Beomjoon Kim

Citizenship	Canada

Contact Information

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Education

Ph.D. in Computer Science
Sept 2014 - Present (Advisors: Leslie Pack Kaelbling and Tomás Lozano-Pérez)
Massachusetts Institute of Technology, EECS, Cambridge, USA

M.Sc. in Computer Science
Jan 2012 - Dec 2013 (Advisor: Joelle Pineau)
McGill University, School of Computer Science, Montreal, Canada

BMath. in Joint Honours of Computer Science and Statistics (with Distinction)
Sep 2007 - Dec 2011
University of Waterloo, Faculty of Mathematics, Waterloo, Canada

Journal Papers

Learning to guide task and motion planning using score-space representation
Beomjoon Kim, Zi Wang, Leslie P. Kaelbling, Tomás Lozano-Pérez.
International Journal of Robotics Research (IJRR), 2019.

Socially adaptive path planning in dynamic environments using inverse reinforcement learning
Beomjoon Kim, Joelle Pineau.
International Journal of Social Robotics, 2015.

Selected Conference Papers

Monte Carlo Tree Search in continuous spaces using Voronoi optimistic optimization with regret bounds
Beomjoon Kim, Kyungjae Lee, Sungbin Lim, Leslie P. Kaelbling, Tomás Lozano-Pérez.
AAAI Conference on Artificial Intelligence (AAAI), 2020.
(20.6% acceptance rate. Selected for an oral presentation)

Learning value functions with relational state representations for guiding task-and-motion planning
Beomjoon Kim, Luke Shimanuki.
Conference on Robot Learning (CoRL), 2019.
(27.6% acceptance rate)

Adversarial actor-critic method for task and motion planning problems using planning experience
Beomjoon Kim, Leslie P. Kaelbling, Tomás Lozano-Pérez.
AAAI Conference on Artificial Intelligence (AAAI), 2019.
(16.2% acceptance rate. Selected for an oral presentation with 6% acceptance rate)

Regret bounds for meta Bayesian optimization with an unknown Gaussian process prior
Beomjoon Kim*, Zi Wang*, Leslie P. Kaelbling. (* indicates equal contribution)
Neural Information Processing Systems (NeurIPS), 2018.
(20.8% acceptance rate. Selected for a spotlight presentation with 3.5% acceptance rate)

Guiding search in continuous state-action spaces by learning an action sampler from off-target search experience
Beomjoon Kim, Leslie P. Kaelbling, Tomás Lozano-Pérez.
AAAI Conference on Artificial Intelligence (AAAI), 2018.
(24.6% acceptance rate. Selected for an oral presentation)

Learning to guide task and motion planning using score-space representation
Beomjoon Kim, Leslie P. Kaelbling, Tomás Lozano-Pérez.
IEEE International Conference on Robotics and Automation (ICRA), 2017.
(Winner of Best Cognitive Robotics Paper Award)

Generalizing over uncertain dynamics for online trajectory generation
Beomjoon Kim, Leslie P. Kaelbling, Tomás Lozano-Pérez.
International Symposium on Robotics Research (ISRR), 2015.

Learning from limited demonstrations
Beomjoon Kim, Amir M. Farahmand, Joelle Pineau, Doina Precup.
Neural Information Processing Systems (NeurIPS), 2013.
(25.3% acceptance rate. Selected for a spotlight presentation with 4% acceptance rate)

Maximum mean discrepancy imitation learning
Beomjoon Kim, Joelle Pineau.
Robotics: Science and Systems (RSS), 2013.
(30% acceptance rate)

Research Experience	*Research Assistant*, Reasoning and Learning Lab, McGill University. Montreal, QC. Jan 2012 - Dec 2013

Developed novel reinforcement and imitation learning methods and applied them to the path planning for a robotic wheelchair. Advised by Joelle Pineau.

Research Assistant, Reasoning and Learning Lab, McGill University.
Montreal, QC. Jan 2011 - April 2011

Applied a POMDP solver to the user intention inference problem for a robotic wheelchair. Advised by Joelle Pineau.

Research Assistant, Department of National Defence - Center for operational R&D.
Ottawa, ON. Sept 2008 - Dec 2008.

Developed a novel genetic algorithm for an aircraft cargo-loading problem. Advised by Bohdan L. Kaluzny.

Teaching Experience
Teaching Assistant for 6.036 Intro to Machine Learning, MIT.
Boston, MA. Sept 2017 - Dec 2017

Helped design exams, weekly labs, and problem sets. Held office hours and answered questions on the course on-line forum to help students with course materials.

Industry Experience
Machine Learning Engineer, Thalmic Labs.
Waterloo, ON. Jan 2014 - April 2014

Developed a gesture recognition algorithm for a gesture-controlled human-computer interaction device.

Digital Signal Processing Algorithm Developer, ON Semiconductor.
Waterloo, ON. Jan 2010 - April 2010.

> Developed noise reduction and echo cancellation algorithms for cell phone chips.

Software Consultant, Engenuity Corporation.
Toronto, ON. May 2009 - Aug 2009.

> Developed a variety of softwares for different customer enterprises. Web development using JQuery and embedded system development for medical equipments.

Awards

ICRA Best Cognitive Robotics Paper Award, 2017
McGill GREAT Award, 2013
NSERC Undergraduate Student Research Award, 2010
University of Waterloo Full-time Bursary (merit-based), 2007-2011
University of Waterloo President's Scholarship, 2007

References

Leslie Pack Kaelbling lpk@mit.edu
Panasonic Professor of Computer Science and Engineering, MIT

Tomás Lozano-Pérez tlp@mit.edu
School of Engineering Professor in Teaching Excellence, MIT

Joelle Pineau jpineau@cs.mcgill.ca
Associate Professor, McGill University

Doina Precup dprecup@cs.mcgill.ca
Associate Professor, McGill University