Beomjoon Kim

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Employment

Assistant Professor in Graduate School of AI
Sept 2020 - Present
Korea Advance Institute of Science and Technnology (KAIST), Seoul, South Korea

Education

Ph.D. in Computer Science
Sept 2014 - May 2020 (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

Representation, learning, and planning algorithms for geometric task and motion planning
Beomjoon Kim, Luke Shimanuki, Leslie P. Kaelbling, Tomás Lozano-Pérez.
International Journal of Robotics Research (IJRR), 2021.

Integrated task and motion planning
Caelan Reed Garrett, Rohan Chitnis, Rachel Holladay, Beomjoon Kim, Tom Silver, Leslie P. Kaelbling, Tomás Lozano-Pérez.
Annual Review of Control, Robotics, and Autonomous Systems, 2021.

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

Ohm^2: Optimal hierarchical planner for object search in large environments via mobile manipulation
Yoonyoung Cho*, Donghoon Shin*, Beomjoon Kim.
International Conference on Intelligent Robots and Systems (IROS), 2022.

A long horizon planning framework for manipulating rigid pointcloud objects
Anthony Simeonov, Yilun Du, Beomjoon Kim, Francoi Hogan, Joshua Tenenbaum, Pulkit Agrawal, Alberto Rodriguez.
Conference on Robot Learning (CoRL), 2020.

CAMPs: learning context-specific abstractions for efficient planning in factored MDPs
Rohan Chitnis*, Tom Silver*, Beomjoon Kim, Leslie Pack Kaelbling, Tomás Lozano-Pérez.
Conference on Robot Learning (CoRL), 2020.

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.

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

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.

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.

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.

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.

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

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