

# SEUNGCHAN KIM

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Website: <https://seungchan-kim.github.io>

## EDUCATION

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### Carnegie Mellon University

Ph.D. Student at Robotics Institute

Advisor: Sebastian Scherer

Pittsburgh, PA

Sep 2020 - Present

### Brown University

M.S. in Computer Science

B.S. in Applied Mathematics & Computer Science

Advisor: George Konidaris

Providence, RI

Sep 2019 - May 2020

Sep 2013 - May 2019

## RESEARCH EXPERIENCE

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### Carnegie Mellon University AirLab

Graduate Research Assistant

Pittsburgh, PA

Sep 2020 - Present

- Conducting research in artificial intelligence and robotics, toward a Ph.D.
- Focus on semantic exploration, multi-robot systems, and multi-modal foundation models.

### Brown University Intelligent Robot Lab

Undergraduate Research Assistant

Providence, RI

Sep 2017 - May 2020

- Researched on deep reinforcement learning and model-based reinforcement learning.

## PUBLICATIONS

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1. **Multi-Robot Multi-Room Exploration with Geometric Cue Extraction and Circular Decomposition**  
Seungchan Kim, Micah Corah, John Keller, Graeme Best, Sebastian Scherer.  
*arXiv preprint arXiv:2307.15202. Under Review at RA-L.*
2. **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.*
3. **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.*
4. **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) 2022.*
5. **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.*
6. **Combating the Compounding-Error Problem with a Multi-step Model**  
Kavosh Asadi, Dipendra Misra, Seungchan Kim, Michael Littman.  
*arXiv preprint arXiv:1905.13320 (2019).*
7. **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.*

## 8. 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.*

## TEACHING

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- |   |                     |
|---|---------------------|
| • Teaching Assistant, CMU 16-711 Kinematics, Dynamics, Control                | Jan 2023 - May 2023 |
| • Teaching Assistant, CMU 16-833 Robot Localization and Mapping               | Jan 2022 - May 2022 |
| • Teaching Assistant, Brown CSCI1430 Computer Vision                          | Jan 2019 - May 2019 |
| • Teaching Assistant, Brown CSCI0040 Scientific Computing and Problem Solving | Jan 2015 - May 2015 |

## ACADEMIC ACTIVITIES

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### Organizer

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|--------------------------|---------------------|
| • Tartan Planning Series | Mar 2023 - May 2023 |
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### Reviewer

- **Robotics:** IJRR, IEEE RA-L, ICRA 2023, MRS 2023
- **Machine Learning:** ICLR 2021/2023, NeurIPS 2021/2022, AAAI 2021, ICML 2020

## INVITED TALKS

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### An Alternative Softmax Operator for Deep Reinforcement Learning

Machine Intelligence Community (MIC) Conference

Sep 2019

*Boston, MA*