Curriculum Vitae

Nilufer Onder

Associate Professor
Department of Computer Science
Michigan Technological University
1400 Townsend Drive,Houghton MI 49931
office: (906) 487 1641, email: nilufer@mtu.edu
http://www.cs.mtu.edu/~nilufer
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Research Interests

Artificial intelligence: automated planning under uncertainty, temporal reasoning, temporal verification of simulations with applications in computer micro-architecture, decision support systems for construction management, evolutionary algorithms in space trajectory optimization.

Computer science education: Educational software, student attitudes towards STEM fields, student persistence in engineering and computer science.

Education

University of Pittsburgh   Pittsburgh, PA
Ph.D. in Computer Science   1999
Thesis: *Contingency Selection in Plan Generation*   Advisor: Martha E. Pollack.

Middle East Technical University   Ankara, Turkey
M.Sc. in Computer Engineering   1988
Thesis: *Design and Implementation of a User-Friendly Interface for Novice Programmers and Computer Non-professionals*   Advisor: F. Payidar Genc.

Middle East Technical University   Ankara, Turkey
B.Sc. in Computer Engineering   1985
Senior Thesis: *Design and Implementation of a Mobile Robot Navigation Language*

Professional Experience

Michigan Technological University   Department of Computer Science
Associate Professor   since 2006

Michigan Technological University   Department of Computer Science
Assistant Professor   1999-2006

University of Pittsburgh   Department of Computer Science
Graduate Research Assistant   1993-1999

State Univ. of New York, College at Fredonia   Computing Services
Project Assistant   summer periods, 1991-1994

Middle East Technical University   Computer Center
Systems Programmer   1985-1990

Honors and Awards

Distinguished Teaching Award, May 2013. University-wide award given to two educators for their outstanding contribution to the instructional mission of Michigan Technological University. `http://www.mtu.edu/umc/services/pr-news/magazine/fall13/stories/townsend-drive/`

14th International Conference on Automated Planning & Scheduling (ICAPS-2004), International Planning Competition (IPC-4), Probabilistic Track. First Place with Probapop, a no-observability planner (with Garrett C. Whelan, and Li Li).

NATO Science Scholarship Program 3-year Ph.D. fellowship in the field of computer science (1990-1993) (The Scientific and Technical Research Council of Turkey).

Undergraduate scholarship (1981-1985) by Haci Omer Sabanci Foundation (for students who score at the top 10% in the country-wide university entrance exams in Turkey).

Research Grants

Interactions Unlimited, PI; mini-grant of $2,000; from Stevens Institute of Technology for improving and increasing faculty-student interactions, through NSF ENGAGE project, HRD-0833076; January 2013 – July 2014.

Implementing a Curriculum for Service Systems Engineering, co-PI; $499,994; from NSF DUE-0618537; PI: Leonard J. Bohmann, co-PIs: Dana Johnson, Kris Mattila, Nilufer Onder, John Sutherland; October 2006 – September 2010.

A Collaborative Laboratory for Human-Robot Interaction at Michigan Technological University, co-PI; $467,017; from Department of Defense, DARPA DURIP; PI: William Helton; co-PIs: Jason Carter, Yue Li, Amlan Mukherjee, Nilufer Onder, Robert Pastel, Jindong Tan; April 2007 – March 2008.

Other Funding

Industry gifts to sponsor yearly BonzAI competition (`bonzai.cs.mtu.edu`); approximately $5,000 yearly; co-advisors: Laura Brown, Scott Kuhl, and Nilufer Onder. Since 2008.

Industry gifts to sponsor inaugural ACM TechHacks Hackathons; approximately $20,000 per year; advisor: Nilufer Onder. Since 2013.

Graduated Ph.D. Students (3)

Li Li, Computer Science, 2015
Thesis: *Generating Plans in Concurrent, Probabilistic, Over-Subscribed Domains*

Hui Meen Nyew (co-advisor: Soner Onder), Computer Science, 2014
Thesis: *Mining and Verification of Temporal Events with Applications in Computer Micro-Architecture Research*

Pei Tang (co-advisor: Amlan Mukherjee), Civil Engineering, 2013
Thesis: *Assessing Decision Making Strategies in Construction Management by Using a Schedule-based Simulation Framework*

Graduated M.Sc. Students (7)

Neelanjana Sachdev (CS M.Sc., 2010)
Engin Maden (M.Sc. in Computer Engineering, METU, Advisor: Pinar Senkul, 2010)
Matt Watkins (CS M.Sc., co-advisor Amlan Mukherjee, 2008)
G. Ryan Anderson (CS M.Sc., co-advisor Amlan Mukherjee, 2007)
Hui Meen Nyew (CS M.Sc., 2006)
Virginia Bluth (CS M.Sc., 2005)
Garrett Whelan (CS M.Sc., 2004)

Courses Taught

SSE 3200 – Analysis and Design of Web-based Services, undergraduate (Spring 2010-2011)
CS 3611 – Graphical User Interface Design, undergraduate (Spring 2000-2002)
CS 4311 – Introduction to Computation Theory, undergraduate (Fall 1999-2006)
CS 3311 – Formal Models of Computation, undergraduate (Fall and Spring, 2008-present)
CS 4811 – Artificial Intelligence, undergraduate (Spring 2003-2007, 2009, 2012, 2014, 2016)
CS 5811 – Advanced Artificial Intelligence, graduate (Fall 1999-2006, 2008-2010, 2012, 2014, 2016)

Publications

Proceedings Editor

Nicola Policella, Nilufer Onder (Eds.). *Application Showcase Proceedings.* 23rd International Conference on Automated Planning and Scheduling (ICAPS 2013).

Book Chapter

Pinar Senkul, Nilufer Onder, Soner Onder, Engin Maden, Hui Meen Nyew. "Discovering Patterns for Architecture Simulation by using Sequence Mining". In *Pattern Discovery Using Sequence Data Mining: Applications and Studies.* Pradeep Kumar, Radha Krishna, Bapi Raju, IGI Global, 2012.

Journal Publications

Hui Meen Nyew, Ossama Abdelkhalik, Nilufer Onder. "Structured-Chromosome Evolutionary Algorithms for Variable-Size Autonomous Interplanetary Trajectory Planning Optimization". *Journal of Aerospace Information Systems*, Journal of Aerospace Information Systems, Vol. 12, No. 3, pp. 314328, March 2015.

Pei Tang, Amlan Mukherjee, Nilufer Onder. "Using an Interactive Schedule Simulation Platform to Assess and Improve Contingency Management Strategies". *Journal of Automation in Construction*, Elsevier, Vol. 35, pp. 551–560, November 2013.

G. Ryan Anderson, Amlan Mukherjee, Nilufer Onder. "Traversing and Querying Constraint Driven Temporal Networks to Estimate Construction Contingencies." *Journal of Automation in Construction*, Elsevier, Vol. 18, No. 6, pp. 798–813, 2009.

Matthew T. Watkins, Amlan Mukherjee, Nilufer Onder, Kris G. Mattila. "Using Agent Based Modeling to Study Construction Labor Productivity as an Emergent Property of Individual and Crew Interactions". *Journal of Construction Engineering and Management*, ASCE, Vol. 135, No. 7, pp. 657–667, 2009.

Nilufer Onder, Garrett C. Whelan, Li Li. "Engineering a Conformant Probabilistic Planner". Engineering Note. *Journal of Artificial Intelligence Research (JAIR)*, Vol. 25, pp. 1-15, 2006.

Refereed Conference Publications

Hui Meen Nyew, Nilufer Onder, Soner Onder, Zhenlin Wang. "Verifying Micro-architecture Simulators using Event Traces". In *Proceedings of the 28th International Conference on Supercomputing (ICS 2014)*, Munich, Germany, June 2014. (acceptance rate 20%)

Yi Gu, Nilufer Onder, Ching-Kuang Shene, Chaoli Wang. "FPAvisual: A Tool for Visualizing the Effects of Floating-Point Finite-Precision Arithmetic". In *Proceedings of the American Society for Engineering Education (ASEE) 121st Annual Conference & Exposition*. Indianapolis, Indiana, June 2014.

Hui Meen Nyew, Nilufer Onder, Soner Onder and Zhenlin Wang. "A First-Order Logic Based Framework for Verifying Simulations". In *Pre-PhD Student Abstracts, AAAI Conference on Artificial Intelligence (AAAI13)*, Bellevue, Washington, June 2013.

Kaitlyn J. Bunker, Laura E. Brown, Leonard J. Bohmann, Gretchen L. Hein, Nilufer Onder, Raven R. Rebb. "Perceptions and Influencers Affecting Engineering and Computer Science Student Persistence". In *Proceedings of the 2013 IEEE Frontiers in Education Conference (FIE 2013)*, Oklahoma City, Oklahoma, October 2013.

Gretchen L. Hein, Laura E. Brown, Nilufer Onder, Kaitlyn J. Bunker, Raven R. Rebb, Leonard J. Bohmann. "University Studies of Student Persistence in Engineering and Computer Science". In *Proceedings of the 119th American Society for Engineering Education Annual Conference (ASEE 2012)*, San Antonio, Texas, June 2012.

Kaitlyn J. Bunker, Raven R. Rebb, Laura E. Brown, Gretchen L. Hein, Nilufer Onder, Leonard J. Bohmann. "Compositional Effects on the Persistence of Women Engineering and Computer Science Undergraduates", In *Proceedings of the Women in Engineering ProActive Network Annual Conference (WEPAN 2012)*, Columbus, Ohio, June 2012.

Kaitlyn J. Bunker, Raven R. Rebb, Laura E. Brown, Gretchen L. Hein, Nilufer Onder. "Why do Women Engineering and Computer Science Undergraduates Persist in their Major?" In *Proceedings of the Women in Engineering ProActive Network Annual Conference (WEPAN 2011)*, Seattle, Washington, June 2011.

Pei Tang, Amlan Mukherjee, Nilufer Onder. "Strategy Optimization and Generation for Construction Project Management". In *Proceedings of the 2010 Winter Simulation Conference (WSC 10)*, ACM/SIGSIM, Baltimore, Maryland, December 2010.

Nilufer Onder, Amlan Mukherjee, and Pei Tang. "Construction Management Applications: Challenges in Developing Execution Control Plans". In *Proceedings of the Twentieth International Conference on Automated Planning and Scheduling (ICAPS 2010)*, pp. 263–266, Toronto, Canada, May 2010. (acceptance rate 34%)

Amlan Mukherjee, Nilufer Onder, Eddy M. Rojas. "Research Methods Associated with Situational Simulations in Construction". In *Proceedings of the 2009 Construction Research Congress (CRC 2009)*, Seattle, Washington, 2009.

Dana Johnson, Leonard Bohmann, Kris Mattila, Amlan Mukherjee, Nilufer Onder, John Sutherland. "Integrating a Multi-Disciplinary Program Using Concept Mapping." In *Proceedings of the Production and Operations Management Society (POMS) Conference*, Orlando, Florida, 2009.

Matthew T. Watkins, Amlan Mukherjee, Nilufer Onder. "Using Situational Simulations to Collect and Analyze Dynamic Construction Management Decision-Making Data". In *Proceedings of the 2008 Winter Simulation Conference (WSC 2008)*, ACM/SIGSIM, pp. 2378–2386, 2008.

G. Ryan Anderson, Amlan Mukherjee, Nilufer Onder. "Expecting the Unexpected: Representing, Reasoning About, and Assessing Construction Project Contingencies". in *Proceedings of the 2007 Winter Simulation Conference (WSC 2007)*, ACM/SIGSIM, pp. 2041–2050, 2007.

Matthew T. Watkins, Amlan Mukherjee, Nilufer Onder, Kris Mattila. "Understanding Labor Productivity as an Emergent Property of Individual and Crew Interactions on a Construction Site". In *Proceedings of the Annual Conference of the International Group on Lean Construction (IGLC 2007)*, Lansing, Michigan, pp. 400-405, 2007.

Li Li, Nilufer Onder. "Generating Plans in Concurrent, Probabilistic, Over-Subscribed Domains". In *Proceedings of the Twenty-Third AAAI Conference on Artificial Intelligence (AAAI 2008)*, pp. 957–962, Chicago, Illinois, July 2008.

Janae N. Foss, Nilufer Onder. "A Hill-Climbing Approach to Planning with Temporal Uncertainty". In *Proceedings of the Nineteenth Florida AI Research Society Conference (FLAIRS 2006)*, pp. 869–870, Melbourne Beach, Florida, 2006.

Janae N. Foss, Nilufer Onder. "Generating Temporally Contingent Plans". In *IJCAI 2005 Workshop on Planning and Learning in A Priori Unknown or Dynamic Domains*, pp. 62–68, Edinburgh, Scotland, August 2005.

Nilufer Onder, Garrett Whelan, Li Li. "Probapop: Probabilistic Partial-Order Planning". In Proceedings for The Probabilistic Planning Track of IPC-4. Whistler, British Columbia, Canada, June 2004.

Nilufer Onder, Li Li. "Revisiting Probabilistic Partial-Order Planning". In *AAAI Fall Symposium on Intent Inference for Users, Teams, and Adversaries*, pp. 32–37 North Falmouth, Massachusetts, November 2002.

Nilufer Onder, Martha E. Pollack. "Conditional, Probabilistic Planning: A Unifying Algorithm and Effective Search Control Mechanisms". In *Proceedings of the Sixteenth National Conference on Artificial Intelligence (AAAI 1999)*, pp. 577-584, Orlando, Florida, July 1999.

Nilufer Onder, Martha E. Pollack, John F. Horty. "A Unified Algorithm for Conditional and Probabilistic Planning". In *AIPS98 Workshop on Integrating Planning, Scheduling and Execution in Dynamic and Uncertain Environments*, Pittsburgh, Pennsylvania, June, 1998.

Nilufer Onder, Martha E. Pollack. "Contingency Selection in Plan Generation". In *Proceedings of the Fourth European Conference on Planning*, pp. 364-376, Toulouse, France, September 1997.

Nilufer Onder, Martha E. Pollack. "Contingency Selection in Plan Generation". In *AAAI-96 Fall Symposium on Plan Execution*, MIT, Boston, MA, Nov. 1996.

Invited Publications

Corey Tebo, Amlan Mukherjee, Nilufer Onder. "A Multipurpose Simulation Platform for Decision-Making in Construction Management". In *Proceedings of the 2010 Winter Simulation Conference (WSC 10)*, ACM/SIGSIM, Baltimore, Maryland, December 2010.

Pei Tang, Amlan Mukherjee, Nilufer Onder. "Studying Dynamic Decision-Making in Construction Management using Adaptive Interactive Simulations" In *Proceedings of the 2010 Construction Research Congress (CRC 2010),* Banff, Canada, 2010.

Amlan Mukherjee, Nilufer Onder, Corey Tebo, Kekoa Kaaikala. "An Experimental Framework to Analyze Alternative Decision-Making Strategies Using Situational Simulations in Construction Management". In *Proceedings of the 2009 Winter Simulation Conference (WSC 2009)*, IEEE, pp. 2703–2711, 2009.

Dana Johnson, Leonard Bohmann, Kris Mattila, Amlan Mukherjee, Nilufer Onder, John Sutherland. "Developing a Curriculum in Service Systems Engineering". In *Proceedings of the 2009 Industrial Engineering Research Conference*, Houghton, Michigan, 2009.

Dana Johnson, Leonard J. Bohmann, Kris Mattila, Nilufer Onder, John Sutherland. "A First Course in Service Systems Engineering". In *Decision Sciences Institute Annual Conference*, Baltimore, Maryland, 2008.

Leonard Bohmann, Dana Johnson, Kris Mattila, Nilufer Onder, John Sutherland. "Future Engineers: Leading the Charge in the Service Sector". *ASEE North Midwest Section Conference*, Houghton, Michigan, 2007.

Professional Service

Workshop Organization

Kaitlyn J. Bunker, Raven R. Rebb, Laura E. Brown, Leonard J. Bohmann, Nilufer Onder, Gretchen L. Hein. "Changing the Culture: Micro-Aggressions and Micro-Affirmations". At the Women in Engineering ProActive Network National Forum (WEPAN-14), June 11, 2014.

Gretchen L. Hein, Kaitlyn J. Bunker, L.J. Bohmann, Raven R. Rebb, Nilufer Onder, Laura E. Brown. "Micro-aggressions and micro-inequalities: What are they? How do they affect me? What can I do about them?". At the Annual Conference of Society of Women Engineers (SWE-13), Oct. 24, 2013.

Laura E. Brown, Leonard J. Bohmann, Kaitlyn J. Bunker, Raven R. Rebb, Nilufer Onder, Gretchen L. Hein, Elizabeth Litzler, Lynne Molter, Tricia Berry. "Panel: Are we there yet? Increasing Student Persistence and Retention in STEM". At the Women in Engineering ProActive Network National Conference (WEPAN-13), June 20, 2013.

Nicola Policella, Nilufer Onder. "Application Showcase". At the 23rd International Conference on Automated Planning and Scheduling (ICAPS 2013), Rome, Italy.

Sanem Sariel-Talay, Stephen Smith, Nilufer Onder. "Automated Action Planning for Autonomous Mobile Robots (PAMR) Workshop". At the Association for Advancement of Artificial Intelligence (AAAI) 25th Conference, San Francisco, CA, 2011.

Leonard Bohmann, John Hill, Dana Johnson, Amlan Mukherjee, and Nilufer Onder. "A Curriculum for Engineering Service Systems Workshop". at the American Society for Engineering Education (ASEE) 117th Annual Conference & Exposition. Louisville, KY, 2010.

Reviewer

AAAI Conference on Artifical Intelligence
AI Magazine
Artificial Intelligence Journal
Computational Intelligence
Decision Sciences Institute
Grace Hopper Conference Travel Scholarships
International Joint Conference on Artificial Intelligence
International Journal of Artificial Intelligence Tools
Journal of Automation in Construction
Journal of Autonomous Agents and Multi-Agent Systems
NSF, SES-IOS, Innovation and Organizational Sciences
NSP Review Panel Women in Engineering Proactive Network

Professional membership

Member of the Association for Advancement of Artificial Intelligence (AAAI) since 1998.
Member of the Association for Computing Machinery (ACM) since 2000.

Service at Michigan Technological University

CS Department Tenure, Promotion, and Reappointment Committee (2006-present)
CS Department External Relations and Publicity Committee (2015-present)
University Acacemic Integrity Assessment Committee (2015-present)
CS Department Undergraduate Committee (2001-2012)
CS Department Chair Search Steering Committee (2010-2011)
Alternate Senator for the CS Department (2002-2007)

Leadership

Women in Science and Engineering (WISE) Faculty Group co-director (2010-present)
Upsilon Pi Epsilon CS Honor Society Advisor (2006-present)
Women in Computing Sciences (WiCS) Student Group Advisor (2004-present)
Turkish Student Association Founding Advisor (2012-present)
ACM Student Chapter Founding Advisor (2013-present)

Outreach

Science Olympiad Coach, Washington Middle School and Calumet High School (2005-present)

Summer Youth Program presenter to women in engineering and computer science programs (2010-present)

Get WISE Day presenter to middle school female students (2007)