

Ali Ebneenasir

Associate Professor
Senior Member of the ACM
(Last updated on July 2017)

221 Rekhi Hall
Department of Computer Science
Michigan Technological University
Houghton MI 49931

E-Mail: ali.ebneenasir@gmail.com
Phone: 906-487-4372
Fax: 906-487-2283
<http://www.cs.mtu.edu/~aebneenas>

Education

Michigan State University, Michigan, U.S.A.

PhD in Computer Science May 2005
Dissertation title: Automatic Synthesis of Fault Tolerance
(*Nominated for the ACM Doctoral Dissertation Award*)

Iran University of Science and Technology, Tehran, Iran.

M.S. degree in Software Engineering February 1998
Thesis title: Design and Implementation of a Java-Based Distributed Virtual Machine

The University of Isfahan, Isfahan, Iran.

B.S. degree in Computer Engineering September 1994
First-rank graduate amongst 60 students
Thesis title: An Intelligent Controller for D.C. Motors

Research Interest

Dependable Computing, Software Engineering, Scalable Self-Stabilization, Formal Methods, Synthesis and Verification of Parameterized Systems, Parallel and Distributed Computing

Professional Experiences

Associate Professor (April 2012 – present)
Department of Computer Science, Michigan Technological University.

Assistant Professor (Aug. 2006 – April 2012)
Department of Computer Science, Michigan Technological University.

Postdoctoral Research Associate (Aug. 2005 – Aug. 2006)
Software Engineering and Network Systems Laboratory
Computer Science and Engineering Department, Michigan State University.
Supervisor: Professor Betty H.C. Cheng

Research problem. Practical methods for modeling and analyzing fault-tolerance
Contributions. Designed a methodology for modeling faults and fault-tolerance in UML towards developing a roundtrip software engineering framework for fault-tolerance.

Graduate Research Assistant (Feb. 2001 – Jul. 2005)

Software Engineering and Network Systems Laboratory
Computer Science and Engineering Department, Michigan State University.
Advisor: Dr. Sandeep S. Kulkarni

Research problem. Automatic addition of fault-tolerance concerns to software systems
Contributions. Developed a theory for automatic addition of fault-tolerance concerns. Developed an extensible software framework, called Fault-Tolerance Synthesizer (FTSyn). FTSyn is being used and extended for pedagogical and research purposes at MSU and at the University of Aachen (RWTH) in Germany.

Chairperson (Jun. 2000 – Dec. 2000)

Computer Science Department, Islamic Azad University, Majlesi Town, Isfahan, IRAN.
Contributions. Managed a department with 8 faculty members, 280 undergraduate students. Developed and taught new courses such as System Software, Analysis and Design of Software Systems, Development of Commercial Software.

Manager of Hardware-Software Integration Team (Jul. 1999 – Mar. 2000)

Electronic and Computer Research Center, The University of Isfahan, Isfahan, IRAN.
Contributions. Managed a team of 7 engineers in the design and implementation of industrial automation systems.

R&D Engineer (Sep. 1994 – Jan. 1997)

FARAJAST Electronic and Computer Research Group, Isfahan, IRAN.
Contributions. Designed and implemented several industrial automation systems.

Honors and Awards

<i>Distinguished Teaching Award Finalist</i> , Michigan Technological University Placed in Top 6 amongst about 460 faculty members campus-wide. Inducted into Michigan Tech's Academy of Teaching Excellence	2016
Best Paper Award at FSEN 2013	2013
Senior member of the ACM	2012
Nominated for the ACM Doctoral Dissertation Award	2005
Dissertation Completion Fellowship Graduate School, Michigan State University.	2004

Graduate Office Fellowship, Michigan State University.	2004
IEEE Computer Society travel grant for attending ICDCS 2003	2003
Departmental Fellowship Computer Science and Engineering Department, Michigan State University.	2001
Honorary Admission to Graduate Program Computer Engineering Department, Iran University of Science and Technology, Tehran.	1996
First-rank Graduate Amongst 60 Students Computer Engineering Department at the University of Isfahan, Isfahan, IRAN.	1994

Publications

Refereed journal articles:

- Reza Hajisheykhi, **Ali Ebneenasir** and Sandeep S. Kulkarni, A Theory of Integrating Tamper Evidence with Stabilization, *Science of Computer Programming (ELSEVIER)*, 2017. (In press)
- Alex Klinkhamer and **Ali Ebneenasir**, Shadow/Puppet Synthesis: A Stepwise Method for the Design of Self-Stabilization. *IEEE Transactions on Parallel and Distributed Systems (TPDS)*, Vol. 27, Issue 11, pages 3338-3350, 2016.
- Alex Klinkhamer and **Ali Ebneenasir**, On the Hardness of Adding Nonmasking Fault Tolerance. *IEEE Transactions on Dependable and Secure Computing (TDSC)*, Vol. 12, Issue 3, pages 338 - 350, 2015.
- Jingshu Chen, **Ali Ebneenasir** and S. S. Kulkarni. The Complexity of Adding Multitolerance. *ACM Transactions on Autonomous and Adaptive Systems (TAAS)*, Vol. 9, Issue 3, pp. 15, 2014.
- **Ali Ebneenasir**, Reza Hajisheykhi and Sandeep S Kulkarni, Facilitating the Design of Fault Tolerance in Transaction Level SystemC Programs, *Journal of Theoretical Computer Science (ELSEVIER)*, Vol. 496, pp. 50-68, 2013.
- **Ali Ebneenasir**, Action-Based Discovery of Satisfying Subsets: A Distributed Method for Model Correction, *International Journal on Information and Software Technology (ELSEVIER)*, Vol. 55, Issue 2, pp. 201-214, Feb. 2013.
- Aly Farahat and **Ali Ebneenasir**. A Lightweight Method for Automated Design of Convergence in Network Protocols. *ACM Transactions on Autonomous and Adaptive Systems (TAAS)*, Vol. 7, Issue 4, pp. 38:1–38:36, Dec. 2012.
- **Ali Ebneenasir** and Sandeep S. Kulkarni. Feasibility of Stepwise Design of Multitolerant Programs. *ACM Transactions on Software Engineering and Methodology (TOSEM)*, Vol. 21, No. 1, Article 1, December 2011.

- B. Bonakdarpour, **Ali Ebneenasir**, and S. S. Kulkarni. Complexity Results in Revising UNITY Programs. *ACM Transactions on Autonomous and Adaptive Systems (TAAS)*, Vol. 4, Issue 1, Article No. 5, January 2009.
- **Ali Ebneenasir**, S. S. Kulkarni and Anish Arora. FTSyn: A Framework for Automatic Synthesis of Fault-Tolerance. *International Journal on Software Tools for Technology Transfer (STTT)*, 10(5):455-471, 2008.
- S. S. Kulkarni and **Ali Ebneenasir**. The Effect of the Specification Model on the Complexity of Adding Masking Fault-Tolerance. *IEEE Transactions on Dependable and Secure Computing (TDSC)*, 2(4): 348-355, October-December 2005.
- S. S. Kulkarni and **Ali Ebneenasir**. Complexity Issues in Automated Synthesis of Failsafe Fault-Tolerance. *IEEE Transactions on Dependable and Secure Computing (TDSC)*, 2(3):201-215, July-September 2005.

Refereed book chapters:

- **Ali Ebneenasir** and Betty H.C. Cheng. A Pattern-Based Approach for Modeling and Analysis of Error Recovery. Book chapter in the *Architecting Dependable Systems (Book IV)*, Lecture Notes in Computer Science, 2007.
- S. S. Kulkarni, Anish Arora and **Ali Ebneenasir**. Adding Fault-Tolerance to State Machine-Based Designs. *Software Engineering and Fault-Tolerance (SEFT)* book, World Scientific Publishing Co. Pte. Ltd, Series on Software Engineering and Knowledge Engineering, 2007.

Refereed conference papers:

- Mohsen Safari and **Ali Ebneenasir**, LocalityBased Relaxation: An Efficient Method for GPU-based Computation of Shortest Path. Second IFIP International Conference on Topics in Theoretical Computer Science (TTCS), 2017.
- Alex Klinkhamer and **Ali Ebneenasir**, Synthesizing Parameterized Self-Stabilizing Rings With Constant-Space Processes. 7th IPM International Conference on Fundamentals of Software Engineering (FSEN), 2017.
- Reza Hajisheykhi, Mohammad Roohitavaf, **Ali Ebneenasir** and Sandeep S Kulkarni, A Framework for Verification of SystemC TLM Programs with Model Slicing: A Case Study, Proceedings of the 53rd Annual Design Automation Conference (DAC), Austin, TX, USA, pp. 22:1–22:6, 2016.
- **Ali Ebneenasir**, Incremental Realization of Safety Requirements: Non-Determinism vs. Modularity, 6th IPM International Conference on Fundamentals of Software Engineering (FSEN), pp. 159-175, 2015.
- Reza Hajisheykhi, **Ali Ebneenasir** and Sandeep S Kulkarni, A Theory of Integrating Tamper Evidence with Stabilization, 6th IPM International Conference on Fundamentals of Software Engineering (FSEN), pp. 84–99, 2015.
- **Ali Ebneenasir** and Jean Mayo, Fault-Tolerant Parallel and Distributed Computing for Software Engineering Undergraduates, EduPar Workshop at IEEE International Parallel and Distributed Processing Symposium (IPDPS), pp. 788–794, 2015.

- Reza Hajisheykhi, **Ali Ebneenasir** and Sandeep S Kulkarni, UFIT: A Tool for Modeling Faults in UPPAAL Timed Automata, 7th NASA Formal Methods Symposium (NFM), Pasadena, California, pp. 429-435, 2015.
- Amer Tahat and **Ali Ebneenasir**, A Hybrid Method for the Verification and Synthesis of Parameterized Self-Stabilizing Protocols, International Symposium on Logic-based Program Synthesis and Transformation (LOPSTR), pp. 201-218, 2014.
- Alex Klinkhamer and **Ali Ebneenasir**, Synthesizing Self-Stabilization Through Superposition and Backtracking , 16th International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS), Paderborn - Germany, pp. 252-267, 2014.
- Reza Hajisheykhi, **Ali Ebneenasir** and Sandeep S Kulkarni, Evaluating the Effect of Faults in SystemC TLM Models using UPPAAL, 12th International Conference on Software Engineering and Formal Methods (SEFM), Grenoble, France, pp. 175-189, 2014.
- Alex Klinkhamer and **Ali Ebneenasir**, Verifying Livelock Freedom of Parameterized Rings and Chains, 15th International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS 2013), Osaka - Japan, Nov. 2013.
- Alex Klinkhamer and **Ali Ebneenasir**, On the Complexity of Adding Convergence, Proceedings of the 5th IPM International Conference on Fundamentals of Software Engineering, LNCS Vol. 8161, pp. 17-33, 2013. (**Best paper award winner**)
- Charles Wallace, Steve Seidel and **Ali Ebneenasir**, A Programmer-Friendly UPC Memory Model Specification, Partitioned Global Address Space Conference (PGAS), Santa Barbara, California, 2012.
- Aly Farahat and **Ali Ebneenasir**, Local Reasoning for Global Convergence in Parameterized Rings, In Proceedings of the 32nd International Conference on Distributed Computing Systems (ICDCS), pages 496-505, 2012. (**Acceptance Rate = 13% amongst over 515 papers**)
- **Ali Ebneenasir** and Aly Farahat, Swarm Synthesis of Convergence for Symmetric Protocols, In Proceedings of the Ninth European Dependable Computing Conference (EDCC), pages 13-24, 2012.
- **Ali Ebneenasir**, Reza Hajisheykhi and Sandeep Kulkarni, Facilitating the Design of Fault Tolerance in Transaction Level SystemC Programs, In Proceedings of the 13th International Conference on Distributed Computing and Networking (ICDCN), pages 91-105, 2012.
- **Ali Ebneenasir**, UPC-SPIN: A Framework for the Model Checking of UPC Programs, Fifth Partitioned Global Address Space Conference (PGAS), Galveston Island, Texas, 2011.
- Aly Farahat and **Ali Ebneenasir**, Exploiting Computational Redundancy for Efficient Recovery from Soft Errors in Sensor Nodes, Proceedings of 23rd International Conference on Software Engineering and Knowledge Engineering (SEKE), pages 619-624, 2011 (**Acceptance Rate = 31% amongst over 220 papers**).
- **Ali Ebneenasir** and Aly Farahat. A Lightweight Method for Automated Design of Convergence, Proceedings of the 25th IEEE International Parallel and Distributed Processing Symposium (IPDPS), 2011 (**Acceptance Rate = 19.6% amongst 571 submitted papers**).

- **Ali Ebneenasir**. DiConic Addition of Failsafe Fault-Tolerance, 22nd IEEE/ACM *International Conference on Automated Software Engineering (ASE'07)*, Atlanta, Georgia, November 5-9, 2007 (**Acceptance Rate = 12% amongst 312 submitted papers**).
- **Ali Ebneenasir** and Betty H.C. Cheng. Pattern-Based Modeling and Analysis of Failsafe Fault-Tolerance, *IEEE International Symposium on High Assurance System Engineering (HASE)*, Dallas, Texas, November 14-16, 2007 (**Acceptance Rate = 33% amongst 100 submitted papers**).
- **Ali Ebneenasir**. Designing Run-Time Fault-Tolerance Using Dynamic Updates. *IEEE/ACM International Conference on Software Engineering - Workshop on Software Engineering for Adaptive and Self-Managing Systems (SEAMS)*, 2007.
- **Ali Ebneenasir**, S. S. Kulkarni and B. Bonakdarpour. Revising UNITY Programs: Possibilities and Limitations. *International Conference on Principles of Distributed Systems (OPODIS)*, 2005.
- S. S. Kulkarni and **Ali Ebneenasir**. Adding Fault-Tolerance Using Presynthesized Components. *European Dependable Computing Conference (EDCC-5)*, 2005, LNCS, Vol. 3463, p. 72.
- S. S. Kulkarni and **Ali Ebneenasir**. Automated Synthesis of Multitolerance. *IEEE/IFIP International Conference on Dependable Systems and Networks (DSN)*, Florence, Italy, 2004.
- S. S. Kulkarni, B. Bonakdarpour and **Ali Ebneenasir**. Mechanical Verification of Automatic Synthesis of Fault-Tolerance. *International Symposium on Logic-based Program Synthesis and Transformation (LOPSTR)*, Verona, Italy, LNCS, Vol. 3573, Page 36-50, 2004.
- **Ali Ebneenasir** and S. S. Kulkarni. Hierarchical Presynthesized Component for Automatic Addition of Fault-Tolerance. In the poster abstracts of the 12th *ACM SIGSOFT Workshop on Specification and Verification of Component-Based Systems (SAVCBS)*, Newport Beach, California, USA, 2004.
- S. S. Kulkarni and **Ali Ebneenasir**. Enhancing the Fault-Tolerance of Nonmasking Programs. *IEEE International Conference on Distributed Computing Systems (ICDCS) 2003* - Providence, Rhode Island, USA (**Acceptance Rate = 18% amongst 407 submitted papers**).
- S. S. Kulkarni and **Ali Ebneenasir**. The Complexity of Adding Failsafe Fault-Tolerance. *IEEE International Conference on Distributed Computing Systems (ICDCS) 2002* - Vienna, Austria.
- **Ali Ebneenasir** and M. Sharifi. A Java-Based Distributed Virtual Machine. *International Conference of Computer Society of Iran*, 23-25 Dec., 1997 - Tehran, Iran.

Refereed workshop papers:

- **Ali Ebneenasir** and Amer Tahat, Mechanical Verification of Avicenna's Proof of the Existence of the Necessary Existent, Poster session of the 6th IPM International Conference on Fundamentals of Software Engineering (FSEN), 2015.
- Reza Hajjisheykhi, **Ali Ebneenasir** and Sandeep S Kulkarni, Analysis of Permanent Faults in Transaction Level SystemC Models, Workshops of the 34th International Conference on Distributed Computing Systems, pp. 154-160, 2014.

- Reza Hajisheykhi, **Ali Ebneenasir** and Sandeep S. Kulkarni, Tamper-Evident Stabilization, Brief Announcements of the 16th International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS), 2014.
- Reza Hajisheykhi, **Ali Ebneenasir** and Sandeep Kulkarni, Modeling and Analyzing Timing Faults in Transaction Level SystemC Programs, Brief Announcements of 15th International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS 2013), Osaka - Japan, Nov. 2013.
- Aly Farahat and **Ali Ebneenasir**, Lightweight Methods for Automated Design of Self-Stabilization, PhD forum of the 25th IEEE International Parallel and Distributed Processing Symposium (IPDPS), 2011.
- **Ali Ebneenasir** and Rasoul Beik. Developing Parallel Programs: A Design-Oriented Perspective. In the Proceedings of the Workshop on Multicore Software Engineering (IWMSE09) in conjunction with the 31st International Conference on Software Engineering (ICSE) 2009, Pages 1-8, May 16-24, 2009, Vancouver, Canada.
- **Ali Ebneenasir**, Betty H.C. Cheng and Sascha Konrad. Use Case-Based Modeling and Analysis of Failsafe Fault-Tolerance. Poster and abstract appeared in *International Conference on Requirements Engineering*, Minneapolis, 2006.
- **Ali Ebneenasir** and Betty H.C. Cheng. Pattern-Based Modeling and Analysis of Failsafe Fault-Tolerance. Abstract appeared in *International Conference on Dependable and Network Systems (DSN)*, Philadelphia, 2006.
- **Ali Ebneenasir** and S. S. Kulkarni. SAT-Based Synthesis of Fault-Tolerance. In the Fast Abstracts of the *International Conference on Dependable Systems and Networks (DSN)*, Florence, Italy, June 28 - July 1, 2004.
- **Ali Ebneenasir**. Algorithmic Synthesis of Fault-Tolerant Distributed Programs. *Doctoral Symposium of the 23rd IEEE International Conference on Distributed Computing Systems (ICDCS)*, May 19-22, 2003, Providence, USA.

Technical reports:

- Aly Farahat and **Ali Ebneenasir**, Local Reasoning for Global Convergence of Parameterized Rings, *Technical Report CS-TR-11-04*, Michigan Technological University, Houghton Michigan 49931, USA, November 2011.
- **Ali Ebneenasir**, UPC-SPIN: A Framework for the Model Checking of UPC programs, *Technical Report CS-TR-11-03*, Michigan Technological University, Houghton Michigan 49931, USA, July 2011.
- **Ali Ebneenasir** and Aly Farahat, Swarm Synthesis of Convergence for Symmetric Protocols, *Technical Report CS-TR-11-02*, Michigan Technological University, Houghton Michigan 49931, USA, May 2011.
- **Ali Ebneenasir** and Aly Farahat, Towards an Extensible Framework for Automated Design of Self-Stabilization, *Technical Report CS-TR-10-03*, Michigan Technological University, Houghton Michigan 49931, USA, May 2010.

- **Ali Ebneenasir** and Mohammad Amin Alipour, Identifying Satisfying Subsets: A Method for Algorithmic Correction of Inter-Thread Synchronization Mechanisms, *Technical Report CS-TR-10-01*, Michigan Technological University, Houghton Michigan 49931, USA, March 2010.
- **Ali Ebneenasir**, How Hard Is Aspect-Oriented Programming?, *Technical Report CS-TR-08-04*, Michigan Technological University, Houghton Michigan 49931, USA, December 2008.
- **Ali Ebneenasir**, and Sandeep S. Kulkarni. Feasibility of Stepwise Addition of Multitolerance to High Atomicity Programs, *Technical Report CS-TR-08-03*, Michigan Technological University, Houghton Michigan 49931, USA, October 2008.
- **Ali Ebneenasir**, Action-Level Addition of Leads-To Properties to Shared Memory Parallel Programs, *Technical Report CS-TR-08-01*, Michigan Technological University, Houghton Michigan 49931, USA, March 2008.
- **Ali Ebneenasir**, DiConic Addition of Failsafe Fault-Tolerance, *Technical Report CS-TR-07-03*, Michigan Technological University, Houghton Michigan 49931, USA, June 2007.
- **Ali Ebneenasir** and Betty H.C. Cheng, A Framework for Modeling and Analyzing Fault-Tolerance, *Technical Report MSU-CSE-06-05*, Michigan State University, East Lansing, Michigan, January 2006.
- **Ali Ebneenasir** and S. S. Kulkarni. Efficient Synthesis of Failsafe Fault-Tolerant Distributed Programs. Technical report MSU-CSE-05-13, *Department of Computer Science, Michigan State University*, East Lansing, Michigan, USA.
- **Ali Ebneenasir** and S. S. Kulkarni. Automatic Addition of Liveness. Technical report MSU-CSE-04-22, *Department of Computer Science, Michigan State University*, East Lansing, Michigan, USA.
- S. S. Kulkarni, B. Bonakdarpour and **Ali Ebneenasir**. Mechanical Verification of Automatic Synthesis of Failsafe Fault-Tolerance. In the emerging trends of TPHOL 2004, a technical report of the *Computer Science Department, the University of Utah*.

Research Grants

- 1) *Title*: Fault-Tolerant Parallel and Distributed Computing for Software Engineering Undergraduates
Principal Investigator (PI): Ali Ebneenasir, co-PI: Dr. Jean Mayo
Sponsor: National Science Foundation (NSF) and IEEE Computer Society Technical Committee on Parallel Processing (TCPP), NSF/TCPP CDER Center Early Adopter Awards for Fall 2013
Funding: \$2K + Travel support
Duration: Aug. 2013 - May 2014
- 2) *Title*: A Framework for Algorithmic Design of Self-Stabilizing Network Protocols
Principal Investigator (PI): Ali Ebneenasir (Sole PI)
Sponsor: National Science Foundation (NSF)
Funding: \$254K
Duration: Aug. 2011 - Dec. 2015
- 3) *Title*: Towards the Model Checking of Partitioned Global Address Space (PGAS) Applications
Principal Investigator (PI): Ali Ebneenasir, Co-PI: Steve S. Seidel

Sponsor: National Science Foundation (NSF)

Funding: \$106K, PI's share: \$106K

Duration: Aug. 2009 - Jan. 2011

- 4) *Title:* Towards a Large-Scale Framework for Action-Level Addition of Nonmasking Fault Tolerance

PI: Ali Ebneenasir

Sponsor: Michigan Tech Research Excellence Fund, 2008.

Funding: \$24.5K

Duration: Aug. 2007 - Aug. 2008

Students

Former:

Amer Tahat (PhD): Graduated in May 2016 - Postdoc fellow at VirginiaTech.

Alex Klinkhamer (PhD): Graduated in April 2016 - Software Engineer at Google.

Aly Farahat (PhD): Graduated in July 2012 - Senior Software Engineer at Intuitive Surgical.

Chong Fu (M.Sc.)

Mohammad Amin Alipour (M.Sc.): Graduated in April 2011 -PhD student at Oregon State.

Bo Yu (M.Sc.) - PhD student at Michigan Tech.

Professional Activities

Reviewer: ACM Transactions on Embedded Computing Systems (TECS)	2017
Member of Technical Program Committee, International Conference on Software Engineering and Knowledge Engineering (SEKE)	2017
Member of Technical Program Committee, First International Conference on Complex Information Systems (Complexis)	2017
Reviewer, American Mathematical Society (AMS)	2016, 2017
NSF Panelist, Graduate Research Fellowship Program	2016
Member of Technical Program Committee, International Conference on Software Engineering and Knowledge Engineering (SEKE)	2016
Member of Technical Program Committee, First International Conference on Complex Information Systems (Complexis)	2016
Reviewer: IEEE Transactions on Parallel and Distributed Systems	2015
Member of Technical Program Committee, International Conference on Software Engineering and Knowledge Engineering (SEKE)	2015
Member of Technical Program Committee, IEEE International Conference on Cloud Computing (CLOUD)	2015
Member of Technical Program Committee, International Workshop on COmplex faULTs and Failures in LargE Software Systems (COUFLESS), Co-located with the 37th International Conference on Software Engineering (ICSE)	2015
Reviewer: ACM Transactions on Autonomous and Adaptive Systems	2015
Member of Technical Program Committee, The IEEE International Conference on Cloud and Autonomic Computing (CAC)	2014
Member of Technical Program Committee, International Conference on Software Engineering and Knowledge Engineering (SEKE)	2014

Reviewer: International Journal of Engineering	2014
Member of Technical Program Committee, 15th International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS)	2013
Member of Technical Program Committee, International Conference on Software Engineering and Knowledge Engineering (SEKE)	2013
Reviewer: International Conference on Distributed Computing and Networking (ICDCN)	2013
Reviewer: International Journal of Engineering	2013
Reviewer: Journal of Theoretical Computer Science	2012
Member of Technical Program Committee, 24th International Conference on Software Engineering and Knowledge Engineering (SEKE)	2012
Reviewer: International Journal of Parallel and Distributed Computing (JPDC)	2011
Reviewer: IEEE International Conference on Information Reuse and Integration	2011
Member of Technical Program Committee, 2nd International Workshop on Logical Aspects of Fault Tolerance (LAFT)	2011
Member of Technical Program Committee, 23rd International Conference on Software Engineering and Knowledge Engineering (SEKE)	2011
Reviewer: ACM Transactions on Autonomous and Adaptive Systems	2010
Reviewer: NSF panel on Distributed and Parallel Algorithms	2009
Reviewer: IEEE Transactions on Software Engineering (TSE)	2009
Member of Technical Program Committee (Formal Methods track): 11th International Symposium on Stabilization, Safety, and Security of Distributed Systems.	2009
Co-Chair: Poster session of the 10th International Symposium on Stabilization, Safety, and Security of Distributed Systems	2008
Reviewer: ACM Computing Surveys	2008
Reviewer: ACM Transactions on Autonomous and Adaptive Systems	2007
Reviewer: ACM Transactions on Software Engineering and Methodology	2007
Reviewer: 15th IEEE International Conference on Requirements Engineering	2007
Program Committee member: International Workshop on Engineering of Fault-Tolerant Systems.	2007
Chair: A technical session on Engineering of Software Fault-Tolerance A joint event with the International Conference on Software Engineering Research and Practice (SERP'07)	2007
Program Committee member: International Conference on Software Engineering Research and Practice (SERP'07) in conjunction with the 2007 World Congress in Computer Science, Computer Engineering, & Applied Computing.	2007
Reviewer: Software Engineering and Fault-Tolerance - Book I	2007
Reviewer: Architecting Dependable Systems - Book IV	2007
Reviewer (Journals): Iranian Journal of Electrical and Computer Engineering	2006
Program Committee member: Emerging Results of ICSE 2006	2005 - 2006
Reviewer (Journals): Journal of Distributed Computing	2003 - 2005
Reviewer (Journals): Iranian Journal of Electrical and Computer Engineering	2005
Reviewer (Conferences): IEEE ICDCS, DSN	2004

Course Developments/Upgrades

- Course Upgrade: Team Software Project, Undergraduate
Michigan Technological University Spring 2010
Description: added new material on Object Constraint Language (OCL)
and its tool support
- Course Upgrade: Software Dependability, Graduate-level advanced topic
Michigan Technological University Fall 2010
- Course Upgrade: Team Software Project, Undergraduate
Michigan Technological University Spring 2010
Description: added new material on Java Modeling Language
- New Course: Model-Driven Software Development, Senior Undergraduate
Michigan Technological University Fall 2009
- New Course: Software Fault Tolerance, Advanced Topics - Graduate
Michigan Technological University Spring 2008
- Course Upgrade: Team Software Project, Undergraduate
Michigan Technological University Spring 2008
Description: upgraded this course by adding new material on
the Design-By-Contract methodology.
- Course Upgrade: Team Software Project, Undergraduate
Michigan Technological University Spring 2007
Description: upgraded this course by adding new material on rigorous
use of the Unified Modeling Language in software development.

Software Tool Development

- **Protocon**: A cluster-based framework for automated design of self-stabilizing systems
Michigan Technological University Spring 2011
Website: <http://asd.cs.mtu.edu/projects/protocon/>
Goals: Exploit parallelism and search diversification to increase the likelihood of
synthesizing *self-stabilizing* network protocols.
- **UPC-SPIN**: A framework for the model checking of UPC programs
Michigan Technological University Spring 2011
Goals: Facilitate the detection of concurrency failure (e.g., data races and deadlocks)
for UPC programmers
- **STabilization Synthesizer (STSyn)**: A tool for lightweight addition of
convergence to network protocols.
Michigan Technological University Fall 2010

Goals: Facilitate the design and verification of *self-stabilizing* network protocols.

- **ParCor**: A tool for algorithmic correction of deadlocks and livelocks in shared memory parallel programs, Michigan Technological University Fall 2009

Goals: - Facilitate the design and debugging of parallel programs
 - Exploit the computational resources of computer networks for automatic correction of concurrency errors

- **DFTSyn**: A tool for distributed addition of failsafe fault tolerance Michigan Technological University Summer 2007

Goals:
 - Automate the design and fault-tolerant distributed programs
 - Exploit the computational resources of computer networks for automatic addition of fault tolerance

Teaching Experience

Associate Professor: Model-Driven Software Development Michigan Technological University	Spring 2017
Associate Professor: Advanced Algorithms, Michigan Technological University	Fall 2016
Associate Professor: Advanced Algorithms, Michigan Technological University	Fall 2015
Associate Professor: Formal Models of Computation Michigan Technological University	Fall 2015
On sabbatical leave in fall 2014 and spring 2015	
Associate Professor: Advanced Theory of Computation Michigan Technological University	Spring 2014
Associate Professor: Model-Driven Software Development Michigan Technological University	Spring 2014
Associate Professor: Advanced Algorithms, Michigan Technological University	Fall 2013
Associate Professor: Model-Driven Software Development Michigan Technological University	Spring 2013
Associate Professor: Advanced Algorithms, Michigan Technological University	Fall 2012
Assistant Professor: Model-Driven Software Development Michigan Technological University	Spring 2012
Assistant Professor: Team Software Project, Michigan Technological University	Spring 2012
Assistant Professor: Team Software Project, Michigan Technological University	Fall 2011
Assistant Professor: Team Software Project, Michigan Technological University	Spring 2011

Assistant Professor: Advanced Topics on Software Dependability Michigan Technological University	Fall 2010
Assistant Professor: Advanced Algorithms, Michigan Technological University	Fall 2010
Assistant Professor: Team Software Project, Michigan Technological University	Spring 2010
Assistant Professor: Model-Driven Software Development Michigan Technological University	Fall 2009
Assistant Professor: Advanced Algorithms, Michigan Technological University	Fall 2009
Assistant Professor: Software Fault Tolerance, Michigan Technological University	Spring 2009
Assistant Professor: Team Software Project, Michigan Technological University	Spring 2009
Assistant Professor: Advanced Algorithms, Michigan Technological University	Fall 2008
Assistant Professor: Team Software Project, Michigan Technological University	Spring 2008
Assistant Professor: Software Fault Tolerance, Michigan Technological University	Spring 2008
Assistant Professor: Advanced Algorithms, Michigan Technological University	Fall 2007
Assistant Professor: Team Software Project, Michigan Technological University	Spring 2007
Assistant Professor: Advanced Algorithms, Michigan Technological University	Fall 2006
Teaching assistant for CSE870 (Advanced Software Engineering) Computer Science and Engineering Department, Michigan State University.	Spring 2005
Substitute instructor for CSE870 (Advanced Software Engineering) Computer Science and Engineering Department, Michigan State University.	Spring 2005
Teaching assistant for CSE410 (Operating Systems). Computer Science and Engineering Department, Michigan State University.	Fall 2004
Substitute instructor for CSE260 (Discrete Math.) Computer Science and Engineering Department, Michigan State University.	March 2004
Lecturer in Computer Science Computer Science Department, Islamic Azad University, Majlesi Town, Isfahan, IRAN.	(June 2000 - Dec. 2000)
Lecturer in Computer Science Computer Science Department, Islamic Azad University, Majlesi Town, Isfahan, IRAN. Taught the following undergraduate courses: System Software, Assembly Language, Principles of Operating Systems, and Basic and Advanced Programming.	(Sep. 1996 - June 1998)

Instructor and developer of microprocessor laboratory (Jan. 1996 - June. 1996)
Computer Engineering Department, the University of Isfahan, Isfahan, IRAN.