

Shiwali Mohan

CONTACT INFORMATION	Palo Alto Research Center 3333 Coyote Hill Road Palo Alto California 48109	<i>work:</i> (650) 812-4307 <i>cell:</i> (734) 757-0354 <i>email:</i> shiwali.mohan@parc.com <i>url:</i> www.shiwali.me
RESEARCH INTERESTS	Interactive AI agents, cognitive systems, language processing for intelligent agents, interactive knowledge acquisition, cognitive modeling.	
EDUCATION	University of Michigan , Ann Arbor, MI USA Ph.D., Computer Science and Engineering	2008 - 2015
	University of Michigan , Ann Arbor, MI USA M.S.E., Computer Science and Engineering	2008 - 2009
	University of Delhi , New Delhi, India <i>Netaji Subhas Institute of Technology</i> B.E., Instrumentation and Control Engineering	2003 - 2007
EMPLOYMENT	Palo Alto Research Center , Palo Alto, CA USA Member of Research Staff, Interactive Intelligence Area	January 2016 - <i>present</i>
	<i>Agents for Health Behavior Change</i> <ul style="list-style-type: none">• Developing cognitive models of skill learning, prospective memory, and habit formation.• Developing interactive intelligent agents that use these models to generate interventions for behavior change.	
	<i>Socio-Cognitive Architectures</i> <ul style="list-style-type: none">• Developing a Bayesian approach for semantic memory in Soar• Extending Soar to support helpful social behaviors	
	Palo Alto Research Center , Palo Alto, CA USA Postdoctoral Researcher, Interactive Intelligence Area	November 2014 - December 2015
	<i>Agents for Health Behavior Change</i> <ul style="list-style-type: none">• Proposed and developed an interactive AI agent that uses physiological models for personalizing aerobic exercise prescription.• Implemented AI methods for the mHealth behavior change application - <i>NutriWalking</i>	

University of Michigan, Ann Arbor, MI USA
Graduate Student Research Assistant to John E. Laird

August 2010 - 2014

Situated Interactive Instruction

- Introduced a novel mixed-modality representation for action verbs.
- Proposed, developed, and analyzed the Indexical Model of situated language comprehension.
- Proposed, developed, and analyzed explanation-based learning (EBL) methods for general task learning.

Reinforcement Learning

- Proposed relational representations for RL in Infinite Mario.
- Developed representational and action hierarchies for efficient learning.

Yahoo! Research and Development, Bangalore, Karnataka India
Software Development Engineering, Media Analytics

August 2007 - July 2008

PUBLICATIONS

Dissertation

- [D1] **Shiwali Mohan**. From Verbs to Tasks: An Integrated Account of Task Learning from Situated Interactive Instruction. *University of Michigan, Ann Arbor*, 2015.

Journal Articles

- [J1] John E Laird, Kevin Gluck, John Anderson, Kenneth D Forbus, Odest Chadwicke Jenkins, Christian Lebiere, Dario Salvucci, Matthias Scheutz, Andrea Thomaz, Greg Trafton, Robert E Wray, **Shiwali Mohan**, James R Kirk. Interactive Task Learning. *IEEE Intelligent Systems*, Volume 32, Issue 4, IEEE 2017.
- [J2] **Shiwali Mohan**, Aaron Mininger, and John Laird. Towards an Indexical model of situated comprehension for real-world cognitive agents. *Advances in Cognitive Systems 3*, ACS 2014.
- [J3] John Laird and **Shiwali Mohan**. A Case Study of Knowledge Integration Across Multiple Memories in Soar. *Biologically Inspired Cognitive Architectures* (invited), BICA 2014.
- [J4] **Shiwali Mohan**, Aaron Mininger, James Kirk, and John Laird. Acquiring grounded representations of words with situated interactive instruction. *Advances in Cognitive Systems 2*, ACS 2012.

Conference Proceedings

- [C1] **Shiwali Mohan**, Anusha Venkatakrishnan, Michael Silva, and Peter Pirolli. On Designing a Social Coach to Promote Regular Aerobic Exercise. *In the Proceedings of the 29th Annual Conference on Innovative Applications of Artificial Intelligence/AAAI*, IAAI 2017.
- [C2] Justin Li, Steven Jones, **Shiwali Mohan**, and Nate Derbinksy. Architectural Mechanisms for Mitigating Uncertainty during Long-Term Declarative Knowledge Access. *In the Proceedings of the 4th Conference on Advances in Cognitive Systems*, ACS 2016.
- [C3] Andrea L Hartzler, Anusha Venkatakrishnan, **Shiwali Mohan**, Michael Silva, Paula Lozano, James D Ralston, Evette Ludman, Dori Rosenberg, Katherine M Newton, Lester Nelson, Peter Pirolli. Acceptability of a Team-Based Mobile Health (mHealth) Application for

- Lifestyle Self-Management in Individuals with Chronic Illnesses. In *38th Annual International Conference of the Engineering in Medicine and Biology Society (EMBC)*, IEEE. 2016.
- [C4] **Shiwali Mohan** and John Laird. Learning goal-oriented hierarchical tasks from situated interactive instruction. In *the Proceedings of the 28th AAAI Conference*, AAAI 2014.
 - [C5] **Shiwali Mohan**, Aaron Mininger, and John Laird. Towards an Indexical model of situated comprehension for real-world cognitive agents. In *Proceedings of the 2nd Conference on Advances in Cognitive Systems*, ACS 2013.
 - [C6] **Shiwali Mohan**, James Kirk, and John Laird. A computational model of situated task learning with interactive instruction. In *Proceedings of the 17th International Conference on Computational Modeling*, ICCM 2013.
 - [C7] Mandar Joshi, Rakesh Khobragade, Saurabh Sarda, Umesh Deshpande, and **Shiwali Mohan**. Object-oriented representation and hierarchical reinforcement learning in Infinite Mario. In *Proceedings of the 24th IEEE International Conference on Tools with Artificial Intelligence*, ICTAI 2012.
 - [C8] **Shiwali Mohan** and John Laird. An Object-Oriented approach to reinforcement learning in an action game. In *Proceedings of the 7th Artificial Intelligence for Interactive Digital Entertainment Conference*, AIIDE 2011.
 - [C9] Niladri Chatterjee and **Shiwali Mohan**. Discovering word senses from text using random indexing. In *Proceedings of the 9th International Conference on Computational linguistics and Intelligent Text Processing*, CICLing 2008. Best Paper Award.
 - [C10] Niladri Chatterjee and **Shiwali Mohan**. Extraction-based single-document summarization using random indexing. In *Proceeding of the 19th IEEE International Conference on Tools with Artificial Intelligence*, ICTAI 2007.

Refereed Symposia/Workshop Proceedings

- [W1]: Matthew Klenk, **Shiwali Mohan**, Johan de Kleer, Daniel G Bobrow, Tom Hinrichs, Ken Forbus. Collaborative Autonomy Through Analogical Comic Graphs. In *Proceedings of AAAI 2017 Workshops*. AAAI 2017.
- [W2]: John E. Laird and **Shiwali Mohan**. A case study of knowledge integration across multiple memories in Soar. In *Papers from the AAAI Fall Symposium Series on Integrated Cognition*, 2013.
- [W3]: **Shiwali Mohan**^{*}, Aaron Mininger^{*}, James Kirk^{*}, and John Laird. Learning grounded language through situated interactive instruction. In *Papers from the AAAI Fall Symposium Series on Robots Learning Interactively from Human Teachers*, 2012.
- [W4]: John Laird, Keegan Kinkade, **Shiwali Mohan**, and Joseph Xu. Cognitive robotics using the soar cognitive architecture. In *Proceedings of the 8th International Cognitive Robotics Workshop*, 2012.
- [W5]: **Shiwali Mohan** and John Laird. Situated comprehension of imperative sentences in embodied, cognitive agents. In *Papers from the AAAI Workshop on Grounding Language for Physical Systems*, 2012.
- [W6]: **Shiwali Mohan** and John Laird. Towards situated, interactive, instructable agents in a cognitive architecture. In *Papers from the AAAI Fall Symposium Series on Advances in Cognitive Systems*, 2011.

Refereed Extended Abstracts

- [A1] Peter Pirolli, **Shiwali Mohan**, Rong Yang, Anusha Venkatakrishnan, Michael Silva, Michael Youngblood, Ashwin Ram and Les Nelson. User Modeling and Planning for Improving Self-efficacy and Goal Adherence in mHealth. *Frontiers Public Health. Conference Abstract: 2nd Behaviour Change Conference: Digital Health and Wellbeing.*, 2016.
- [A2] **Shiwali Mohan**, and John E. Laird. Learning new tasks for situated interactive instruction. *In the 2014 HRI Pioneers Workshop at Human-Robot Interaction*, 2014.
- [A3] Mandar Joshi, Rakesh Khobragade, Saurabh Sarda, Umesh Deshpande, and **Shiwali Mohan**. Hierarchical action selection for reinforcement learning in Infinite Mario. *In Proceedings of the 6th Starting Artificial Intelligence Research Symposium at European Conference on Artificial Intelligence*, STAIRS 2012.
- [A4] **Shiwali Mohan** and John Laird. Learning actions and action verbs from human-agent interaction. *In Proceedings of the 26th AAAI Conference on Artificial Intelligence*, AAAI 2012.
- [A5] **Shiwali Mohan** and John Laird. Exploring mixed-initiative interaction for learning with situated instruction in cognitive agents. *In Proceedings of the 26th AAAI Conference on Artificial Intelligence*, AAAI 2012.
- [A6] **Shiwali Mohan** and John Laird. Relational reinforcement learning in Infinite Mario. *In Proceedings of the 24th AAAI Conference on Artificial Intelligence*, AAAI 2010.

INVITED TALKS

On Designing a Programmable Cognitive Assistant

IBM Cognitive Systems Institute

September 2015

Learning Hierarchical Tasks with Situated Interactive Instruction

Center for Vision, Cognition, Learning, and Art, UCLA

November 2013

USC Institute for Creative Technologies.

November 2013

Interaction Lab, Computer Science and Engineering, USC

December 2013

Information Sciences Institute, Los Angeles

December 2013

SERVICE

Program Committee HRI

2018

Program Committee IUI

2018

Program Committee AAAI Doctoral Consortium

2018

Program Committee AAAI

2018

Program Committee AAAI

2017

Program Committee AAAI Doctoral Consortium

2017

Program Committee IJCAI

2016

Program Committee AAAI

2016

Organizing Committee, Students of Cognitive Systems at ACS

2015

Program Committee AI-HRI AAAI Fall Symposium Series 2015

HONORS AND AWARDS

HRI Pioneers Scholarship, 2014

AAAI Travel Grant, AAAI Fall Symposium Series: 2013

Doctoral Consortium Scholarship, AAAI: 2012

Rackham Travel Grant: 2011, 2012, 2013

Best Paper Award, CICLing: 2008

Scholarship for Academic Excellence at the University of Delhi: 2003 - 2007