbaspour Asadollah, Mahshid Helali Moghadam, and Mehrdad Saadatmand: Towards a Verification-Driven Iterative Development of Software for Safety-Critical Cyber-Physical Systems, *Journal of Internet Services and Applications*, Springer, 2021
 33. Marjan Sirjani, Edward A. Lee, Ehsan Khamespanah: Verification of Cyberphysical Systems, *Design, Modeling, Verification, and Analysis of Cyber-Physical Systems special issue of Mathematics*, 2020
 32. Giorgio Forcina, [Ali Sedaghatbaf](#), [Stephan Baumgart](#), [Ali Jafari](#), [Ehsan Khamespanah](#), [Pavle Mrvaljevic](#), Marjan Sirjani: Safe Design of Flow Management Systems Using Rebeca. [Journal of Information Processing](#) 28: 588-598 (2020)
 31. Farnaz Yousefi, Ehsan Khamespanah, Mohammed Gharib, Marjan Sirjani, Ali Movaghar, VeriVANca: An Actor-Based Framework for Formal Verification of Warning Message Dissemination Schemes in VANETs, *The International Journal on Software Tools for Technology Transfer (STTT)*, 2020
 30. Maryam Bagheri, Marjan Sirjani, Ehsan Khamespanah, Narges Khakpour, Ilge Akkaya, Ali Movaghar, Edward A. Lee: Coordinated actor model of self-adaptive track-based traffic control systems. *Journal of Systems and Software* 143: 116-139 (2018)
 29. Jacopo de Berardinis, Giorgio Forcina, Ali Jafari, Marjan Sirjani: Actor-based macroscopic modeling and simulation for smart urban planning, *Science of Computer Programming*, 168, 142-164, 2018
 28. Ehsan Khamespanah, Ramtin Khosravi, Marjan Sirjani, An Efficient TCTL Model Checking Algorithm and A Reduction Technique for Verification of Timed Actor Models, *Science of Computer Programming*, 153, 1-29, 2018
 27. Frank De Boer, Vlad Serbanescu, Reiner Hähnle, Ludovic Henrio, Justine Rochas, Crystal Chang Din, Einar Broch Johnsen, Marjan Sirjani, Ehsan

- Khamespanah, Kiko Fernandez-Reyes, Albert Mingkun Yang, A Survey of Active Object Languages, ACM Computing Surveys (CSUR), 2017
26. Ehsan Khamespanah, Kirill Mechitov, Marjan Sirjani, Gul Agha: Modeling and Analyzing Real-Time Wireless Sensor and Actuator Networks Using Actors and Model Checking, *Software Tools for Technology Transfer*, 20 (5), 547-561, 2018
 25. Mohammad Mahdi Jaghoori, Frank de Boer, Delphine Longuet, Tom Chothia, Marjan Sirjani, Compositional schedulability analysis of real-time actor-based systems, *Acta Informatica*, 54(4), 343-378, 2017
 24. Ali Jafari, Ehsan Khamespanah, Haukur Kristinsson, Marjan Sirjani, Brynjar Magnusson: Statistical model checking of Timed Rebeca models. Computer Languages, Systems & Structures 45: 53-79 (2016)
 23. Ali Jafari, Ehsan Khamespanah, Marjan Sirjani, Holger Hermanns, Matteo Cimini: PTRebeca: Modeling and analysis of distributed and asynchronous systems. Sci. Comput. Program. 128: 22-50 (2016)
 22. Ehsan Khamespanah, Marjan Sirjani, Mohammad Reza Mousavi, Zeynab Sabahi-Kaviani, Mohamadreza Razzazi: State Distribution Policy for Distributed Model Checking of Actor Models. ECEASST 72 (2015)
 21. Zeynab Sabahi-Kaviani, Ramtin Khosravi, Peter Csaba Ölveczky, Ehsan Khamespanah, Marjan Sirjani: Formal semantics and efficient analysis of Timed Rebeca in Real-Time Maude. Sci. Comput. Program. 113: 85-118 (2015)
 20. Ehsan Khamespanah, Marjan Sirjani, Zeynab Sabahi-Kaviani, Ramtin Khosravi, Mohammad-Javad Izadi, Timed Rebeca schedulability and deadlock freedom analysis using bounded floating time transition system. *Science of Computer Programming*, 98: 184-204 (2015)
 19. Ali Jafari, Ehsan Khamespanah, Marjan Sirjani, Holger Hermanns, Performance Analysis of Distributed and Asynchronous Systems using Probabilistic Timed Actors. *ECEASST 70* (2014)
 18. A. H. Reynisson, M. Sirjani, L. Aceto, M. Cimini, A. Jafari, A. Ingolfsdottir, S. H. Sigurdarson, Modelling and Simulation of Asynchronous Real-Time Systems using Timed Rebeca, *Science of Computer Programming*, 2014
 17. Z. Sharifi, M. Mosaffa, S. Mohammadi, M. Sirjani: Functional and Performance Analysis of Network-on-Chips Using Actor-based Modeling and Formal Verification. *ECEASST 66* (2013)
 16. N. Khakpour, S. Jalili, M. Sirjani, Ursula Goltz, Bahareh Abolhasanzadeh, HPobSAM for Modeling and Analyzing IT Ecosystems - Through a Case Study, *Journal of Systems and Software* 85 (12): 2770-2784, Elsevier, 2012.

15. N. Khakpour, S. Jalili, C. Talcott, M. Sirjani, M. R. Mousavi, Formal Modeling of Evolving Self-Adaptive Systems, *Science of Computer Programming* 78(1), 3-26, 2012.
14. B. Pourvatan, M. Sirjani, H. Hojjat, F. Arbab, Symbolic execution of Reo circuits using constraint automata, *Science of Computer Programming*, 77(7-8): 848-869 (2012).
13. H. Hojjat, M.R. Mousavi, and M. Sirjani. Formal Analysis of SystemC Designs in Process Algebra, *Fundamenta Informaticae*, 107 (1): 19-42, IOS Press, 2011. (An extended and improved version of the ACSD 2008 paper.)
12. H. Sabouri, M. Sirjani, Actor-based Slicing Techniques for Efficient Reduction of Rebeca Models, *Science of Computer Programming*, 75(10): 811-827 (2010).
11. C. Talcott, M. Sirjani, S. Ren, Comparing Three Coordination Models: Reo, ARC, and RRD, *Science of Computer Programming*, 76(1): 3-22 (2011).
10. N. Razavi, R. Behjati, H. Sabouri, E. Khamespanah, A. Shali, M. Sirjani, Sysfier: Actor-based Formal Verification of SystemC, *ACM Transactions on Embedded Computing Systems*, Vol. 10, No. 2, Article 19, December 2010.
9. M. M. Jaghoori, M. Sirjani, M. R. Mousavi, E. Khamespanah, A. Movaghar, Symmetry and Partial Order Reduction Techniques in Model Checking Rebeca, *Acta Informatica*, Volume 47, Issue 1, pp. 33-66, 2009.
8. M.M. Jaghoori, F. de Boer, T. Chotia, and M. Sirjani, Schedulability of asynchronous Real-time concurrent objects, *Journal of Logic and Algebraic Programming*, Elsevier, Volume 78, Issue 5, pp. 402-416, 2009.
7. H. R. Shahriari, M. S. Makarem, M. Sirjani, R. Jalili, A. Movaghar, Vulnerability Analysis of Networks to Detect Multiphase Attacks Using the Actor-based Language Rebeca, *Journal of Computers and Electrical Engineering*, Elsevier, available online June 2008.
6. H. Hojjat, H. Nakhost, M. Sirjani., Integrating Module Checking and Deduction in a Formal Proof for the Perlman Spanning Tree Protocol (STP), *Journal of Universal Computer Science (J.UCS)*, vol. 13, no. 13, pp. 2076-2104, 2007.
5. C. Baier, M. Sirjani, F. Arbab, J.J. Rutten, Modeling component connectors in Reo by constraint automata, *Journal of Science of Computer Programming*, Vol. 61, Issue 2, pp. 75-113, July 2006.
4. M. Sirjani, A. Movaghar, A. Shali, F. S. de Boer: Model Checking, Automated Abstraction, and Compositional Verification of Rebeca Models. *J. UCS* 11(6), pp. 1054-1082, 2005.

3. M. Sirjani, A. Movaghar, Integrating Model Checking and Deduction for an Actor-Based Language, *Scientia Journal* 12(1), pp. 55-65, 2005.
2. M. Sirjani, F. S. de Boer, A. Movaghar, Modular Verification of a Component-based Actor Language, *J.UCS* 11(10), pp. 1695–1717, 2005.
1. M. Sirjani, A. Movaghar, A. Shali, F.S. de Boer, Modeling and Verification of Reactive Systems using Rebeca, *Fundamenta Informaticae*, Volume 63, Number 4, ISSN 0169-2968, pp. 385-410, 2004.

Peer-reviewed Conference and Workshop Papers:

102. Stefan Marksteiner, Marjan Sirjani, Mikael Sjödín: Automated Passport Control: Mining and Checking Models of Machine Readable Travel Documents. *ARES 2024*: 171:1-171:8
101. Rong Gu, Zahra Moezkarimi, Marjan Sirjani: Guess and Then Check: Controller Synthesis for Safe and Secure Cyber-Physical Systems. *FORTE 2024*: 230-238
100. Ramtin Khosravi, Ehsan Khamespanah, Fatemeh Ghassemi, Marjan Sirjani: Actors Upgraded for Variability, Adaptability, and Determinism. *Active Object Languages: Current Research Trends 2024*: 226-260
99. Bjarne Johansson, Bahman Pourvatan, Zahra Moezkarimi, Alessandro Papadopoulos, Marjan Sirjani: Formal Verification of Consistency for Systems with Redundant Controllers. *MARS@ETAPS 2024*: 169-191
98. Stefan Marksteiner, Christoph Schmittner, Korbinian Christl, Dejan Nickovic, Mikael Sjödín, Marjan Sirjani: From TARA to Test: Automated Automotive Cybersecurity Test Generation Out of Threat Modeling. *CSCS 2023*: 5:1-5:10
97. Stefan Marksteiner, Marjan Sirjani, Mikael Sjödín: Using Automata Learning for Compliance Evaluation of Communication Protocols on an NFC Handshake Example. *ECBS 2023*: 170-190
96. Maghsood Salimi, Mohammad Loni, Sara Afshar, Marjan Sirjani, Antonio Cicchetti: ConstScene: Dataset and Model for Advancing Robust Semantic Segmentation in Construction Environments. *CoRR abs/2312.16516* (2023)
95. Elmira Ebrahimi, Ehsan Khamespanah, Marjan Sirjani, Siamak Mohammadi: Model Checking of Hyperledger Fabric Smart Contracts. *ETFA 2023*: 1-8
93. Ehsan Khamespanah, Marjan Sirjani, Ramtin Khosravi: Afra: An Eclipse-Based Tool with Extensible Architecture for Modeling and Model Checking of Rebeca Family Models. *FSEN 2023*: 72-87

93. Maghsood Salimi, Mohammad Loni, Marjan Sirjani: Learning Activation Functions for Adversarial Attack Resilience in CNNs. ICAISC (1) 2023: 203-214
92. Maghsood Salimi, Mohammad Loni, Marjan Sirjani, Antonio Cicchetti, Sara Abbaspour Asadollah: Saraf: Searching for adversarial robust activation functions, Proceedings of the 2023 6th International Conference on Machine Vision and Applications, 174-182, 2023
91. Fatemeh Ghassemi, Marjan Sirjani, Ehsan Khamespanah, Mahrokh Mirani, Hossein Hojjat: Transparent Actor Model. FormaliSE 2023: 97-107
90. Marjan Sirjani, Ehsan Khamespanah: Timed Actors and Their Formal Verification. EXPRESS/SOS 2023: 1-7
89. Ehsan Khamespanah, Morteza Mohaqeqi, Mohammad Ashjaei, Marjan Sirjani: Schedulability Analysis of WSN Applications: Outperformance of a Model Checking Approach. ETFA 2022: 1-8
88. Fereidoun Moradi, Maryam Bagheri, Hanieh Rahmati, Hamed Yazdi, Sara Abbaspour Asadollah, Marjan Sirjani: Monitoring Cyber-Physical Systems Using a Tiny Twin to Prevent Cyber-Attacks. SPIN 2022: 24-43
87. Maryam Bagheri, Marjan Sirjani, Ehsan Khamespanah, Hossein Hojjat, Ali Movaghar: Partial Order Reduction for Timed Actors. VSTTE 2021: 43-60
86. Mahsa Zarneshan, Fatemeh Ghassemi, Marjan Sirjani: Formal Modeling and Analysis of Medical Systems. COORDINATION 2020: 386-402
85. Fereidoun Moradi, Sara Abbaspour Asadollah, Ali Sedaghatbaf, Aida Causevic, Marjan Sirjani, Carolyn L. Talcott: An Actor-Based Approach for Security Analysis of Cyber-Physical Systems. FMICS 2020: 130-147
84. [Aida Causevic](#), [Alessandro Vittorio Papadopoulos](#), Marjan Sirjani: Towards a Framework for Safe and Secure Adaptive Collaborative Systems. [COMPSAC \(2\) 2019](#): 165-170
83. Marjan Sirjani, [Giorgio Forcina](#), [Ali Jafari](#), [Stephan Baumgart](#), [Ehsan Khamespanah](#), [Ali Sedaghatbaf](#): An Actor-Based Design Platform for System of Systems. [COMPSAC \(1\) 2019](#): 579-587
82. [Marten Lohstroh](#), [Martin Schoeberl](#), [Andrés Goens](#), [Armin Wasicek](#), [Christopher Gill](#), Marjan Sirjani, [Edward A. Lee](#): Actors Revisited for Time-Critical Systems. [DAC 2019](#): 152
81. Marjan Sirjani: Analysing Real-time Distributed Systems using Timed Actors. [DS-RT 2019](#): 1
80. Marjan Sirjani, [Ehsan Khamespanah](#), [Fatemeh Ghassemi](#): Reactive Actors: Isolation for Efficient Analysis of Distributed Systems. [DS-RT 2019](#): 1-10

79. [Maghsood Salimi](#), [Amin Majd](#), [Mohammad Loni](#), [Tiberiu Seceleanu](#), [Cristina Seceleanu](#), Marjan Sirjani, [Masoud Daneshtalab](#), [Elena Troubitsyna](#): Multi-objective Optimization of Real-Time Task Scheduling Problem for Distributed Environments. [ECBS 2019](#): 13:1-13:9
78. [Fereidoun Moradi](#), [Ali Sedaghatbaf](#), [Sara Abbaspour Asadollah](#), [Aida Causevic](#), Marjan Sirjani: On-Off Attack on a Blockchain-based IoT System. [ETF A 2019](#): 1768-1773
77. [Narges Khakpour](#), [Jetty Kleijn](#), Marjan Sirjani: A Formal Model to Integrate Behavioral and Structural Adaptations in Self-adaptive Systems. [FSEN 2019](#): 3-19
76. [Farnaz Yousefi](#), [Ehsan Khamespanah](#), [Mohammed Gharib](#), Marjan Sirjani, [Ali Movaghar](#): VeriVANca: An Actor-Based Framework for Formal Verification of Warning Message Dissemination Schemes in VANETs. [SPIN 2019](#): 244-259
75. [Iman Jahandideh](#), [Fatemeh Ghassemi](#), Marjan Sirjani: Hybrid Rebeca: Modeling and Analyzing of Cyber-Physical Systems. [CyPhy/WESE 2018](#): 3-27
74. Edward A. Lee, Marjan Sirjani: What Good are Models? FACS 2018: 3-31
73. Marjan Sirjani, Fatemeh Ghassemi, Bahman Pourvatan: Reo Connectors and Components as Tagged Signal Models. It's All About Coordination 2018: 160-173
72. Ali Jafari, Jayasoorya Jayanthi Surendran Nair, Stephan Baumgart, Marjan Sirjani: Safe and efficient fleet operation for autonomous machines: an actor-based approach. SAC 2018: 423-426
71. Marjan Sirjani: Power is Overrated, Go for Friendliness! Expressiveness, Faithfulness and Usability in Modeling - The Actor Experience, Proceedings of Edward A. Lee Festschrift, Principles of Modeling, 423-448, 2018
70. Carlo Castagnari, Jacopo de Berardinis, Giorgio Forcina, Ali Jafari, Marjan Sirjani: Lightweight Preprocessing for Agent-Based Simulation of Smart Mobility Initiatives, FOCLASA, SEFM Workshops 2017: 541-557, 2017
69. Marjan Sirjani, Ehsan Khamespanah, Kirill Mechitov and Gul Agha: A Compositional Approach for Modeling and Timing Analysis of Wireless Sensor and Actuator Networks, CRTS 2016, [SIGBED Review 14\(3\)](#): 49-56 (2017)
68. Maryam Bagheri, Ehsan Khamespanah, Marjan Sirjani, Ali Movaghar and Edward A. Lee: Runtime Compositional Analysis of Track-based Traffic Control Systems, CRTS 2016, [SIGBED Review14\(3\)](#): 38-39 (2017)
67. Maryam Bagheri, Ilge Akkaya, Ehsan Khamespanah, Narges Khakpour, Marjan Sirjani, Ali Movaghar, Edward, lee, Coordinated Actors for Reliable Self-Adaptive Systems, FACS 2016
66. M. Sirjani, E. Khamespanah: On Time Actors, Theory and Practice of Formal Methods 2016, LNCS 9660, 2016

65. E. Khamespanah, K. Mechtov, M. Sirjani, G. Agha: Schedulability Analysis of Distributed Real-Time Sensor Network Applications Using Actor-Based Model Checking, SPIN 2016
64. A. Zakarian, E. Khamespanah, M. Sirjani, R. Khosravi, Jacco: More Efficient Model Checking Toolset for Java Actor Programs, Agere 2015, USA, 2015
63. E. Khamespanah, M. Sirjani, M. Viswanathan, R. Khosravi, Bounded Floating-Time Transition System: Significant Reduction for Analysing Actors, FACS 2015, Brazil, Oct. 2015
62. E. Khamespanah, M. Sirjani, M.R. Mousavi, Z. Sabahi Kaviani and M. Razzazi, State Distribution Policy for Distributed Model Checking of Actor Models, AVoCS 2015, UK, Sept. 2015
61. B. Magnusson, E. Khamespanah, M. Sirjani, R. Khosravi, Event-based Analysis of Timed Rebeca Models using SQL, AGERE 2014, USA, October 2014
60. E. Khamespanah, M. Sirjani, R. Khosravi, Efficient TCTL Model Checking Algorithm for Timed Actors, AGERE 2014, USA, October 2014
59. A. Jafari, E. Khamespanah, [M. Sirjani](#) and [H. Hermans](#), Performance Analysis of Distributed and Asynchronous Systems using Probabilistic Timed Actors, In: AVoCS 2014, Netherlands, 2014
58. Z. Sabahi-Kaviani, R. Khosravi, M. Sirjani, P. Ölveczky, and E. Khamespanah, Formal Semantics and Analysis of Timed Rebeca in Real-Time Maude, In: FTSCS 2013
57. H. Kristinsson, A. Jafari, E., Khamespanah, B. Magnusson, M. Sirjani: Analysing Timed Rebeca using McErlang. In: AGERE@Splash 2013
56. Z. Sharifi, M. Mosaffa, S. Mohammadi, M. Sirjani, Functional and Performance Analysis of Network-on-Chips Using Actor-based Modeling and Formal Verification, AVoCS 2013 (conference pre-proceedings)
55. Z. Sharifi, S. Mohammadi, M. Sirjani, Comparison of NoC Routing Algorithms Using Formal Methods, PDPTA 2013
54. E. Khamespanah, Z. Sabahi Kaviani, R. Khosravi, M. Sirjani, M.J. Izadi, Timed-Rebeca Schedulability and Deadlock-Freedom Analysis Using Floating-Time Transition System, ACM AGERE! 2012
53. S. Sigurdarson, M. Sirjani, Y. Bjornsson, A. Reynisson, Guided Search for Deadlocks in Actor-Based Models, LNCS of FACS 2012
- 53-2. Narges Khakpour, Marjan Sirjani, Ursula Goltz: Context-Based Behavioral Equivalence of Components in Self-Adaptive Systems. ICFEM 2011: 16-32

52. M. Sirjani, M. M. Jaghoori, Ten Years of Analyzing Actors: Rebeca Experience, LNCS 7000, pp. 20-56, 2011
51. M. M. Jaghoori, O. Hlynsson, M. Sirjani, Networks of Real-Time Actors: Schedulability Analysis and Coordination, 8th International Workshop on Formal Aspects of Component Software ([FACS 2011](#)), 2011
50. L. Aceto, M. Cimini, A. Ingolfsdottir, A. H. Reynisson, S. H. Sigurdarson, M. Sirjani, Modelling and Simulation of Asynchronous Real-Time Systems using Timed Rebeca, ENTCS, Proceedings of FOCLASA 2011
49. B. Pourvatan, M. Sirjani, F. Arbab, M. Bonsangue, Synthesis of Reo Circuits through Decomposition of Complete Constraint Automata, 7th International Workshop on Formal Aspects of Component Software ([FACS 2010](#)), October 14-16, 2010, Guimarães, Portugal.
48. N. Khakpour, R. Khosravi, M. Sirjani, S. Jalili, Formal Analysis of Policy-Based Self-Adaptive Systems, Proceedings of SAC'10, pp. 2536-2543, 2010.
47. N. Khakpour, S. Jalili, C. Talcott, M. Sirjani, M. M. Mousavi, PobSAM: Policy-based Managing of Actors in Self-Adaptive Systems, Proceedings of FACS09, LNCS, 2009
46. B. Pourvatan, M. Sirjani, H. Hojjat, F. Arbab, Automated Analysis of Reo Circuits using Symbolic Execution, Proceedings of FOCLASA09, ENTCS, 2009.
45. N. Khakpour, M. Sirjani and S. Jalili, Formal Analysis of Smart Home Policies using Compositional Verification , Proceedings of ICFI'09, 2009.
44. H. Hajabdolali Bazzaz, M. Sirjani, R. Khosravi, S. Taheri: Modeling Networking issues of Network-on-chip: a Coloured Petri nets Approach. SimuTools 2009: 22.
43. R. Behjati, M. Nili Ahmadabadi, M. Sirjani, Bounded Rational Search for On-the-fly Model Checking of LTL Properties, Proceedings of FSEN'09, Springer LNCS, Vol. 5961, pp. 292-307, 2009.
42. S. Tasharofi, M. Sirjani, Formal Modeling and Conformance Validation for WS-CDL using Reo and CASM, Proceedings of FOCLASA'08, Elsevier ENTCS post-proceedings, Vol. 229, Issue 2, 21 July 2009, Pages 155-174
41. F. Mahdikhani, M. R. Hashemi, M. Sirjani, QoS Aspects in Web Services Compositions, Proceedings of The Fourth IEEE International Symposium on Service-Oriented System Engineering (SOSE 2008), 2008.
40. H. Sabouri, M. Sirjani, Slicing-based Reductions for Rebeca, Proceedings of FACS'08, Elsevier ENTCS post-proceedings, Vol. 260, pp. 209-224, 2010.

39. H. Hojjat, M. R. Mousavi, M. Sirjani, A Framework for Performance Evaluation and Functional Verification in Stochastic Process Algebra, pp. 339-346, ACM SAC 2008.
38. H. Hojjat, M. R. Mousavi, M. Sirjani, Process Algebraic Verification of SystemC Codes, pp. 62-67, IEEE ACSD 2008.
37. R. Behjati, H. Sabouri, N. Razavi, M. Sirjani, An Effective Approach for Model Checking SystemC Designs, pp. 56-61, IEEE ACSD 2008.
36. R. Khosravi, M. Sirjani, N. Asoudeh, S. Sahebi, H. Iravanchi, Modeling and Analysis of Reo Connectors using Alloy, LNCS 5052, pp. 169-183 , Coordination 2008.
35. M.M. Jaghoori, F. de Boer and M. Sirjani, Task Scheduling in Rebeca, Proceedings of the 19th Nordic Workshop on Programming Theory (NWPT 2007), Oslo, Norway, pp. 16-18, October 2007.
34. N. Hakimipour, N. Razavi, M. Sirjani, Modeling and formal verification of hardware designs. Proceedings of 5th IEEE East-West Design & Test Symposium (EWDTS 2007), 2007.
33. C. Talcott, M. Sirjani, S. Ren, Comparing Three Coordination Models: Reo, ARC, and RRD, Proceedings of FOCLASA 2007, ENTCS, vol. 194, no. 4, Pages 39-55, April 2008.
32. S. Tasharofi, M. Vakilian, R. Zilouchian Moghaddam, M. Sirjani, Modeling Web Services using Coordination Language Reo, Proceedings of WS-FM07, LNCS 4937 , pp. 108-123, 2007.
31. M. Sirjani, Rebeca: Theory, Applications and Tools, Proceedings of FMCO'06, LNCS 4709, pp. 102 -126, 2007.
30. F. AlaviZadeh, A. Hashemi-Nekoo, M. Sirjani, ReUML: a UML Profile for Modeling and Verification of Reactive Systems, Proceedings of ICSEA'07, 2007.
29. H. Hojjat, M. Sirjani, M. R. Mousavi, J. F. Groote: Sarir, A Rebeca to mCRL2 Translator, Proceedings of. ACSD 2007, IEEE, pp. 216-222, 2007.
28. N. Razavi, M. Sirjani: Compositional Semantics of System-Level Designs Written in SystemC, Proceedings of FSEN 2007, LNCS 4767, pp. 113-128, 2007.
27. M. R. Kakoei, H. Shojaei, H. Ghasemzadeh, Marjan Sirjani, Z. Navabi, A New Approach for Design and Verification of Transaction Level Models, Proceedings of ISCAS 2007, IEEE, pp. 3760-3763, 2007.
26. S. Tasharofi, S. Ansari, M. Sirjani, Generating Test Cases for Constraint Automata by Genetic Symbiosis Algorithm, Proceedings of ICFEM 2006, LNCS 4260, pp. 478-493, 2006.

25. N. Razavi, M. Sirjani, Using Reo for Formal Specification and Verification of System Designs, Proceedings of MEMOCODE 2006, IEEE, pp. 113-122, July 2006.
24. F. Alavizadeh, M. Sirjani, Using UML to Develop Verifiable Reactive Systems, Proceedings of SERP'06, June 2006.
23. M. Sirjani, M.M. Jaghoori, C. Baier, F. Arbab, Compositional Semantics of an Actor-Based Language using Constraint Automata, Proceedings of Coordination 2006, LNCS 4038, pp. 281-297, 2006.
22. F. Ghassemi, N. Nemat-Bakhsh, B. T. Ladani and M. Sirjani, A Formal Model for Organization of Multi-agent Systems, In Proceeding of the Symposium on Information Technology Development, Iran, 2005
21. F. Ghassemi, N. Nemat-Bakhsh, B. T. Ladani and M. Sirjani, Specification and Implementation of Multi-Agent Organizations, In proceeding of Second International Conference on Web Information Systems and Technologies, pp. 447-453, 2006, Portugal.
20. F. Ghassemi, N. Nemat-Bakhsh, B. T. Ladani and M. Sirjani, A Formal Model for Coordination Behavior of the Organization in Multi Agent Systems, In proceeding of second International Conference on Information & Communication Technologies: from Theory to Applications, Syria, IEEE, 2006.
19. M.R. Mousavi, M. Sirjani, F. Arbab, Formal Semantics and Analysis of Component Connectors in Reo, in Proceedings of FOCLASA'05, San Francisco, USA, August 2005, ENTCS 154(1), pp. 83-89, Elsevier Science, 2006.
18. H. R. Shahriari, M. Sadegh Makarem, M. Sirjani, R. Jalili and A. Movaghar, Modeling and Verification of Complex Network Attacks Using an Actor-Based Language, Proceedings of 11th Annual Int. CSI Computer Conference, Tehran, Iran, pp. 152-158, January 2006.
17. F. Ghassemi, S. Tasharofi and M. Sirjani, Automated Mapping of Reo to Constraint Automata, In Proceeding of the first International Conference on Fundamental of Software Engineering 2005, pp. 99-115, Iran, ENTCS 159, Elsevier, 2006.
16. H. Hojjat, H. Nokhost, M. Sirjani, Formal Verification of the IEEE 802.1D Spanning Tree Protocol using Extended Rebeca, In Proceeding of the first International Conference on Fundamental of Software Engineering 2005, pp. 139-159, Iran, ENTCS 159, Elsevier, 2006.
15. M.M. Jaghoori, A. Movaghar and M. Sirjani, Modere: The Model-checking Engine of Rebeca, Proceedings of the 21st Annual ACM Symposium on Applied Computing (SAC 2006), Dijon, France, pp. 1810-1815, April 2006.
14. M. M. Jaghoori, M. Sirjani, M. R. Mousavi, A. Movaghar, Efficient Symmetry Reduction for an Actor-Based Model. ICDCIT 2005, LNCS 3816, pp. 494-507, 2005.

13. M. Sirjani, F.S. de Boer, A. Movaghar, A. Shali, Extended Rebeca: A Component-Based Actor Language with Synchronous Message Passing, in Proceedings of ACSD 2005, St. Malo, France, IEEE Computer Society, pp. 212-221, June 2005.
12. F. Arbab, C. Baier, F.S. de Boer, J.J.M.M. Rutten and M. Sirjani, Synthesis of Reo Circuits for Implementation of Component-Connector Automata Specifications, Proceedings of the 7th International Conference on Coordination Models and Languages (Coordination 2005), pp. 236-251, 2005.
11. M. Sirjani, A. Shali, M. M. Jaghouri, H. Iravanchi, and A. Movaghar, A Front-End Tool for Automated Abstraction and Modular Verification of Actor-Based Models, in Proceedings of ACSD 2004, Hamilton, Canada, pp. 145-148, IEEE Computer Society, June 2004.
10. N.R. Mehta, N. Medvidovic, M. Sirjani, and F. Arbab, Modeling Behavior in Compositions of Software Architectural Primitives, in Proceedings of ASE 2004, Austria, IEEE Computer Society, pp. 371-374, September 2004.
9. M. Sirjani, H. SeyedRazi, A. Movaghar, M. M. Jaghouri, S. Forghanizadeh, and M. Mojdeh, Model Checking CSMA/CD Protocol Using an Actor-Based Language, in WSEAS Transactions on Circuit and Systems, Issue 4, Vol. 3, 1052- 1057, June 2004.
8. F. Arbab, C. Baier, J.J.M.M. Rutten and M. Sirjani, Modeling Component Connectors in Reo by Constraint Automata, in Proceedings of FOCLASA'03, Marseille, France, ENTCS 97, pp. 25-46, Elsevier Science, 2004.
7. M. Sirjani, A. Movaghar, H. Iravanchi, M.M. Jaghoori and A. Shali, Model Checking in Rebeca, in Proceedings of The 2003 International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA' 03), Las Vegas, USA, CSREA Press, pp. 1819-1822, June 2003.
6. M. Sirjani, A. Movaghar, H. Iravanchi, M.M. Jaghoori and A. Shali, Model Checking Rebeca by SMV, in Proceedings of the Workshop on Automated Verification of Critical Systems (AVoCS'03), University of Southampton, April 2003.
5. M. Sirjani and A. Movaghar, Simulation in Rebeca, in Proceedings of the 2002 International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA' 02), Las Vegas, USA, CSREA Press, pp.923-926, June 2002.
4. M. Sirjani, A. Movaghar, An Object-Based Model for Agents, in Proceedings of Workshop on Agents for Information Management (EURASIA'02), Shiraz, Iran, Austrian Computer Society, October 2002.
3. S.H. Mirian-Hosseiniabadi and M. Sirjani, A Calculus for Real-Time Specification Statements, in Proceedings of the Workshop on Recent Progress in

Computers and Communication (EURASIA'02), Shiraz, Iran, Austrian Computer Society, October 2002.

2. M. Sirjani and A. Movaghar, Simulation in Rebeca, in Proceedings of the Workshop on Automated Verification of Critical Systems (AVoCS'02), University of Birmingham, April 2002.

1. M. Sirjani, A. Movaghar, and M.R. Mousavi, Compositional Verification of an Actor-Based Model for Reactive Systems, in Proceedings of Workshop on Automated Verification of Critical Systems (AVoCS'01), Oxford University, April 2001.

Technical Reports:

- H. Hojjat, M. R. Mousavi, M. Sirjani, Application of process algebraic verification and reduction techniques to SystemC designs, Computer Science Report No. 08-15, Technische Universiteit Eindhoven, 2008.
- M. M. Jaghoori, M. Sirjani, M.R. Mousavi, A. Movaghar, Symmetry and Partial Order Reduction Techniques in Model Checking Rebeca, SEN-R0704, CWI, Amsterdam, July 2007.
- M. Sirjani, F.S. de Boer, A. Movaghar and A. Shali, Extending Rebeca with Synchronous Messages and Reusable Components, SEN-R0505, CWI, Amsterdam, March 2005.
- F. Arbab, C. Baier, F.S. de Boer, J.J.M.M. Rutten and M. Sirjani, Synthesis of Reo Circuits For Implementation Of Component-Connector Automata Specifications, SEN-R0412, CWI, Amsterdam, August 2004.
- M.R. Mousavi, M. Sirjani, and F. Arbab, Specification and Verification of Component Connectors, Technical report 04-15, Department of Computer Science, Eindhoven University of Technology, Eindhoven, June 2004.
- N.R. Mehta, M. Sirjani and F. Arbab, Effective Modeling of Software Architectural Assemblies Using Constraint Automata, SEN-R0309, CWI, Amsterdam, October 2003.
- F. Arbab, C. Baier, J.J.M.M. Rutten and M. Sirjani, Modeling Component Connectors in Reo by Constraint Automata, SEN-R0304, CWI, Amsterdam, July 2003.
- M. Sirjani and A. Movaghar, An Actor-Based Model for Reactive Systems: Rebeca, Computer Engineering Dept, Sharif University of Technology, Tehran, 2001.
- M. Sirjani, A. Movaghar, H. Iravanchi, M.M. Jaghoori and A. Shali, Model

Checking Rebeca by SMV, Computer Engineering Dept, Sharif University of Technology, October 2002, (in Farsi).

- M. Sirjani, Formal Specification and Verification of Concurrent and Real-time Systems, Computer Engineering Dept., Sharif University of Technology, July 2000 (in Farsi).
- M. Sirjani, Lecture Notes used for teaching Programming Languages Analysis and Design, 1999 (in Farsi).
- M. Sirjani, Lecture Notes used for teaching Software Engineering, 1995 (in Farsi).

Talks and Presentations

- ASSURE: Human-centric Safety and Security for Cyber-Physical Systems, At TSS Steering Committee, Nov. 15, 2023, Sweden
- Actors Upgraded for Variability, Adaptability, and Determinism, State-of-the-Art of Active Objects, Fifth International ABS Workshop, Lyon, France, 4-6 Oct. 2023
- Timed Actors and their Formal Verification, Keynote Talk, Combined 30th International Workshop on Expressiveness in Concurrency and 20th Workshop on Structural Operational Semantics, affiliated with CONCUR, Sept. 18, Antwerp, Belgium 2023
- Dependability, Cyber-security, and Beyond, DPAC Summit, Haga Castle, March 8-9, 2023
- How Can We Trust Self-Driving Cars? Using Robust Techniques in Modern Software System Design, Invited Talk, Fackförbundet för ingenjörer, Union for Engineers in Sweden, Stockholm, Feb. 23, 2023
- SACSys: Safe and Secure Adaptive Collaborative Systems, 2nd Steering Committee and Advisory Board Meeting, KKS Synergy Project, 8-9 Feb., MDU, 2023
- Modeling and Analysis of Cyber-Physical Systems Using Actors, Challenges and Questions, Dagstuhl Seminar 23041, Integrated Rigorous Analysis in Cyber-Physical Systems Engineering, Jan 22 – Jan 27, 2023
- Anomaly Detection for Cyber-Physical Systems using Tiny Digital Twins, Keynote Talk, NWPT 2022, 33rd Nordic Workshop on Programming Theory, Bergen, Norway, 2-4 November 2022

- Anomaly Detection for Cyber-Physical Systems using Tiny Digital Twins, Keynote Talk, AVL ITS R&T Research Networking Day, Leibnitz, Austria, Oct. 17, 2022
- Resilient Cyber-Physical Systems: Safety, Security and beyond, Seminar with Bran Selic, MDU, Oct. 6, 2022
- Integrating Design-time and Run-time Methods for Detecting Cyber-Attacks, Reykjavik, Iceland, Sept. 26, 2022
- Integrating Design-time and Run-time Methods for Detecting Cyber-Attacks, 2nd Mälardalen University/ Software Center workshop on Cyber-Security, MDU, Sept. 7, 2022
- Analysis of Timing Properties in Networked Systems, Kenote, RTEST, May 2022, Iran
- Cybersecurity, Safety and Resilience, Software Center – MDU Cybersecurity Workshop, April 27, 2022
- Analysis of Cyber-Physical Systems, Volvo Construction Equipment, Nov. 2021
- Two Decades of Analysing Real-time Distributed Systems, University of Isfahan, Faculty of Computer Engineering, May 22, 2021
- Two Decades of Analysing Real-time Distributed Systems, Leicester University, Weekly Seminars (Online), May 7, 2021
- Modeling and Analysis using Rebeca, invited lecture at Model-driven Engineering Course, MDH, Sweden, May 2021
- Modeling and Analysis using Rebeca, invited lecture at Formal Verification Course, Sharif University of Technology, Tehran, Iran, March 9, 2021
- Analysis of Cyber-Physical Systems, Software Center, Sweden, March 2021
- Actor-based Platform for Adaptive Collaborative Systems (APAC), WP Leader talk, SACSys Reporting Workshop, Jan. 19, 2021
- Safe and Secure Adaptive Collaborative Systems, PI talk, SACSys Reporting Workshop, Jan. 19, 2021
- Modeling and Analysis using Rebeca, invited lecture at Requirements Management Course, MDH, Sweden, Dec. 2, 2020
- Modeling and Analysis using Rebeca, invited lecture at Parallel Systems Course, MDH, Sweden, 25, Nov. 25, 2020

- Analysis of Cyber-Physical Systems, Software Center, Sweden, Oct. 2020
- Agile Verification-Driven Development of Cyber-Physical Systems, Software Center, Sweden, June 11, 2020
- Modeling and Analysis using Rebeca, invited lecture at Model-driven Engineering Course, MDH, Sweden, May 2020
- Modelling and Formal Analysis for Security and Safety, Serendipity reporting workshop, MDH, Sweden, March 10, 2020
- Verification-Driven Development of Cyber-Physical Systems, NIC 2020, Tehran, 15 January 2020
- Analyzing Real-time Distributed Systems using Timed Actors, Guest Lecture, University of Tehran, Tehran, Iran, Dec. 2019
- Analyzing Real-time Distributed Systems using Timed Actors, Guest Lecture, Sharif University of Technology, Tehran, Iran, Dec. 2019
- Model-Driven Iterative Development of Cyber-Physical System, Software Center, Gothenburg, Sweden, Dec. 2019
- SACSys: Safe and Secure Adaptive Collaborative Systems, PI talk, SACSys Kickoff, Skövde, Sweden, Dec. 4, 2019, Skövde, Sweden
- Modeling and Analysis of Distributed Systems using Rebeca, invited lecture at Parallel Systems Course - DVA 336, MDH, Sweden, Nov. 2019
- SACSys: Safe and Secure Adaptive Collaborative Systems, DPAC Summit, Krusenbergs Herrgård, Sweden, Nov. 5, 2019
- Model Checking Tool for Rebeca: Afra, at Dagstuhl Seminar, Nov. 2019
- Debugging of Actor Programs using Rebeca Model Checking Tool, at Programming Languages for Distributed Systems and Distributed Data Management, Dagstuhl Seminar 19442, October 27 – 31, 2019
- Reactive Actors: Isolation for Efficient Analysis of Distributed Systems, Invited Paper, IEEE/ACM DS-RT 2019, The 23rd International Symposium on Distributed Simulation and Real Time Applications, Cosenza, Italy, Oct. 7, 2019
- Analyzing Real-time Distributed Systems using Timed Actors, Keynote Talk, IEEE/ACM DS-RT 2019, The 23rd International Symposium on Distributed Simulation and Real Time Applications, Cosenza, Italy, Oct. 7, 2019

- Reactive Systems: From Requirements to Verifiable Models to Code, Invited Talk, ASYDE 2019, Oslo, Norway, 16 September 2019
- Actor-based Design Platform for System of Systems, Invited Talk, Tehran Institute for Advanced Studies (TeIAS), Tehran, Aug. 11, 2019
- Actor-based Design Platform for System of Systems, Invited Talk, COMPSAC 2019, CAP: Computer Architecture & Platforms, Milwaukee, US, July 17, 2019
- Designing Actor Languages for Model Checking and Performance Evaluation, Programming Language Research Meetup @ Oracle, Stockholm, Sweden, June 12, 2019
- Actors for Analysis, Shonan School, Japan, May 27, 2019
- A Formal Model to Integrate Behavioural and Structural Adaptations in Self-Adaptive Systems, April 2019, FSEN, Tehran, Iran
- Dependable Cyber-Physical Systems, Iran Academy of Science, Tehran, Iran, April 22, 2019
- MACMa: Modeling and Analyzing Event-based Autonomous Systems (Project #29), Software Center, Ericsson, Sweden, April 12, 2019
- Modeling, Formal Verification and Analysis of Distributed Systems, DPAC summit, April 10, 2019.
- Trusting Autonomous Systems, Inauguration Lecture, MDH, Sweden, April 4, 2019
- Timed Rebeca: From Requirement to Design to Code, Bombardier, Sweden, March 8, 2019
- Modeling and Analysis using Rebeca, Guest Lecturer at Software Architecture course, MDH, Sweden, March 2019
- From Dependable Timed Actor Models to Executable Code, MODPROD Workshop, Center for Model-Based Cyber-Physical Product Development, Linköping, Sweden, Feb. 6, 2019
- Formal Verification: Secure Communication for Operating Autonomous Machines with Humans, Volvo CE, Eskilstuna, Sweden, Jan. 25, 2019
- Modeling in Science and Engineering, International Conference on Recent Achievements in Mathematical Science, Yazd University, Yazd, Iran, Jan. 15. 2019

- Building Dependable Cyber-Physical Systems, University of Genoa, Genoa, Italy, Nov. 22, 2018
- Serendipity - Secure and dependable platforms for autonomy, Serendipity Kickoff meeting, Nov. 16, 2018, Uppsala, Sweden
- Modeling and Verification of Distributed Collaborating Systems, DPAC Summit, Aronsborg, Balsta, Nov. 13, 2018
- Hybrid Rebeca: Modeling and Analyzing of Cyber-Physical Systems, CyPhy Workshop, ESWeek, Torino, Italy, Oct. 4, 2018
- Actor-based Modeling Patterns for Flow Management, Joint talk with Edward Lee, Chalmers University, Gothenburg, Sept. 24, 2018
- Dependable Adaptive Cyber-Physical Systems, Halmstad University, Halmstad, Sweden, Sept. 20, 2018
- Building Dependable Cyber-Physical Systems, Uppsala University, Uppsala, Sweden, Sept. 7, 2018
- Building Dependable Cyber-Physical Systems using Timed Actors, Invited Talk at Pasargad Summer School, Aug. 15, 2018
- Actor-Based Modeling Patterns for Flow Management, Invited Talk at IPM, School of Computer Science, Aug. 13, 2018
- Reo and Tagged Signal Models: Challenge of Constraints, Festschrift in the honor of Farhad Arbab, Amsterdam, May 25, 2018
- Dependable Cyber-Physical Systems, Invited Speaker, SPIN 2018, Amity University, Noida, Indian, Feb. 23, 2018
- Event-based Analysis of Distributed Timed Actors, Keynote Speaker, NWPT, Turku, Finland, Nov. 1, 2017
- Dependable Distributed Systems, Invited Talk, UBC, Vancouver, Oct. 25, 2017
- Asynchronous Reactive Models – Event-based Analysis of Networks of Actors, Microsoft Research, Redmond, Oct. 20, 2017
- Asynchronous Reactive Models – Event-based Analysis of Networks of Actors, Google, Kirkland, Oct. 19, 2017
- Power is Overrated, Go for Friendliness, Edward A. Lee Festschrift, Berkeley City Club, Oct. 13, 2017

- Building Dependable Cyber-Physical Systems using Adaptive Timed Actors, Invited Talk at IPM, School of Computer Science, 13 July 2017
- Event-based Analysis of Timed Actors using Floating Time Transition System, Invited talk at INFINITY 2017, 19th International Workshop on verification of Infinite-State Systems, Reykjavik, Iceland, 19 June 2017
- Can We Trust Self-Driving Cars? Adaptive Timed Actors for Building Dependable Cyber-Physical Systems, DREAM Seminar, UC Berkeley, US, Feb. 2017
- Building Dependable Cyber-Physical Systems using Adaptive Timed Actors, Invited Talk Automatic Control Dept., KTH, Sweden, April 7, 2017
- Introduction to Modelling in Rebeca - Dependable Cyber-Physical Systems, DPAC Spring summit 2017, Malardalen University, Sweden, Feb. 2017
- Deterministic Actors in a Nondeterministic World, DPAC Fall summit 2016, Malardalen University, Sweden, Sept. 2016
- Coordinating Adaptive Actors - CoodAA: A Framework for Reliable Self-Adaptive Systems, UC Berkeley, USA, May 4, 2016
- On Time Actors, Eindhoven, Frank de Boer Festschrift, The Netherlands, April 3, 2016 (<https://ths.rwth-aachen.de/fdb60/>)
- On Time Actors in Doubt, IPM Formal Methods Day, Tehran, Iran, Jan. 10, 2016 (<http://cs.ipm.ac.ir/fmd2016/>)
- On Time Actors in Cyber-Physical Systems, Sharif University of Technology, Tehran, Iran, Dec. 14, 2015
- Actors in the Modern Era: Timeliness and Uncertainty, Malardalen University, Vasteras, Sweden, Nov. 11, 2015
- Usable, Analyzable, Faithful Timed Actors: Schedulability and Deadlock Freedom, UC Berkeley, June 2015
- Rebeca Actors: Timed Event-based Message Passing Models, Model Checking and Performance Analysis, UC Berkeley, May 2015
- Timed Event-based Message Passing Models: Model Checking and Performance Analysis, Halmstad, Nov. 2014
- Analysis of Network-on-Chips using Probabilistic Timed Actors, Tenth ICE-TCS Theory Day, Reykjavik University, Iceland, August 2014

- Timed Event-based Message Passing Models, invited talk at Formal Methods Lab. of School of Electrical Engineering at University of Tehran, Tehran, Iran, July 2014
- Actors with Timing Constraints and Probabilistic Behaviors, invited talk at Dipartimento di Electronica, Informazione e Bioingegneria of Politecnico di Milano, June 25th, 2014
- Challenges of Verification of Distributed Systems, invited talk at the Workshop of Reliability of Concurrent and Distributed Software, Lorentz Center, May 2014
- Edmond Clarke: Sharing a Turing Award for Model Checking, Pearls of Computation series of talk, Reykjavik, Iceland, February 2014
- Analysing Timed Rebeca using McErlang, AGERE 2013, Indianapolis, USA, October 2013
- Floating Time Transition System, invited talk as an observer at IFIP W2.2, Lisbon, Portugal, September 2013 (invited)
- Functional and Performance Analysis of Network-on-Chips Using Actor-based Modeling and Formal Verification, AVoCS 2013, Guildford, UK, September 2013
- Schedulability, Deadlock Freedom, and Performance Analysis of Timed Actors, at UC Berkeley, Design of Robotics and Embedded systems, Analysis, and Modeling Seminar (DREAMS), Berkeley, USA, June 2013 (invited)
- Analyzability of Actors - Asynchronous Event-based Message-passing Models, The First IPM Conference on Theoretical Aspects of Computer Science, IPM-TACS, December 2012, invited speaker
- Compositional Verification of Actors, invited talk at Divide and Conquer: the Quest for Compositional Design and Analysis, [Dagstuhl Seminar 12511](#), December 2012 (invited)
- Timed-Rebeca Schedulability and Deadlock-Freedom Analysis Using Floating-Time Transition System, AGERE!Splash workshop, Tucson, Arizona, USA, October 2012
- Timed Event-based Message Passing Models: Schedulability, Deadlock Freedom, and Performance Analysis, invited talk at Formal Methods seminar in the Computer Science Department at the University of Illinois, Urbana-Champaign, USA, October 2012
- Guided Search for Deadlocks in Actor-Based Models, FACS 2012, NASA Ames, Mountain View, USA, September 2012

- Reduction Techniques in Verifying Rebeca Models, invited talk at Formal Methods seminar in the Computer Science Department at the University of Illinois, Urbana-Champaign, USA, November 2011
- Ten Years of Analyzing Actors: Rebeca Experience, invited peer-reviewed paper, SRI International, Menlo Park, USA, November 2011
- Rebeca: Actors in the Concurrent and Distributed World, invited talk, School of ECE, University of Tehran, Tehran, Iran, December 2010
- Synthesis of Reo Circuits through Decomposition of Complete Constraint Automata, [FACS 2010](#), Guimarães, Portugal, October 2010.
- The Coordination Language Reo: Semantics and Analysis, invited talk as an observer at IFIP W2.2, Warsaw, Poland, September 2010
- A Tutorial talk on the Coordination Language Reo, ICE-TCS seminar, Reykjavik, Iceland, September 2010
- Constraint Automata: Symbolic Execution or not?, ICE-TCS seminar, Reykjavik, Iceland, April 2010
- Can we build software that never ever crashes, invited talk at Reykjavik University Lecture Marathon, March 2010
- Symbolic Execution of Reo Circuits Using Constraint Automata, long lecture, Syanco winter school, Berlin, Germany, February 2010
- Actors Performing: Domain Specific Modeling and Analysis, invited talk as an observer at IFIP W2.2, Bologna, Italy, Sept 2009
- Automated Analysis of Reo Circuits using Symbolic Execution, FOCLASA09, Rhodes Island, Greece, July 2009.
- Symbolic Execution of Reo Circuits, CIC workshop, Baraga, Portugal, May 2009.
- An Introduction to Formal Methods in Software Engineering, ICE-TCS seminar, Reykjavik, Iceland, February 2009
- Formal Modeling and Conformance Validation for WS-CDL using Reo and CASM, in the 7th International Workshop on the Foundations of Coordination Languages and Software Architectures (FOCLASA), Reykjavik, Iceland, July 2008.
- Capturing SystemC Semantics by Actors and Applying Specific Reduction Techniques in Model Checking, in the MoCC Workshop, Technical University of Eindhoven, Eindhoven, Netherlands, July 2008.

- Actors in Practice, Reykjavik University, Reykjavik, Iceland, March 2008.
- Modeling Web Service Interactions using the Coordination Language Reo, in the 4th International Workshop on Web Services and Formal Methods (WS-FM), Brisbane, Australia, September 2007.
- Modeling Sequential and Concurrent Programs with Reo and Constraint Automata, In the 6th International Workshop on the Foundations of Coordination Languages and Software Architectures (FOCLASA), a Satellite Workshop of CONCUR, Lisbon, Portugal, September 2007.
- Modeling Web Service Interactions using the Coordination Language Reo, in the International workshop on Synthesis and analysis of component connectors (Syanco): in conjunction with the 6th ESEC/FSE, Dubrovnik, Croatia, September 2007.
- Abstraction and Compositional Verification Techniques for Asynchronous Communicating Components, in the Conference of Formal Methods for Components and Object (FMCO), Amsterdam, Netherlands, November 2006.
- Actor-based Computation, Asynchronous Communication, and Compositional Verification in Rebeca, in the Dipartimento di Informatica, Universita di Pisa, Pisa, Italy, June 2006 (invited).
- Compositional Semantics of an Actor-Based Language using Constraint Automata, in the Conference of Coordination, Bologna, Italy, June 2006.
- Using Reo and Constraint Automata in Hardware/Software Co-design, ACG talk, CWI, Amsterdam, the Netherlands, August 2006.
- Modeling GALS using Rebeca, School of Computer Science, IPM, Tehran, Iran, September 2005.
- Extended Rebeca: A Component-Based Actor Language with Synchronous Message Passing, in the Conference of Applying Concurrency in System Design (ACSD), Saint Malo, France, June 2005.
- Reactive Objects as Components in Reo Circuits, ACG Talk, CWI, Amsterdam, the Netherlands, June 2005.
- Reo to Constraint Automata, Department of Computer Science, University of Waterloo, Waterloo, Canada, June 2004 (invited).
- Automated Abstraction and Modular Verification of Actor-Based Models, in the Conference of Applying Concurrency in System Design (ACSD), Hamilton, Canada, IEEE Computer Society, June 2004.

- Constraint Automata: The Modeling Tool, Project meeting, Institut für Informatik, Universität Bonn, Bonn, Germany, June 2004.
- My Research at CWI in Brief, ECE Department, University of Tehran, Tehran, Iran, December 2004.
- Reo: Semantics and Tools for Design and Analysis: State of the Art and Future Work, ACG Talk (together with Christel Baier), CWI, Amsterdam, The Netherlands, November 2003.
- Modeling component connectors in Reo by constraint automata, ACG Talk, CWI, Amsterdam, the Netherlands, May 2003.
- An Introduction to Rebeca and Reo Projects, ECE Department, University of Tehran, Tehran, Iran, May 2003.
- Rebeca: An Actor-Based Language for Formal Modeling and Verification of Reactive Systems, ACG Talk, CWI, Amsterdam, the Netherlands, March 2003.
- Model Checking Rebeca by SMV, in the Workshop on Automated Verification of Critical Systems (AVoCS'03), University of Southampton, Southampton, UK, April 2003.
- An Object-Based Model for Agents, in the Workshop on Agents for Information Management, Eurasia'02, Shiraz, Iran, Austrian Computer Society, October 2002.
- A Calculus for Real-Time Specification Statements, in the Workshop on Recent Progress in Computers and Communication, Eurasia'02, Shiraz, Iran, Austrian Computer Society, October 2002.
- Simulation in Rebeca, in the 2002 International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA' 02), Las Vegas, USA, June 2002.
- Simulation in Rebeca, in the Workshop on Automated Verification of Critical Systems (AVoCS'02), University of Birmingham, Birmingham, UK, April 2002.
- Compositional Verification of an Actor-Based Model for Reactive Systems, in the Workshop on Automated Verification of Critical Systems (AVoCS'01), Oxford University, Oxford, UK, April 2001.

Editorial work:

- Maurice H. ter Beek, Marjan Sirjani: Coordination Models and Languages - 24th IFIP WG 6.1 International Conference, COORDINATION 2022, Held

as Part of the 17th International Federated Conference on Distributed Computing Techniques, DisCoTec 2022, Lucca, Italy, June 13-17, 2022, Proceedings. Lecture Notes in Computer Science 13271, Springer 2022, ISBN 978-3-031-08145-3

- Stefan Biffl, Elena Navarro, Welf Löwe, Marjan Sirjani, Raffaella Mirandola, Danny Weyns: Software Architecture - 15th European Conference, ECSA 2021, Virtual Event, Sweden, September 13-17, 2021, Proceedings. Lecture Notes in Computer Science 12857, Springer 2021
- Marten Lohstroh, Patricia Derler, Marjan Sirjani: Principles of Modeling - Essays Dedicated to Edward A. Lee on the Occasion of His 60th Birthday. Lecture Notes in Computer Science 10760, Springer 2018
- Software Engineering and Formal Methods - 15th International Conference, SEFM 2017, Trento, Italy, September 4-8, 2017, Proceedings. Lecture Notes in Computer Science 10469, Springer 2017, ISBN 978-3-319-66196-4
- Fundamentals of Software Engineering - 6th International Conference, FSEN 2017, Tehran, Iran, April 26-28, 2017, Revised Selected Papers. LNCS 10522, Springer 2017
- Fundamentals of Software Engineering - 6th International Conference, FSEN 2015, Tehran, Iran, April 22-24, 2015, Revised Selected Papers. LNCS 9392, Springer 2015
- Fundamentals of Software Engineering (selected papers of FSEN 2013). Sci. Comput. Program. 112 (2015)
- Fundamentals of Software Engineering (selected papers of FSEN 2011). [Sci. Comput. Program. 78\(12\): 2433-2434 \(2013\)](#)
- Fundamentals of Software Engineering - 5th International Conference, FSEN 2013, Tehran, Iran, April 24-26, 2013, Revised Selected Papers. LNCS 8161, Springer 2013
- Fundamentals of Software Engineering - 4th IPM International Conference, FSEN 2011, Tehran, Iran, April 20-22, 2011, Revised Selected Papers, LNCS 7141, Springer 2012
- Coordination Models and Languages - 14th International Conference, COORDINATION 2012, Stockholm, Sweden, June 14-15, 2012. Proceedings LNCS 7274, [Springer 2012](#)
- Special issue on Foundations of Coordination Languages and Software Architectures (selected papers from FOCLASA'09). Sci. Comput. Program. 77(7-8): 777-778 (2012)
- Fundamentals of software engineering (selected papers of FSEN '09). Sci. Comput. Program. 77(7-8): 887-888 (2012)
- FSEN09 Proceedings, LNCS 5961 (2009)
- Special issue of Science of Computer Programming [76\(8\)](#), for invited papers of FOCLASA08
- FOCLASA08 Proceedings, Elsevier [ENTCS 229, Issue 2](#), (2009)
- Special issue in Fundamenta Informaticae (FI): Behaviours of Composed Concurrent Systems: Logic and Reasoning, [FI 82\(4\)](#) (2008)
- Special issue in Journal of Universal Computing (J.UCS): Applications of Formal Methods to System Design and Verification, [J.UCS 13\(13\)](#) (2007)

- FSEN07 Proceedings, [LNCS 4767](#) (2007)
- FSEN05 Proceedings: Elsevier [ENTCS 159](#) (2006)

Conference organization:

Chairing:

- PC Chair of NWPT 2023
- SC Chair of FSEN 2007 to 2025
- General Chair of FSEN 2025
- PC Chair and General Chair of NWPT 2023
- PC Chair of SEFM 2017
- PC Chair of FSEN 2005, 2007, 2009, 2011, 2013, 2015, 2017
- General Chair of iFM 2016
- PC Chair of Coordination 2012
- SC member of DisCoTec'12, 2013, 2014, 2015
- SC member of Coordination 2013, 2014, 2015
- General Chair of DisCoTec'11
- PC Chair of FOCLASA 2008, 2009

- PC member of FSEN 2005 - 2023
- PC member of SPIN 2024 – 2025
- PC member of SEFM 2014, 2015, 2016, 2017, 2018, 2023, 2024, 2025
- PC Member of ECSA 2022-2023
- PC member of MARS 2018
- PC member of RTEST 2018
- PC member of CoSim-CPS 2018
- PC member of FASE 2018
- PC member of FormaliSE 2015, 2017, 2023
- PC member of MEMOCODE 2017
- PC member of COOPIS 2016
- PC member of V2CPS 2016
- PC member of ACM SAC - Verification and Testing (SVT) 2015, 2018 - 2021
- PC member of ACM SAC - Coordination Models 2015
- PC member of ACM SAC – Software Architecture: Theory, Technology, and Applications (SA-TTA) 2019 - 2025
- PC member of FACS 2009, 2011, 2013, 2014
- PC member of Coordination 2010, 2018 - 2021
- PC member of ICFEM 2007, 2010, 2011, 2012, 2013
- PC member of ICTAC 2009, 2010, 2011, 2013, 2024
- PC member of AGERE'12, 2013, 2014, 2015, 2017
- PC member of FMICS 2011, 2012
- PC member of ICSSEA 2011, 2012
- PC member of FOCLASA 2008, 2009 - 2019
- PC member of TAV-WEB-10
- PC member of FM'09, 2016
- PC member of WS-FM'06
- PC member of CSICC'05

- Organizing IPM-UNU Winter School on Foundations and Trends in Computer Science, Feb. 2008.
- Organizing the IPM-UT workshop on Processes: from Theory to Practice, July 2006.
- Organizing the one day workshop on Formal Models for Reasoning about Objects & Component Composition, Feb. 2004.
- Responsible for International Relationships, 9th International CSI Computer Conference (CSICC'04), Sharif University of Technology, Tehran, Iran, February 2004.
- Registration Chair for the Tehran site, Asia Region in ACM Regional Programming Contest, August-November 1999.

Other Professional Experience:

- Managing Director of Behin-System Computer Services Company, Tehran, 1989 - 2002. A private company with average of 15 employees. Participated in developing software as a manager, analyst, designer, and programmer.

Publicly available software tools

- Afra model checking tool suite

<http://www.rebeca-lang.org/Rebeca/Tools>

References:

Gul Agha: Department of Computer, University of Illinois at Urbana Champaign, USA

Farhad Arbab: Software Engineering Department, Centre for Mathematics and Computer Science (CWI), Amsterdam, Netherlands

Christel Baier: Institut für Informatik, Universität Bonn, Bonn, Germany

Frank de Boer: Software Engineering Department, Centre for Mathematics and Computer Science (CWI), Amsterdam, Netherlands

Edward Lee: Electrical Engineering and Computer Science, University of California at Berkeley, USA

Ali Movaghar: Computer Engineering Department, Sharif University of Technology, Tehran, Iran

Mohammad Reza Mousavi: Faculty of Natural, Mathematical & Engineering Sciences, King's College London, UK

Carolyn Talcott: Computer Science Laboratory, SRI International, Menlo Park, USA