

Shiva Nejati

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Education

University of Toronto , Toronto, Canada Ph.D., Computer Science	2003/09 – 2008/11
University of Toronto , Toronto, Canada M.S., Computer Science	2002/01 – 2003/08
Sharif University of Technology , Tehran, Iran B.S., Computer/Software Engineering	1996/09 – 2000/08

Employment

Research Scientist (permanent position) Certus Software V&V Center, Simula Research Lab	January 2011–present Fornebu, Norway
Postdoctoral Research Fellow Software Engineering Department, Simula Research Lab	May 2009–December 2010 Fornebu, Norway
Visiting Research Associate Software Systems Engineering Group, Department of Computer Science, University College London	January 2009–April 2009 London, UK
Graduate Research Assistant Department of Computer Science, University of Toronto	January 2002–December 2008 Toronto, Canada
Seasonal Instructor and Teaching Assistant Department of Computer Science, University of Toronto	January 2002–December 2008 Toronto, Canada
Software Developer The Farsi \TeX Project (http://www.farsitex.org), Department of Computer Engineering, Sharif University of Technology	September 1999–December 2001 Tehran, Iran

Research Interests

Specification and design methods, requirements engineering, model-driven engineering, constraint optimization techniques, search-based software engineering, certification and verification of real-time embedded systems, web-services, automata theory, and logic.

Honours and Awards

Best Student Paper (CASCON'07)	2007
Ontario Graduate Scholarship in Science and Technology (OGSST)	2007 – 2008
ACM SIGSOFT Distinguished Paper (ICSE'07)	2007
Ontario Graduate Scholarship (OGS)	2006 – 2007
University of Toronto Fellowship	2002 – 2008

Grants

- 2011 Norwegian Research Council, “MODEL FUSION: Model Management for Distributed Software Development”, 6.6 M NOK (~1 M USD) over four years (principal investigator).
- 2011 Norwegian Research Council, “Certus Center for Software Verification and Validation”, 80 M NOK (~13 M USD) over eight years (actively participated in preparation of the proposal).
- 2011 Ontario Research Fund, “Model-Based Software Engineering”, (contributed to the text of the proposal; award made to a number of Ontario universities).
- 2008 IBM Eclipse Innovation Grant, “Model Management Toolkit”, (contributed to the text of the proposal; award made to my supervisor Prof. M. Chechik).

Publications

Refereed Journal Papers

1. **S. Nejati**, M. Sabetzadeh, M. Chechik, S. Easterbrook, P. Zave. “Matching and Merging of Variant Feature Specifications”. Accepted to *IEEE Transactions on Software Engineering* in November 2011. (22 pages)
2. M. Chechik, **S. Nejati**, M. Sabetzadeh. “A relationship-based approach to model integration”. Accepted to *Innovations in Systems and Software Engineering* in July 2011. (16 pages)
3. J. Simmonds, Y. Gan, M. Chechik, **S. Nejati**, B. O’Farrell, E. Litani, J. Waterhouse. “Runtime Monitoring of Web Service Conversations”. *IEEE Transactions on Services Computing*, v.2, no.3, pages 223-244, 2009.

Refereed Conference Papers

1. M. Sabetzadeh, **S. Nejati**, L. Briand, A. Mills. “Using SysML for Modeling of Safety-Critical Software/Hardware Interfaces: Guidelines and Industry Experience”. In *13th IEEE International High Assurance Systems Engineering Symposium (HASE’11)*, FL, USA, November 2011.
2. D. Falessi, **S. Nejati**, M. Sabetzadeh, L. Briand, A. Messina. “SafeSlice: a model slicing and design safety inspection tool for SysML”. In *19th ACM SIGSOFT Symposium on the Foundations of Software Engineering (FSE-19) and ESEC’11*, pages 460–463, Szeged, Hungary, September 2011. Formal Research Demonstration.
3. R. Behjati, T. Yue, **S. Nejati**, L. Briand, Bran Selic. “Extending SysML with AADL Concepts for Comprehensive System Architecture Modeling”. In *7th European Conference on Modelling Foundations and Applications (ECMFA’11)*, pages 236–252, Birmingham, UK, June 2011.
4. **S. Nejati**, M. Sabetzadeh, M. Chechik, S. Uchitel, P. Zave. “Towards Compositional Synthesis of Evolving Systems”. In *16th International Symposium on the Foundations of Software Engineering (FSE’08)*, pages 285–296, Atlanta, GA, USA, November 2008. (Presenter)
5. M. Sabetzadeh, **S. Nejati**, S. Easterbrook, M. Chechik. “Global Consistency Checking of Distributed Models with TReMer+”. In *Proceedings of 30th International Conference on Software Engineering (ICSE’08)*, pages 815–818, Leipzig, Germany, May 2008. Formal Research Demonstration.
6. Y. Gan, M. Chechik, **S. Nejati**, J. Bennett, B. O’Farrell, J. Waterhouse. “Runtime Monitoring of Web Service Conversations”. In *Proceedings of the 2007 Conference of the Centre for Advanced Studies on Collaborative Research (CASCON’07)*, pages 42–57, Toronto, ON, Canada, October 2007. (Best Student Paper Award).
7. M. Sabetzadeh, **S. Nejati**, S. Liaskos, S. Easterbrook, M. Chechik. “Consistency Checking of Conceptual Models via Model Merging”. In *Proceedings of 15th IEEE International Requirements Engineering Conference (RE’07)*, pages 221–230, New Delhi, India, October 2007.

8. **S. Nejati**, M. Sabetzadeh, M. Chechik, S. Easterbrook, P. Zave. “Matching and Merging of Statecharts Specifications”. In *Proceedings of 29th International Conference on Software Engineering (ICSE’07)*, pages 54–64, Minneapolis, MN, USA, May 2007. (**ACM SIGSOFT Distinguished Paper Award**). (Presenter)
9. **S. Nejati**, M. Gheorghiu, M. Chechik. “Thorough Checking Revisited”. In *Proceedings of 6th International Conference on Formal Methods in Computer-Aided Design (FMCAD’06)*, pages 106–116, San Jose, CA, USA, November 2006. (Presenter)
10. **S. Nejati**, M. Chechik. “Let’s Agree to Disagree”. In *Proceedings of 20th IEEE/ACM International Conference on Automated Software Engineering (ASE’05)*, pages 287–290, Long Beach, CA, USA, November 2005. Short Paper. (Presenter)
11. **S. Nejati**, A. Gurfinkel, M. Chechik. “Stuttering Abstraction for Model Checking”. In *Proceedings of 3rd IEEE International Conference on Software Engineering and Formal Methods (SEFM 2005)*, pages 311–320, Koblenz, Germany, September 2005. (Presenter)

Refereed Workshop Papers

1. M. Chechik, J. Simmonds, S. Ben-David, **S. Nejati**, M. Sabetzadeh, R. Salay. “Modeling and Analysis of Personal Web Applications: A Vision”. In *CASCON Workshop on the Personal Web (PersonalWeb’10)*, Toronto, ON, Canada, November 2010. 8 pages.
2. M. Sabetzadeh, **S. Nejati**, M. Chechik, S. Easterbrook. “Reasoning about Consistency in Model Merging”. In *Proceedings of ASE Workshop on Living with Inconsistencies in Software Development (Lwi’10)*, Antwerp, Belgium, Sep 2010. 6 pages.
3. M. Chechik, W. Lai, **S. Nejati**, J. Cabot, Z. Diskin, S. Easterbrook, M. Sabetzadeh, R. Salay. “Relationship-Based Change Propagation: A Case Study”. In *Proceedings of ICSE Workshop on Modeling in Software Engineering (MiSE’09)*, Vancouver, BC, Canada, May 2009. 6 pages.
4. **S. Nejati**, M. Chechik. “Behavioural Model Fusion: An Overview of Challenges”. In *Proceedings of ICSE Workshop on Modeling in Software Engineering (MiSE’08)*, Leipzig, Germany, May 2008. 6 pages.
5. J. Simmonds, M. Chechik, **S. Nejati**, E. Litani, B. O’Farrell. “Property Patterns for Runtime Monitoring of Web Service Conversations”. In *Proceedings of ETAPS Workshop on Runtime Verification (RV’08)*, Budapest, Hungary, March 2008. 18 pages.
6. R. Salay, M. Chechik, S. Easterbrook, Z. Diskin, **S. Nejati**, M. Sabetzadeh, P. McCormick, P. Viriyakattiyaporn. “An Eclipse-Based Model Management Framework”. In *Proceedings of OOPSLA Workshop on Eclipse Technology eXchange (ETX’07)*, Montréal, QC, Canada, November 2007. 6 pages.
7. M. Sabetzadeh, **S. Nejati**, S. Easterbrook, M. Chechik. “A Relationship-Driven Framework for Model Merging”. In *Proceedings of ICSE Workshop on Modeling in Software Engineering (MiSE’07)*, Minneapolis, MN, USA, May 2007. 6 pages.
8. G. Brunet, M. Chechik, S. Easterbrook, **S. Nejati**, N. Niu, M. Sabetzadeh. “A Manifesto for Model Merging”. In *Proceedings of ICSE Workshop on Global Integrated Model Management (GaMMa’06)*, Shanghai, China, May 2006. 7 pages.
9. **S. Nejati**. “Formal Support for Merging and Negotiation”. In *Proceedings of 20th IEEE/ACM International Conference on Automated Software Engineering (ASE’05)*, pages 456–460, Long Beach, CA, USA, November 2005. 4 pages.

Theses

1. **S. Nejati**. “Behavioural Model Fusion”. Ph.D. Thesis, Department of Computer Science, University of Toronto, Canada, November 2008.
2. **S. Nejati**, “Refinement Relations on Partial Specifications”. Master’s Thesis, Department of Computer Science, University of Toronto, Canada, August 2003.

Submitted

1. L. Briand, D. Falessi, **S. Nejati**, M. Sabetzadeh, T. Yue. “Traceability and SysML Design Slices to Support Safety Inspections: A Controlled Experiment”. Submitted.
2. **S. Nejati**, M. Sabetzadeh, L. Briand, T. Coq. “Requirements to Design Traceability and Slicing in Support of Safety Certification: A SysML-Based Framework and an Industrial Case Study”. Submitted.

Professional Activities

- Program Committee Member for Coordination 2012 and ESEM Poster 2011.
- Conference Reviewer for FASE, CONCUR, LICS, ASE, VMCAI, TACAS, ICSE, FSE, ISSTA, MODELS, TOSEM Journal, IST Journal, and Journal of Software and Systems.
- Student Volunteer for ISMVL 2004, ICSE 2008, CONCUR/PODC 2008, and VSTTE 2008.
- Coordinator of the model management research group at the University of Toronto (2005 – 2007).
- Member of ACM SIGSOFT and IEEE.

Invited Talks

1. *Behavioural Model Fusion: Merge, Composition and Verification*,
Invited to Workshop on Researching & Developing Persistent & Generative Cognitive Models, Scottsdale, AZ, November 2010; Simula Research Lab, Fornebu, Norway, May 2009; University of Lugano, Lugano, Switzerland, April 2009; Open University, Milton Keynes, UK, March 2009; University College London, London, UK, February 2009; Oregon State University, Corvallis, OR, USA, January 2009; University of Calgary, Calgary, AB, Canada, December 2008; IBM Research – Watson Research Center (Hawthorne), New York, USA, October 2008.
2. *On the Use of Approximate Equivalences in Model-Based Development*,
Invited to the Workshop on Approximate Behavioural Equivalences (ABE08), co-located with CONCUR08, Toronto, Canada, August 2008.
3. *Matching and Merging of Statecharts Specifications*,
Invited to the 1st India Software Engineering Conference (ISEC 2008), Hyderabad, India, February 2008. (Declined); University of Toronto Variability Modelling Workshop, Toronto, Canada, December 2006; York University, Toronto, Canada, December 2006.

Software Tools

- SafeSlice: A tool for Slicing and Inspecting SysML Models of Safety-Critical Systems.
<http://sites.google.com/a/simula.no/safeslice/>
- TReMer+: A Tool for Merging and Consistency Checking of Distributed Models.
<http://se.cs.toronto.edu/index.php/TReMer+>

Students (Co)Supervised

- Stefano Di Alesio PhD student at Simula Research Lab
Thesis: Analysis of Performance Requirements of Embedded Software Systems – Graduation: June 2014 (expected)
- Razieh Behjati PhD student at Simula Research Lab
Thesis: Modeling and Analysis of a System-of-Systems Architecture with Special Focus on Safety – Graduation: June 2012 (expected)
- Tonje Klykken Master student at Simula Research Lab
Thesis: A Case Study using SysML for Safety-Critical Systems– Graduation: November 2009
- Winnie Lai Master student at the University of Toronto
Thesis: Relationship-Based Change Propagation: A Case Study – Graduation: February 2009
- Min Soo Kim Undergraduate student at the University of Toronto
Project: Design of a Wiki Site for Software Engineering Group at UofT – Summer 2007
- Yuan An Master student at the University of Toronto
Thesis: Runtime Monitoring of Web Service Conversations – Graduation: March 2007