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
Coursework: Advanced Intro to ML, Math Fundamentals for Robotics

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
Advisors: George Konidaris & Michael Littman
Coursework: Machine Learning, Computer Vision, Computational Prob & Stats, Learning & Sequential Decision Making, Numerical Optimization, Recent Applications of Prob & Stats, Reintegrating AI

Research Experience

CMU Air Lab — Oct 2020 - Present
- Conducting research on active perception and robotic exploration.

Brown University Intelligent Robot Lab — Sep 2017 - May 2020
- Devised a new deep RL algorithm using an alternative softmax operator, Mellowmax.
- Proposed multi-step model-based RL algorithm to address compounding-error problem.

Brown University Serre Lab — Jan 2018 - May 2019
- Investigated the memory-guided visual attention of children using computer vision approaches.

Preprints

[5] **Discovering Developmental Mechanisms of Memory-Guided Attention using Computer Vision**
Dima Amso, Lakshmi Narashimhan Govindarajan, Pankaj Gupta, Heidi Baumgartner, Andrew Lynn, Kelley Gunther, Diego Placido, Tarun Sharma, Vijay Veerabadran, Kalpit Thakkar, **Seungchan Kim**, Thomas Serre. *Under Review.*

[4] **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]

Publications

[3] **Adaptive Temperature Tuning for Mellowmax in Deep Reinforcement Learning**
Seungchan Kim, George Konidaris.
Neural Information Processing Systems (NeurIPS) 2019 Deep RL Workshop.

[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.
Also at *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 Talk

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

Teaching Assistantships

CS1430 Computer Vision, Brown CS — Jan 2019 - May 2019
CS0040 Intro to Scientific Computing and Problem Solving, Brown CS — Jan 2015 - May 2015
EN0040 Dynamics and Vibrations, Brown Engineering — Jan 2015 - May 2015

Academic Activities

Reviewer

- ICML 2020, AAAI 2021, ICLR 2021
- NeurIPS 2019 Workshops: ML & Physical Science, ML for Health
- NeurIPS 2020 Workshop: Challenges of Real-World RL

Mentor

- CMU AI Mentorship Program 2020
- CMU SCS Graduate Application Support Program 2020