SEUNGCHAN KIM

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https://seungchan-kim.github.io

Education

Carnegie Mellon University — **Pittsburgh, Pennsylvania**
Ph.D. student at Robotics Institute — Sep 2020 - Present
Advisor: Sebastian Scherer

Brown University — **Providence, Rhode Island**
M.S. in Computer Science — Sep 2019 - May 2020
B.S. in Applied Mathematics & Computer Science — Sep 2013 - May 2019
Advisor: George Konidaris

Research Experience

CMU Air Lab — Oct 2020 - Present
- Conducting AI research with a focus on multi-robot semantic exploration

Brown University Intelligent Robot Lab — Sep 2017 - May 2020
- Researched on deep reinforcement learning, model-based reinforcement learning

Brown University Serre Lab — Jan 2018 - May 2019
- Developed algorithm to analyze visual attention in childhood development

Publications

[7] **AirDet: Few-Shot Detection without Fine-tuning for Autonomous Exploration**
Bowen Li, Chen Wang, Pranay Reddy, **Seungchan Kim**, Sebastian Scherer.
European Conference on Computer Vision (ECCV) 2022.

[6] **Robotic Interestingness via Human-Informed Few-Shot Object Detection**
Seungchan Kim, Chen Wang, Bowen Li, Sebastian Scherer.
IEEE/RSJ International Conference on Robotics and Systems (IROS) 2022.

[5] **Unsupervised Online Learning for Robotic Interestingness with Visual Memory**
Chen Wang, Yuheng Qiu, Wenshan Wang, Yafei Hu, **Seungchan Kim**, Sebastian Scherer.
IEEE Transactions on Robotics (T-RO) 2021.

[4] **Using Computational Analysis of Behavior to Discover Developmental Change in Memory-Guided Attention Mechanisms in Childhood**
Dima Amso, Lakshmi Govindarajan, Pankaj Gupta, Heidi Baumgartner, Andrew Lynn, Kelley Gunther, Diego Placido, Tarun Sharma, Vijay Veerabadran, Kalpit Thakkar, **Seungchan Kim**, Thomas Serre.
PsyArXiv. doi:10.31234/osf.io/gq4rt.

[3] **Combating the Compounding-Error Problem with a Multi-step Model**
Kavosh Asadi, Dipendra Misra, **Seungchan Kim**, Michael Littman.
arXiv preprint. CoRR abs/1905.13320 [cs.LG]

[2] **DeepMellow: Removing the Need for a Target Network in Deep Q-Learning**
Seungchan Kim, Kavosh Asadi, Michael Littman, George Konidaris.
International Joint Conference on Artificial Intelligence (IJCAI) 2019.
Multidisciplinary Conference on Reinforcement Learning and Decision Making (RLDM) 2019.

[1] **Removing the Target Network from Deep Q-Networks with the Mellowmax Operator**
Seungchan Kim, Kavosh Asadi, Michael Littman, George Konidaris.
International Conference on Autonomous Agents and Multiagent Systems (AAMAS) 2019.

Invited Talks

DeepMellow: Removing the Need for a Target Network in Deep Q-Learning
Brown University Robotics Lab, Providence, RI. — Oct 2019

An Alternative Softmax Operator for Deep Reinforcement Learning
Machine Intelligence Community (MIC) Conference, Boston, MA. Sep 2019

Teaching

16-833 Robot Localization and Mapping, CMU Robotics, TA Jan 2022 - May 2022
CSCI1430 Computer Vision, Brown CS, TA Jan 2019 - May 2019
CSCI0040 Scientific Computing and Problem Solving, Brown CS, TA Jan 2015 - May 2015
ENGN0040 Dynamics and Vibrations, Brown Engineering, TA Jan 2015 - May 2015

Academic Activities

Reviewer

- IEEE Robotics and Automation Letters 2021
- International Conference on Robotics and Automation 2023
- International Conference on Machine Learning 2020
- AAAI Conference on Artificial Intelligence 2021
- International Conference on Learning Representations 2021, 2023
- Neural Information Processing Systems 2021, 2022

Mentor

- CMU AI Mentorship Program 2021, 2022
- CMU SCS Graduate Application Support Program 2020

Graduate Coursework

16-811 Math Fundamentals for Robotics
16-720B Computer Vision
10-715 Advanced Introduction to Machine Learning
16-711 Kinematics, Dynamics, and Control
16-833 Robot Localization and Mapping
16-824 Visual Learning and Recognition
16-782 Planning and Decision Making in Robotics
16-884 Deep Learning for Robotics