Siyeon Kim

Kahlert School of Computing · Robotics track
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Professional Summary

Skilled **Robotics and Machine Learning Researcher** with 4+ years of experience developing AI and machine learning frameworks to solve real-world robotic problems. In-depth knowledge of **Robotic Manipulation, Deep/Machine Learning, Computer Vision, and Large Language Models (LLMs)**. Expertise in various frameworks and libraries for machine learning and computer vision, such as PyTorch, TensorFlow, and OpenCV. Proficient in software development with extensive experience in Python and C/C++.

Education

The University of Utah, Salt lake city, Utah

2022 - Present **Ph.D. in School of Computing (Track: Robotics).**
- *Advisor: Professor Tucker Hermans*

Ewha Womans University, Seoul, South Korea

2019 - 2021 **M.S. in Computer Science and Engineering.**
- *Advisor: Professor Young J. Kim*
- Thesis titled "Toward Autonomous Robotic Arrangement of Objects using Deep Image Manipulation", Ewha Womans University, 2021.

2013 - 2018 **B.S. in Physics.**

Research Interest

Interested in the intersection of **Robotics and Machine Learning**, specifically focusing on Robot Learning, **Robot Manipulation, Task-and-Motion Planning (TAMP)**. Additionally, I am enthusiastic about leveraging **Robot Perception and Large Language Models (LLMs)** to enhance decision-making in complex robotic systems.

Publications

Peer-Reviewed Conference Papers

[C01] Bao Thach, **Siyeon Kim**, Britton Jordan, Mohanraj Shanthi, Tanner Watts, Shing-Hei Ho, James M. Ferguson, Tucker Hermans, Alan Kuntz. **DefFusionNet: Learning Multimodal Goal Shapes for Deformable Object Manipulation via a Diffusion-based Probabilistic Model**, *IEEE International Conference on Robotics and Automation (**ICRA**)*, 2025. *Under review* [Paper]

Journal Articles

[J02] **Siyeon Kim**, Mohanraj D. Shanthi*, Yixuan Huang*, and Tucker Hermans. **Learning Multimodal Probabilistic Models of Manipulation Skill Effects**, *IEEE Robotics and Automation Letters (**RA-L**)*, 2025. *In preparation*

[J01] Yaesol Kim, **Siyeon Kim**, Uran Oh, and Young J. Kim. **Synthesizing the Roughness of Textured Surfaces for an Encountered-type Haptic Display using Spatiotemporal Encoding**, *IEEE Transactions on Haptics (**ToH**)*, 2020. [Project Page] [Paper] [Video]

Workshop Papers

[W01] **Siyeon Kim**, Mohanraj D. Shanthi*, Yixuan Huang*, and Tucker Hermans. **Learning Multimodal Probabilistic Models of Manipulation Skill Effects**, 2025 CoRL Workshop on Learning to Simulate Robot Worlds (LSRW).

Honors and Awards

[H03] **Fellowship (Full Tuition)**, University of Utah | Fall 2022 - Spring 2023
[H02] **Research Assistant Scholarship (Full Tuition)**, Ewha Womans University
[H01] **Admissions Scholarship (Full Tuition)**, Ewha Womans University

Teaching Experiences

Spring 2020 *Teaching Assistant*, [20642-01] Numerical Methods
- Covered matrix, calculus, linear algebra, numerical methods, and analysis.

Spring 2018 *Teaching Assistant*, [38559-01,02] Introduction to Human, Mechanical & Biomedical Engg.
- Covered basic kinematics and kinetics.

Technical skills

Programming Languages	Python, C/C++, Java, MATLAB
Machine Learning	PyTorch, Pytorch Lightning, TensorFlow, Scikit-learn, Pandas.
Robotics Hardware	Fetch mobile manipulator, KUKA iiwa 7 R800 manipulator, UR5e manipulator, ReFlex TakkTile 2 Hand
Robotic Programming	ROS1/ROS2, Nvidia IsaacGym, Gazebo, CoppeliaSim, Rviz, MoveIt!
Others	Git, LaTeX, Docker, OpenCV, OpenGL