

YEON-JI SONG

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EDUCATION

Seoul National University (SNU) <i>Integrated MS-PhD in Interdisciplinary Program in Neuroscience</i> • Advisor: Prof. Byoung-Tak Zhang (Founding Director of AI Institute of SNU)	2021.09 – 2027.12 (expected) Seoul, South Korea
Hong Kong University of Science and Technology (HKUST) <i>B.Eng. in Electronic and Computer Engineering</i>	2017.09 – 2021.05 Clear Water Bay, Hong Kong

RESEARCH INTERESTS

Visual generation via physical concept grounding, including moving objects and camera dynamics, in a neurosymbolic way.
Scene understanding for view synthesis and reconstruction of dynamic objects from blurry videos via 3DGS.
Object-centric learning in the physical world with time-static object appearance and time-varying object motion.
Robotics and embodied AI leveraging learned object and scene representations for robotics tasks in real-world settings.

PUBLICATIONS

† corresponding author, * equal contribution

M3D: Motion-Decoupled Dynamic Scene Reconstruction via Deformable 3D Gaussian Splatting

Yeon-Ji Song, Kiyoung Kwon, Byoung-Tak Zhang[†]
To be updated

Few-shot 3D Affordance Learning for Open-vocabulary Robotic Manipulation

Hyunseo Kim, Yeon-Ji Song, Minsu Lee[†], Byoung-Tak Zhang[†]
To be updated

OCK: Unsupervised Dynamic Video Prediction with Object-Centric Kinematics

Yeon-Ji Song, Jaein Kim*, Suhyung Choi*, Jin-Hwa Kim[†], Byoung-Tak Zhang[†]
in Proceedings of ICCV 2025

DBMovi-GS: Dynamic View Synthesis from Blurry Monocular Video via Sparse-Controlled Gaussian Splatting

Yeon-Ji Song, Jaein Kim, Byoungju Kim, Byoung-Tak Zhang[†]
in Proceedings of CVPR 2025 Workshop on Neural Fields Beyond Conventional Cameras

Continuous SO(3) Equivariant Convolution for 3D Point Cloud Analysis

Jaein Kim, Heebin Yoo, Dong-Sig Han, Yeon-Ji Song, Byoung-Tak Zhang[†]
in Proceedings of ECCV 2024

Unsupervised Visual Dynamics Learning with Multi-Object Kinematics

Yeon-Ji Song, Byoung-Tak Zhang[†]
in Proceedings of KCC 2024 (Best Presentation Paper Award)

Learning Object Appearance and Motion Dynamics with Object-Centric Representations

Yeon-Ji Song, Hyunseo Kim, Suhyung Choi, Jin-Hwa Kim[†], Byoung-Tak Zhang[†]
in Proceedings of NeurIPS 2023 Workshop on Causal Representation Learning

On Discovery of Local Independence over Continuous Variables via Neural Contextual Decomposition

Inwoo Hwang, Yunhyeok Kwak, Yeon-Ji Song, Byoung-Tak Zhang[†], Sanghack Lee[†]
in Proceedings of CLeaR 2023

AWARDS AND CERTIFICATES

Samsung Industrial-Academic Scholarship	2025 – 2027
KCC 2024 Best Presentation Paper	2024
RoboCup@Home DSPL 2nd Place	2022
HKUST Admission Scholarship	2017

TEACHING EXPERIENCE

Multimodal Deep Learning Theories and Applications (SNU)	2024.09 – 2024.12
Project XR: AI Chatbot (LognCoding)	2024.01 – 2024.05
Artificial Intelligence (SNU)	2022.03 – 2022.06
New Computer Technology (SNU x HKUST)	2022.03 – 2022.06

PROFESSIONAL SERVICES

PROGRAM COMMITTEE MEMBER (REVIEWER)

- WACV 2024, ICCV 2025

TECHNICAL MENTORING

- Machine Learning and Computer Vision (Hyundai NGV) 2025
- AI Youth Challenge (POSCO DX) 2023 – 2025

PROJECTS

SNU-NAVER Hyperscale AI Center <i>Student Researcher</i> <ul style="list-style-type: none">• Advisor: Jin-Hwa Kim (Leader of Generation Research at NAVER AI Lab)• Developed video generative models focused on 3D object and motion dynamics.• Published at ICCV 2025 and NeurIPS 2023 workshop on Causal Representation Learning.	2023.06 – 2024.05 SNU
Robot Navigation based on Reinforcement Learning <i>Final Year Project</i> <ul style="list-style-type: none">• Advisor: Ming Liu (Robotics and Multi-Perception Lab, Robotics Institute)• Title: Map-based Robot Navigation and Path planning with Deep Reinforcement Learning• Proposed ML and RL based algorithm for autonomous navigation in a cluttered environment.	2020.05 – 2021.05 HKUST
Bundleport <i>CTO & Logistics Manager</i> <ul style="list-style-type: none">• Created a full-stack web application using Node.js, MySQL, HTML5/CSS3, and JavaScript.• Developed on cloud server using AWS S3, EC2, Elastic Beanstalk and Cloudfront.	2018.05 – 2020.05 HKUST
HKUST ROV Community Project <i>Activity Assistant</i> <ul style="list-style-type: none">• HKUST course code: ENGG2900D	2019.02 – 2019.05 HKUST
HKUST Robotics Team <i>Robotics Software Engineer</i> <ul style="list-style-type: none">• Designed and implemented algorithms for processing data from Camera and LiDAR sensors.	2018.09 – 2018.12 HKUST

WORK EXPERIENCE

Biointelligence Lab <i>Undergraduate Research Intern</i> <ul style="list-style-type: none">• Designed and conducted research on Robotics and Reinforcement Learning.	2020.12 – 2021.04 SNU
Surromind (SNU) <i>Artificial Intelligence Research Engineer</i> <ul style="list-style-type: none">• Designed and implemented a Deep Learning model for Pose Estimation based on Detectron2.	2020.07 – 2020.10 Seoul, South Korea
Robocore AI <i>Robotics Software Engineer</i> <ul style="list-style-type: none">• Created new solutions for temi robots, combining IOT products and the mobility of temi.• Performed GUI design, system design and solved real-life customer request with AI solution.	2020.06 – 2020.07 Science Park, HongKong
Codecrain Inc. <i>Full-stack Web Developer</i> <ul style="list-style-type: none">• Developed frontend web application along with a senior developer using React.js.• Implemented React.js and Node.js to enhance functionality and user experience.	2019.06 – 2019.09 Seoul, South Korea