

Jivko Sinapov

The James Schmolze Assistant Professor in Computer Science
Tufts University

Office address

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Education

- Ph.D., Computer Science with co-major in Human-Computer Interaction, Iowa State University, Ames, IA, USA (December 2013)
- B.Sc., Computer Science, University of Rochester, NY, USA (May 2005)

Research Interests

Artificial Intelligence, Developmental Robotics, Computational Perception, Robotic Manipulation, Machine Learning, Human-Robot and Human-Computer Interaction

Honors and Awards

- Winner of a Verizon 100k EdTech Challenge Competition, Spring 2019.
- The James Schmolze Faculty Development Professorship in Computer Science, Tufts University, Fall 2017.
- Teaching Excellence Award from the Graduate Program in Human Computer Interaction, Iowa State University, Spring 2013.
- Best Student Paper Award at the 9th IEEE International Conference on Development and Learning (ICDL), Ann Arbor, MI, Aug. 18-21, 2010.
- Iowa State University Professional Advancement Grant (multiple awards, 2009-2013)

Invited Talks

1. **“On the Multisensory Nature of Objects and Language: a Robotics Perspective”**, keynote talk at the 1st workshop on Multimodal Learning for Embodied Applications at the ACM Multimedia Conference, Nice, France, Oct. 25, 2019.
2. **“Learning About Objects through Behavioral Exploration and Multisensory Perception”**, invited talk at the University of Rochester Computer Science Colloquium, Rochester, NY, Oct. 14, 2019.
3. **“Symbol Grounding through Behavioral Exploration and Multisensory Perception: Solutions and Open Problems”**, invited talk at the University of Washington Robotics Colloquium, Seattle, WA, Nov. 2, 2018.

4. **“Learning Object Semantics using Behavioral Exploration Coupled with Multi-sensory Perception”**, invited talk at the RSS workshop: “Multi-Modal Perception and Control”, Pittsburgh, PA, June 29, 2018.
5. **“Grounding Language in Action and Perception: An Inquisitive Robot’s Quest to Learn the Meanings of Nouns and Adjectives”**, Computer Science Colloquium, Union College, Schenectady, New York, May 10, 2018.
6. **“Grounding Object Semantics in Multi-Modal Interactions”**, Computer Science Colloquium, Worcester Polytechnic Institute, Sep. 15, 2017.
7. **“School for AI: Curriculum Construction for RL Agents”**, invited talk at the 1st 2017 AAMAS Workshop: “Transfer in Reinforcement Learning”, Sao Paulo, Brazil, May 8, 2017.
8. **“Learning ‘In the Wild’: A Developmental Approach to Service Robots”**, Computer Science Colloquium, Dept. of Computer Science, CU Boulder, Jan. 24, 2017.
9. **“Learning and Multiagent Reasoning for Autonomous Robots”**, research presentation at the Austin-area STEM Conference, Austin, TX, Aug. 4, 2016.
10. **“Curriculum Development for Reinforcement Learning Agents”**, research presentation at the 2014 Machine Intelligence for Mission-Focused Autonomy PI meeting at the Air Force Research Lab, Rome, NY, Dec. 2, 2014.
11. **“Grounding Object Concepts in Exploratory Behaviors”**, invited talk at the 2014 Humanoids Workshop: “Active Learning in Robotics: Exploration Strategies in Complex Environments”, Madrid, Spain, Nov. 18, 2014.
12. **“Behavior-Grounded Multisensory Object Perception and Exploration by a Humanoid Robot”**, invited talk at UT Austin Computer Science Department Forum on Artificial Intelligence (FAI), Austin, TX, Sep. 19, 2014.
13. **“Robots that Learn and Develop”**, invited talk at the Computer Seminar Series at Simpson College, Indianola, IA, Mar. 3, 2009.

Funded Grants and Contracts

1. *ACT-NOW: Autonomous Cognitive Technologies for Novelty in Open Worlds*. Funded by DARPA SAIL-ON program (December 2019-present), ≈\$6,000,000. Matthias Scheutz (PI), Jivko Sinapov (co-PI), Michael C. Hughes (co-PI), Liping Liu (co-PI).
2. *5G-enabled Virtual and Augmented Reality for the K-12 Robotics Classroom*. Funded by Verizon Foundation (January 2019-present), \$100,000, Jivko Sinapov (PI), Chris Rogers (co-PI).
3. *An Augmented Reality System and Framework for Human-Machine Collaborative Teaming*. Funded by the Center for Applied Brain and Cognitive Sciences (May 2018-August 2019), \$70,000. Jivko Sinapov (PI), Chris Rogers (co-PI).

Publications and Research Reports

Ph.D. Dissertation:

Sinapov, J., “Behavior-grounded multi-sensory object perception and exploration by a humanoid robot”, Ph.D. dissertation, Iowa State University, December 2013.

Journal Papers:

1. Khandelwal, P., Zhang, S., **Sinapov, J.**, Leonetti, M., Thomason, J., Yang, F., Gori, I., Svetlik, M., Khante, P., Lifschitz, V., Aggarwal, J.K., Mooney, R., and Stone, P. “BWIBots: A platform for bridging the gap between AI and Human-Robot Interaction research”, *International Journal of Robotics Research*, Vol 36, Issue 5-7, pp. 635 - 659, Feb. 2017.
2. Blessing, S.B., Devasani, S., Gilbert, S.G., and **Sinapov, J.** “Using ConceptGrid as an Easy Authoring Technique to Check Natural Language Responses”, *International Journal of Learning Technology*, Vol 10, No 1, pp. 50-70, May 2015.
3. Schenck, C., **Sinapov, J.**, Johnston, D., and Stoytchev, A. “Which Object Fits Best? Solving Matrix Completion Tasks with a Humanoid Robot”, *IEEE Transactions on Autonomous Mental Development*, Vol 6, No 3, pp. 226-240, Sep. 2014.
4. Hoffmann, H., Chen, Z., Earl, D., Mitchell, D., Salemi, B., and **Sinapov, J.** “Adaptive Robotic Tool Use Under Variable Grasps”, *Robotics and Autonomous Systems*, Vol. 62, No. 6, pp. 833-846, Jun. 2014.
5. **Sinapov, J.**, Schenck, C., Staley, K., Sukhoy, V., and Stoytchev, A. “Grounding Semantic Categories in Behavioral Interactions: Experiments with 100 Objects”, *Robotics and Autonomous Systems*, 62(5), pp. 617-706, May. 2014.
6. Schenck, C., **Sinapov, J.**, and Stoytchev, A. “Which Object Comes Next? Grounded Order Completion by a Humanoid Robot”, *Cybernetics and Information Technologies*, 12(3), pp. 5-16, Sep. 2012.
7. Griffith, S., **Sinapov, J.**, Sukhoy, V., and Stoytchev, A. “A Behavior-Grounded Approach to Forming Object Categories: Separating Containers from Non-Containers”, *IEEE Transactions on Autonomous Mental Development*, 4(1), pp. 54-69, Mar. 2012.
8. **Sinapov, J.**, Bergquist, T., Schenck, C., Ohiri, U., Griffith, S., and Stoytchev, A. “Interactive Object Recognition Using Proprioceptive and Auditory Feedback”, *International Journal of Robotics Research*, 30(10), pp. 1250-1262, Sep. 2011.
9. **Sinapov, J.**, Sukhoy, V., Sahai, R., and Stoytchev, A. “Vibrotactile Recognition and Categorization of Surfaces by a Humanoid Robot”, *IEEE Transactions on Robotics*, 27(3), pp. 488-497, Jun. 2011.
10. Caragea, C., **Sinapov, J.**, Dobbs, D., and Honavar, V. “Mixture of Experts Models to Exploit Global Sequence Similarity on Bimolecular Sequence Labeling”, *BMC Bioinformatics*, 10(S4), Apr. 2009.

11. Caragea, C., **Sinapov, J.**, Silvescu, A., Dobbs, D., and Honavar, V. “Glycosylation Site Prediction Using Ensembles of Support Vector Machine Classifiers”, *BMC Bioinformatics*, 8:438, Nov. 2007.

Conference Papers:

1. Tatiya, G., Hosseini, S., Hughes, M., and **Sinapov, J.**, “Sensorimotor Cross-Behavior Knowledge Transfer for Grounded Category Recognition”, *To appear in proceedings of the Joint IEEE 9th International Conference on Development and Learning and Epigenetic Robotics (ICDL-EpiRob)*, Oslo, Norway, Aug. 19-22, 2019.
2. Gizzi, E., Guaman, M., and **Sinapov, J.**, “Creative Problem Solving by Robots Using Action Primitive Discovery”, *To appear in proceedings of the Joint IEEE 9th International Conference on Development and Learning and Epigenetic Robotics (ICDL-EpiRob)*, Oslo, Norway, Aug. 19-22, 2019.
3. Tatiya, G., and **Sinapov, J.**, “Deep Multi-Sensory Object Category Recognition Using Interactive Behavioral Exploration”, *In proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*, Montreal, Canada, May 20-24, 2019.
4. Thomason, J., Padmakumar, A., **Sinapov, J.**, Walker, N., Jiang, Y., Yedidsion, H., Hart, J., Stone, P., and Mooney, R. “Improving Grounded Natural Language Understanding through Human-Robot Dialog”, *In proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*, Montreal, Canada, May 20-24, 2019.
5. Fernandez, R., John, N., Kirmani, S., Hart, J., **Sinapov, J.**, and Stone, P. “Passive Demonstrations of Light-Based Robot Signals for Improved Human Interpretability” *In proceedings of the 2018 IEEE International Conference on Robot and Human Interactive Communication (RO-MAN)*, Nanjing, China, Aug. 27-31, 2018.
6. Gizzi, E., Le Vie, L., Scheutz, M., Sarathy, V., **Sinapov, J.** “Knowledge Acquisition in the Cockpit Using One-Shot Learning”, *In proceedings of the IEEE National Aerospace and Electronics Conference (NAECON)*, Dayton, OH, Jul. 23-26, 2018.
7. Amiri, S., Wei, S., Zhang, S., **Sinapov, J.**, Thomason, J., Stone, P. “Multi-modal Predicate Identification using Dynamically Learned Robot Controllers”, *In proceedings of the 2018 International Joint Conference on Artificial Intelligence (IJCAI)*, Stockholm, Sweden, July 13-19, 2018.
8. Thomason, J., **Sinapov, J.**, Stone, P., and Mooney, R. “Guiding Exploratory Behaviors for Multi-Modal Grounding of Linguistic Descriptions”, *In proceedings of the 32nd Conference of the Association for the Advancement of Artificial Intelligence (AAAI)*, New Orleans, LA, Feb. 2-7, 2018.
9. Thomason, J., Padmakumar, A., **Sinapov, J.**, Hart, J., Stone, P., and Mooney, R. “Opportunistic Active Learning for Grounding Natural Language Descriptions”, *In proceedings of the 1st Annual Conference on Robot Learning (CoRL 2017)*, Mountain View, California, November 13-15, 2017.

10. Narvekar, S., **Sinapov, J.**, and Stone, P. “Autonomous Task Sequencing for Customized Curriculum Design in Reinforcement Learning”, *In proceedings of the 2017 International Joint Conference on Artificial Intelligence (IJCAI), Melbourne, Australia, Aug 19-25, 2017.*
11. Svetlik, M., Leonetti, M., **Sinapov, J.**, Shah, R., Walker, N., and Stone, P. “Automatic Curriculum Graph Generation for Reinforcement Learning Agents”, *In proceedings of the 31st Conference of the Association for the Advancement of Artificial Intelligence (AAAI), San Francisco, CA, Feb. 4-9, 2017.*
12. **Sinapov, J.**, Khante, P., Svetlik, M., and Stone, P. “Learning to Order Objects using Haptic and Proprioceptive Exploratory Behaviors”, *In proceedings of the 2016 International Joint Conference on Artificial Intelligence (IJCAI), New York City, NY, July 9-15, 2016.*
13. Thomason, J., **Sinapov, J.**, Svetlik, M., Stone, P., and Mooney, R. “Learning Multi-Modal Grounded Linguistic Semantics by Playing I, Spy”, *In proceedings of the 2016 International Joint Conference on Artificial Intelligence (IJCAI), New York City, NY, July 9-15, 2016.*
14. Narvekar, S., **Sinapov, J.**, Leonetti, M., and Stone, P. “Source Task Creation for Curriculum Learning ”, *In proceedings of the 2016 ACM Conference on Autonomous Agents and Multi-Agent Systems (AAMAS), 2016.*
15. Gori, I., **Sinapov, J.**, Khante, P., Stone, P., and Aggarwal, J. K. “Robot-centric activity recognition in the wild”, *In proceedings of the 2015 International Conference on Social Robotics (ICSR), Paris, France, Oct 24-30, 2015.*
16. **Sinapov, J.**, Narvekar, D., Leonetti, M., and Stone, P. “Learning Inter-Task Transferability in the Absence of Target Task Samples”, *In proceedings of the 2015 ACM Conference on Autonomous Agents and Multi-Agent Systems (AAMAS), Istanbul, Turkey, May 4-8, 2015.*
17. Cotos, E., Gilbert, S., and **Sinapov, J.** “NLP-based analysis of rhetorical functions for AWE feedback”, *In Proceedings of the XVIIth International CALL Research Conference, Antwerp, Belgium, July 7-9, 2014.*
18. **Sinapov, J.**, Schenck, C., and Stoytchev, A. “Learning Relational Object Categories Using Behavioral Exploration and Multimodal Perception”, *In proceedings of the 2014 IEEE International Conference on Robotics and Automation (ICRA), Hong Kong, China, May 31-Jun. 5, 2014.*
19. **Sinapov, J.**, and Stoytchev, A. “Grounded Object Individuation by a Humanoid Robot”, *In Proceedings of the IEEE International Conference on Robotics and Automation (ICRA), Karlsruhe, Germany, May 6-10, 2013.*
20. **Sinapov, J.**, and Stoytchev, A. “Object Category Recognition by a Humanoid Robot Using Behavior-Grounded Relational Learning”, *In Proceedings of the IEEE International Conference on Robotics and Automation (ICRA), Shanghai, China, May 9-13, pp. 184-190, 2011.*

21. **Sinapov, J.**, and Stoytchev, A. “The Odd One Out Task: Toward an Intelligence Test for Robots”, *In Proceedings of the IEEE International Conference on Development and Learning (ICDL)*, Ann Arbor, MI, Aug. 18-21, pp. 126-131, 2010.
(Best Student Paper Award)
22. Sukhoy, V., **Sinapov, J.**, Wu, L., and Stoytchev, A. “Learning to Press Doorbell Buttons”, *In Proceedings of the IEEE International Conf. on Development and Learning (ICDL)*, Ann Arbor, MI, Aug. 18-21, pp. 132-139, 2010.
23. **Sinapov, J.**, and Stoytchev, A. “The Boosting Effect of Exploratory Behaviors”, *In Proceedings of the 24th National Conference on Artificial Intelligence (AAAI)*, Atlanta, GA, Jul. 11-15, pp. 1613-1618, 2010.
(Nominated for Best Paper Award by a reviewer)
24. Griffith, S., **Sinapov, J.**, Sukhoy, V., and Stoytchev, A. “How to Separate Containers from Non-Containers? A Behavior-Grounded Approach to Acoustic Object Categorization”, *In Proceedings of the IEEE International Conf. on Robotics and Automation (ICRA)*, Anchorage, AK, May 3-8, pp. 1852-1859, 2010.
25. **Sinapov, J.**, Weimer, M., and Stoytchev, A. “Interactive Learning of the Acoustic Properties of Household Objects”, *In Proceedings of the IEEE International Conf. on Robotics and Automation (ICRA)*, Kobe, Japan, May 12-17, pp. 2518-2524, 2009.
26. Griffith, S., **Sinapov, J.**, Miller, M., and Stoytchev, A. “Toward Interactive Learning of Object Categories by a Robot: A Case Study with Container and Non-Container Objects”, *In Proceedings of the IEEE International Conference on Development and Learning (ICDL)*, Shanghai, China, Jun. 4-7, 2009.
27. **Sinapov, J.**, and Stoytchev, A. “Detecting the Functional Similarities Between Tools Using a Hierarchical Representation of Outcomes”, *In Proc. of the IEEE International Conf. on Development and Learning (ICDL)*, Monterey, CA, Aug. 9-12, 2008.
28. Caragea, C., **Sinapov, J.**, Dobbs, D., and Honavar, V. “Using Global Sequence Similarity to Enhance Biological Sequence Labeling”, *In Proceedings of the IEEE Conf. on Bioinformatics and Biomedicine*, Philadelphia, PA, Nov. 3-5, 2008.
29. **Sinapov, J.**, and Stoytchev, A. “Learning and Generalization of Behavior-Grounded Tool Affordances”, *In Proceedings of the IEEE International Conference on Development and Learning (ICDL)*, London, UK, Jul. 11-13, 2007.
30. Caragea, C., **Sinapov, J.**, Dobbs, D., and Honavar, V. “Assessing the Performance of Macromolecular Sequence Classifiers”, *In Proceedings of the IEEE Conference on Bioinformatics and Bioengineering (BIBE)*, Boston, MA, Oct. 14-17, 2007.

Workshop, Symposium, and Short Papers:

1. Muhammad, F., Hassan, A., Cleaver, A., and **Sinapov, J.** “Creating a Shared Reality with Robots”, *In Proceedings of Late-Breaking Reports Track at the 14th ACM/IEEE Annual Conference on Human-Robot Interaction*, Daego, Korea, Mar. 11-14, 2019.

2. Hart, J., Yedidsion, H., Jiang, Y., Walker, N., Shah, R., Thomason, J., Padmakumar, A., Fernandez, R., **Sinapov, J.**, Mooney, R., and Stone, P. "Interaction and Autonomy in RoboCup@Home and Building-Wide Intelligence", *In proceedings of the 2018 AAAI Fall Symposium "Interactive Learning in Artificial Intelligence for Human-Robot Interaction"*, Arlington, Virginia USA, Oct. 18-20, 2018.
3. Gizzi, E., Le Vie, L., Scheutz, M., Sarathy, V., **Sinapov, J.** "A Generalized Framework for Detecting Anomalies in Real-Time Using Contextual Information", *In proceedings of the 2018 Workshop on Modeling and Reasoning in Context (MRC) collocated with IJCAI, Stockholm, Sweden, Jul. 13, 2018.*
4. Thomason, J., Padmakumar A., **Sinapov, J.**, Walker, N., Jiang, Y., Yedidsion, H., Hart, J., Stone, P., and Mooney, R.J. "Jointly Improving Parsing and Perception for Natural Language Commands through Human-Robot Dialog", *In proceedings of the RSS Workshop on Models and Representations for Natural Human-Robot Communication (MRHRC-18), Pittsburgh, PA, Jun. 29-30, 2018.*
5. Amiri, S., Wei, S., Zhang, S., **Sinapov, J.**, Thomason, J., and Stone, P. "Robot Behavioral Exploration and Multi-modal Perception using Dynamically Constructed Controllers", *In proceedings of the AAAI Spring Symposium on Integrating Representation, Reasoning, Learning, and Execution for Goal Directed Autonomy, Stanford, CA, Mar. 26-28, 2018.*
6. Cheli, M., **Sinapov, J.**, Danahy, E., Rogers, C. "Towards an Augmented Reality Framework for K-12 Robotics Education", *In proceedings of the 1st International Workshop on Virtual, Augmented, and Mixed Reality for Human-Robot Interactions (VAM-HRI), Chicago, IL, Mar. 5, 2018.*
7. Thomason, J., **Sinapov, J.**, and Mooney, R. "Guiding Interaction Behaviors for Multi-modal Grounded Language Learning", *In proceedings of the 1st Workshop on Language Grounding for Robotics at ACL, Vancouver, Canada, Aug 3, 2017.*
8. Gonzalez, S., Chidambaram, V., **Sinapov, J.**, and Stone, P. "CC-Log: Drastically Reducing Storage Requirements for Robots Using Classification and Compression", *In proceedings of The 9th USENIX Workshop on Hot Topics in Storage and File Systems (HotStorage '17), Santa Clara, CA, Jul 10-11, 2017.*
9. Zhang, S., **Sinapov, J.**, Wei, S., and Stone, P. "Robot Behavioral Exploration and Multimodal Perception using POMDPs", *In proceedings of the AAAI Spring Symposium on "Interactive Multi-Sensory Object Perception for Embodied Agents", San Francisco, CA, March 27-29, 2017.*
10. Cotos, E., Gilbert, S., and **Sinapov, J.** "NLP-based analysis of rhetorical functions for AWE feedback", *In the Proceedings of the XVIth International CALL Research Conference, Antwerp, Belgium, July 7-9, 2014.*
11. **Sinapov, J.**, Earl, D., Mitchell, D., and Hoffmann, H. "Interactive Audio-Tactile Annotation of 3D Point Clouds for Robotic Manipulation", *In Proceedings of the ICRA Mobile Manipulation Workshop on Interactive Perception, Karlsruhe, Germany, May 6, 2013.*

12. Sukhoy, V., Sahai, R., **Sinapov, J.**, and Stoytchev, A. “Vibrotactile Recognition of Surface Textures by a Humanoid Robot”, *In Proceedings of the 2009 Humanoids Workshop: Tactile Sensing in Humanoids - Tactile Sensors and Beyond, Paris, France, Dec. 7, pp. 57-60, 2009.*
13. Bergquist, T., Schenck, C., Ohiri, U., **Sinapov, J.**, Griffith S., and Stoytchev, A. “Interactive Object Recognition Using Proprioceptive Feedback”, *In Proceedings of the IROS Workshop: Semantic Perception for Mobile Manipulation, St. Louis, MO, Oct. 15, 2009.*
14. **Sinapov, J.**, and Stoytchev, A. “From Acoustic Object Recognition to Object Categorization by a Humanoid Robot”, *In Proceedings of the RSS Workshop: Mobile Manipulation in Human Environments, Seattle, WA, Jun. 28, 2009.*
15. **Sinapov, J.**, Weimer, M., and Stoytchev, A. “Interactive Learning of the Acoustic Properties of Objects by a Robot”, *In Proceedings of the RSS Workshop: Robot Manipulation: Intelligence in Human Environments, Zurich, Switzerland, Jun. 28, 2008.*
16. **Sinapov, J.**, Stoytchev, A. “Learning Behavior-Grounded Tool Affordances with Generalization Across Different Tools”, *In Proceedings of the RSS Manipulation Workshop: Sensing and Adapting to the Real World, Atlanta, GA, Jun. 30, 2007.*

Creative Works:

1. Griffith, S., **Sinapov, J.**, Miller, M., and Stoytchev, A. “Toward Interactive Learning of Container and Non-Container Objects”, *Research Video, International Joint Conference on Artificial Intelligence (IJCAI) AI Video Competition (a.k.a., AI Oscars), Jul. 14, 2009. (Nominated for Best Narration)*

Patents:

1. Hoffmann, H., and **Sinapov, J.**, “Device and method to identify functional parts of tools for robotic manipulation”, Publication Number: US9144905 B1. Filed on Jan. 21, 2014.

Position History

The James Schmolze Assistant Professor

Department of Computer Science
Tufts University

Fall 2017-

Clinical Assistant Professor

The Texas Institute for Discovery Education in Science (College of Natural Sciences)
The University of Texas at Austin

Spring 2016-Summer 2017

Postdoctoral Associate

Department of Computer Science
The University of Texas at Austin

Summer 2014-Summer 2017

Lecturer

Graduate Program in Human Computer Interaction
Iowa State University

Spring 2014

Graduate Teaching Assistant

Iowa State University

Fall 2012-Fall 2013

Research Intern

DARPA's ARM-S Manipulation Challenge
HRL Laboratories, Malibu, CA

Summer-Fall 2011

Graduate Teaching Assistant

Graduate Program in Human Computer Interaction
Iowa State University

Spring 2011

Research Intern

Developed software for proprioceptive perception for the PR2 robot
Willow Garage, Menlo Park, CA

Summer 2010

Graduate Research Assistant

Virtual Reality Applications Center (VRAC)
Iowa State University

Summer 2006-Spring 2010

Teaching and Mentoring Experience

Instructor

COMP 150: Probabilistic Robotics for HRI

Spring 2019

COMP 150: Reinforcement Learning

Fall 2018

COMP 50: Autonomous Intelligent Robotics

Spring 2018

COMP 150-02: Developmental Robotics

Fall 2017

CS 378: Autonomous Intelligent Robots

Spring 2016 and Fall 2016

CprE/HCI/ComS 575: Computational Perception

Spring 2014

HCI 573X: UI Implementation for Web Applications

Summer 2013 and Spring 2014

Graduate Teaching Assistant

HCI 521: Cognitive Psychology of HCI

Fall 2012 and Fall 2013

HCI 574: Computation Implementation and Prototyping in HCI

Spring 2013

CprE/HCI/ComS 575: Computational Perception

Spring 2012 and Spring 2013

ComS 330: Discrete Computational Structures

Spring 2012

CprE/HCI 585X: Developmental Robotics

Spring 2011

Mentor for the NSF Research Experience for Undergraduates (REU) Program

Mentored a team of three undergraduates

Summer 2008 and Summer 2009

Professional Activities

Organizer:

- 2019 AAAI Fall Symposium: Artificial Intelligence for Human-Robot Interaction, November 7-9, 2019; 2017 AAAI Spring Symposium: Interactive Multisensory Object Perception for Embodied Agents, March 27-29, 2017.

Senior Program Committee Member:

- 2019 ACM Conference on Autonomous Agents and Multi-Agent Systems (AAMAS)

Area Chair:

- 2019 Conference on Robot Learning (CoRL 2019)

Program Committee Member:

- 2019 Conf. of the Association for the Advancement of Artificial Intelligence (AAAI)
- 2019 NAACL Combined Workshop on Spatial Language Understanding & Grounded Communication for Robotics
- 2019 and 2018 Workshops on Adaptive Learning Agents (ALA)
- RoboCup Symposium, Montreal Canada, Jun. 22, 2018.
- 2018 Workshop on Goal Specifications for Reinforcement Learning (GoalsRL) held at IJCAI-ECAI, Stockholm, Sweden, Jul. 14, 2018.
- 2018 ACM Conference on Autonomous Agents and Multi-Agent Systems (AAMAS)
- AAAI Spring Symposium on Integrating Representation, Reasoning, Learning, and Execution for Goal Directed Autonomy, Stanford, CA, Mar. 26-28, 2018.
- 2017 Conference on Neural Information Processing Systems (NIPS), Long Beach, CA, Dec. 4-7, 2017.
- 2017 International Joint Conference on Artificial Intelligence, Melbourne, Australia, August 19-25, 2017.
- 2017 International Workshop on Evaluation Methods Standardization for Human-Robot Interaction, Lisbon, Portugal, Aug. 28, 2017.
- 2017 Adaptive Learning Agents AAMAS workshop, Singapore, May 8, 2017.
- 2017 ACM Workshop on Transfer in Reinforcement Learning, Singapore, May 8, 2017.
- 2016 NIPS Workshop on Future of Interactive Learning Machines, Dec 9, Barcelona, Spain, 2016.
- 2016 ACM Conference on Autonomous Agents and Multi-Agent Systems (AAMAS), Singapore, May 9-13, 2016.
- The 30th and 31st AAAI Conference on Artificial Intelligence (AAAI 2016 and AAAI 2017)

- 2016 AAAI/SIGART Doctoral Consortium, February 12-13, 2016, Phoenix, Arizona, USA
- Humanoids Workshop on Developmental Robotics, Osaka, Japan, Nov. 29, 2012.
- IEEE International Conference on Development and Learning (ICDL), Ann Arbor, MI, Aug 18-21, 2010.
- RSS Workshop: Strategies and Evaluation for Mobile Manipulation in Household Environments, Zaragoza, Spain, Jun. 27, 2010.

Reviewer:

- IEEE International Conference on Development and Learning and Epigenetic Robotics (2010-2012, 2015, 2017, 2019)
- IEEE/RSJ International Conf. on Intelligent Robots and Systems (IROS 2012, 2013, 2014, 2017, 2019)
- ACM/IEEE International Conference on Human Robot Interaction (2013, 2014, 2018, 2019)
- IEEE International Conference on Robotics and Automation (ICRA 2011-2015, 2018, 2019)
- Journal of Artificial Intelligence (2019)
- Journal of Machine Learning Research (2018)
- Conference on Robot Learning (CoRL 2017, 2018)
- Systems, Man, and Cybernetics (2018)
- International Conference on Machine Learning (ICML 2018)
- Frontiers Journal in Neurorobotics (2012, 2017)
- Journal on Artificial Intelligence Research (JAIR 2017)
- IEEE Transactions on Robotics (T-RO 2016, 2017)
- IEEE Transactions on Autonomous Mental Development (TAMD 2015)
- IEEE-RAS International Conference on Humanoid Robotics (Humanoids 2015)
- 3rd Indian International Conf. on Artificial Intelligence (2007)

Volunteering and Service:

- Visits to local high schools for robotics demonstrations under Tufts' "Professors on the Road" program (Fall 2018)
- Mentor at the 2018 IJCAI-ECAI Doctoral Consortium, Stockholm, Sweden, Jul. 13, 2018.
- Judge at the Computational Thinking Challenge, Ames, IA (2013)

- Judge at First Lego League State Championships, Ames, IA (2010, 2011, 2013)
- Student volunteer at the Human-Robot Interaction conference (HRI 2009)
- Student volunteer at the 24th National Conference on Artificial Intelligence (AAAI 2008)