Obin Kwon

Contact Information

PhD Candidate in Robot Learning Laboratory,
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Research Interests

Vision-based Robot Control, **Embodied AI**, **Robot Learning**
- Scene Representation, Localization and Mapping
- Decision Making, Imitation Learning, Reinforcement learning

Skills

Programming Language: Python, C++, MATLAB
Software: ROS, PyTorch, TensorFlow, OpenCV

Experience

Sequor Robotics, AI/Robotics Researcher. Oct. 2023 - Now
- Seoul, Korea
- Developing a visual localization system in warehouses.

NAVER LABS, Research Intern. Jan. 2023 - July. 2023
- Seongnam, Korea
- Developed a visual localization system based on simple wayfinding maps.

Education

Ph.D. in Electrical and Computer Engineering 2018 - 2024 (Expected)
- Seoul National University, Seoul, Korea
- Integrated Msc./Ph.D course
- Advisor: Prof. Songhwai Oh (songhwai@snu.ac.kr)

B.S. in Electrical and Computer Engineering 2014 - 2018
- Seoul National University, Seoul, Korea

Publications

Obin Kwon, Dongki Jung, Youngji Kim, Soohyun Ryu, Suyong Yeon, Songhwai Oh, Donghwan Lee, "WayIL: Image-based Indoor Localization with Wayfinding Maps", *IEEE International Conference on Robotics and Automation (ICRA)*, 2024. (accepted)

Jeongho Park, **Obin Kwon** and Songhwai Oh "Attention-Based Randomized Ensemble Multi-Agent Q-Learning," *IEEE International Conference on Control, Automation and Systems (ICCAS)*, Oct. 2023.

Obin Kwon, Jeongho Park, and Songhwai Oh, "Renderable Neural Radiance Map for Visual Navigation," *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, Jun. 2023. (Highlight, Acceptance Rate: 2.5%)

Nuri Kim, **Obin Kwon**, Hwiyeon Yoo, Yunho Choi, Jeongho Park, and Songhwai Oh, "Topological Semantic Graph Memory for Image-Goal Navigation", *Conference on Robot Learning (CoRL)*, Dec. 2022. (Oral, Acceptance Rate: 6.5%)

Hyemin Ahn*, **Obin Kwon***, Kyungdo Kim, Jaeyeon Jeong, Howoong Jun, Hongjung Lee, Dongheui Lee, and Songhwai Oh, "Visually Grounding Language Instruction forHistory-Dependent Manipulation", *IEEE International Conference on Robotics and Automation (ICRA)*, May. 2022. (∗ equal contribution)

Obin Kwon, Nuri Kim, Yunho Choi, Hwiyeon Yoo, Jeongho Park, and Songhwai Oh, "Visual Graph Memory with Unsupervised Representation for Visual Navigation", *IEEE/CVF International Conference on Computer Vision(ICCV)*, Oct. 2021.

Obin Kwon and Songhwai Oh, "Image-Goal Navigation Algorithm using Viewpoint Estimation," *IEEE International Conference on Control, Automation and Systems (ICCAS)*, Oct. 2021.

Minyoung Hwang, **Obin Kwon**, and Songhwai Oh, "Geometric Understanding of Reward Function in Multi-Agent Visual Exploration," *IEEE International Conference on Control, Automation and Systems (ICCAS)*, Oct. 2021.

Obin Kwon and Songhwai Oh, "Learning to Use Topological Memory for Visual Navigation", *IEEE International Conference on Control, Automation and Systems (ICCAS)*, Oct. 2020.

Honors

Scholarships

Lecture & Research Scholarship — Spring 2024
- Seoul National University

Brain Korea 21 Plus Scholarship — Fall 2020-Spring 2022, Fall 2023
- Seoul National University

Kim Jeong-sik Special Scholarship — Spring 2015 - Fall 2017.
- Kwanak Corporation, SNU Electrical and Compucter Scholarship Foundation
- Full tuition + α

Merit-based University Admission Scholarship — Spring 2014
- Yongin City Scholarship Foundation

Research Experiences

Robot Learning: Efficient, Safe, and Socially-Acceptable Machine Learning, — 2019 - Now
- Funded by Ministry of Science and ICT (MSIT)

AI Technology for Guidance of Mobile Robots with Uncertain Maps, — 2019 - 2023
- Funded by Ministry of Science and ICT (MSIT)

Autonomous Navigation Multi-Agent Deep Reinforcement Learning, — 2020 - 2021
- Funded by Hyundai Autoever

Teaching Experiences

Teaching Assistant @ Seoul National University
- Deep Reinforcement Learning (Topics in Control and Automation) — Spring 2021
- Theory and Lab of IoT, AI, and Big Data — Fall 2019
- Introduction to Intelligent Systems — Fall 2018

Professional Services

Reviewer
- Robotics Science and Systems.
- Robotics & Automation Letters.
- Transactions on Robotics.

- Transactions on Pattern Analysis and Machine Intelligence.
- Transactions on Automation Science and Engineering.
- International Conference on Intelligent Robots and Systems.
- Ubiquitous Robots.

Talk
- Invited tech talk at NAVER, Feb, 2022.

References

Prof. Songhwai Oh
- Professor at Department of Electrical and Computer Engineering, Seoul National University.
- Email: songhwai@snu.ac.kr

Prof. Hymin Ahn
- Assistant Professor at Artificial Intelligence Graduate School (AIGS), Ulsan National Institute of Science and Technology(UNIST)
- Email: hyemin.ahn@unist.ac.kr

Prof. Sungjoon Choi
- Assistant Professor at Department of Artificial Intelligence, Korea University
- Email: sungjoon-choi@korea.ac.kr