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Myung-Hwan Jeon

EDUCATION

Korea Advanced Institute of Science and Technology (KAIST) *Feb. 2023*
Ph.D in Robotic Program
Dissertation: "Ambiguity-Aware Multi-Object Pose Optimization toward Visually-Assisted Robot Manipulation"
Advised by Prof. Ayoung Kim and Prof. Jee-Hwan Ryu

Korea Advanced Institute of Science and Technology (KAIST) *Feb. 2020*
M.S. in Robotic Program
Dissertation: "Learning-Based Object Detection and 6D Pose Estimation toward Vision-Based Underwater Robotic Grasping"
Advised by Prof. Ayoung Kim

Kwangwoon University *Feb. 2017*
B.S. in Division of Robotics(Information Control)

POSITIONS

Postdoctoral Researcher *Sep. 2024 -*
Kinetic Intelligent Machine LAB (KIMLAB)
Dept. of Electrical and Computer Engineering (ECE)
University of Illinois Urbana-Champaign (UIUC)
Advisor: Prof. Joohyung Kim (joohyung@illinois.edu)

Postdoctoral Researcher *Jan. 2023 - Aug. 2024*
Robust Perception and Mobile Robotics (RPM) Lab
Dept. of Mechanical Engineering (ME)
Seoul National University (SNU)
Advisor: Prof. Ayoung Kim (ayoungk@snu.ac.kr)

Graduate Student Teaching Assistant *Sep. 2023 - Dec. 2023*
SLAM101: Sensor-based Spatial Intelligence
Dept. of Mechanical Engineering (ME)
Seoul National University (SNU)

Graduate Student Teaching Assistant *Sep. 2022 - Dec. 2022*
AIME: Advanced Topics in Mechanical Engineering 4
Dept. of Mechanical Engineering (ME)
Seoul National University (SNU)

Graduate Student Teaching Assistant *Sep. 2019 - Dec. 2019*
CE554: Mechanical Design of Civil Robot
Dept. of Civil and Environmental Engineering (CEE)

Researcher

The Cognitive and Collaborative Robotics Group
Center of Human-centered Interaction for Coexistence (CHIC)

Mar. 2017 - Jan. 2018

FIELD OF INTEREST

Robot Manipulation in Human Environment
Robot Vision, Robotic Perception, 6D Object Pose Estimation,
Visual simultaneous localization and mapping (SLAM), 6D Localization,

PUBLICATIONS

International Journal

- Hyeonjae Gil, **Myung-Hwan Jeon**, and Ayoung Kim, “Fieldscale: Locality-Aware Field-based Adaptive Rescaling for Thermal Infrared Image”, in IEEE Robotics and Automation Letters (RA-L), 2024.
- Hyesu Jang, Minwoo Jung, **Myung-Hwan Jeon**, and Ayoung Kim, “LodeStar: Maritime Radar Descriptor for Semi-Direct Radar Odometry”, in IEEE Robotics and Automation Letters (RA-L), 2024.
- Sangwoo Jung, Hyesu Jang, Minwoo Jung, Ayoung Kim, and **Myung-Hwan Jeon**, “Imaging radar and LiDAR Image Translation for 3-DOF Extrinsic Calibration”, in Intelligent Service Robotics (ISR), 2024.
- **Myung-Hwan Jeon**, Jeongyun Kim, Sangwoo Jung, Woosong Yang, Minwoo Jung, Jaeho Shin, and Ayoung Kim, “TRansPose: Large-Scale Multispectral Dataset for Transparent Object”, in International Journal of Robotics Research (IJRR), 2023.
- **Myung-Hwan Jeon**, Jeongyun Kim, Jee-Hwan Ryu, and Ayoung Kim, “Ambiguity-Aware Multi-Object Pose Optimization for Visually-Assisted Robot Manipulation”, in IEEE Robotics and Automation Letters (RA-L), 2022.
- Eon-ho Lee, Byungjae Park, **Myung-Hwan Jeon**, Hyesu Jang, Ayoung Kim and Sejin Lee, “Data augmentation using image translation for underwater sonar image segmentation”, in PLoS ONE 17(8), 2022.
- Joowan Kim, **Myung-Hwan Jeon**, Younggun Cho, Ayoung Kim, “Dark Synthetic Vision: Lightweight Active Vision to Navigate in the Dark”, in IEEE Robotics and Automation Letters (RA-L), 2021.
- **Myung-Hwan Jeon** and Ayoung Kim, “PrimA6D: Rotational Primitive Reconstruction for Enhanced and Robust 6D Pose Estimation”, in IEEE Robotics and Automation Letters (RA-L), 2020.

International Conference

- Chaehyeon Song, Jaeho Shin, **Myung-Hwan Jeon**, Jongwoo Lim, and Ayoung Kim, “Unbiased Estimator for Distorted Conic in Camera Calibration”, in IEEE/CVF Conference on Computer Vision and Pattern (CVPR), 2024.
- Dong-Guw Lee, **Myung-Hwan Jeon**, Younggun Cho, and Ayoung Kim, “Edge-guided Multi-domain RGB-to-TIR image Translation for Training Vision Tasks with Challenging Labels”, in IEEE International Conference on Robotics and Automation (ICRA), 2023.
- Seungsang Yun, Minwoo Jung, Jeongyun Kim, Sangwoo Jung, Younghun Cho, **Myung-Hwan Jeon**, Giseop Kim, and Ayoung Kim, “STheReO: Stereo Thermal Dataset for Research in Odometry and Mapping”, in IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2022

- Eon-Ho Lee, **Myung-Hwan Jeon**, Hyesu Jang, Byungjae Park, Ayoung Kim, and Sejin Lee, “Study on the Training Effectiveness of Deep Learning with Synthesized Underwater Sonar Image Using Pix2Pix and FCN”, in IEEE/OES Autonomous Underwater Vehicles Symposium (AUV), 2020.
- Jun-Sik Kim, **Myung-Hwan Jeon**, and Jung-Min Park, “Multi-Hand Direct Manipulation of Complex Constrained Virtual Objects”, in IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2019.
- **Myung-Hwan Jeon**, Yeongjun Lee, Young-Sik Shin, Hyesu Jang, and Ayoung Kim, “Underwater Object Detection and Pose Estimation using Deep Learning”, in 12th IFAC Conference on Control Applications in Marine Systems, Robotics, and Vehicles (CAMS), 2019.

Domestic Journal

- Jaeho Shin, **Myung-Hwan Jeon** and Ayoung Kim, “Infrared Visual Inertial Odometry via Gaussian Mixture Model Approximation of Thermal Image”, in Journal of Korea Robotics Society (KROS), To be appeared.
- Wooseong Yang, **Myung-Hwan Jeon** and Ayoung Kim, “Noise Removal of FMCW Scanning Radar for Single Sensor Performance Improvement in Autonomous Driving”, in Journal of Korea Robotics Society (KROS), To be appeared.
- Jeongyun Kim, **Myung-Hwan Jeon**, and Ayoung Kim, “Enhancing Single Thermal Image Depth Estimation via Multi-Channel Remapping for Thermal Images”, in Journal of Korea Robotics Society (KROS), 2022.
- **Myung-Hwan Jeon**, Yeongjun Lee, Young-Sik Shin, Hyesu Jang, Taekyeong Yeu, and Ayoung Kim, “Synthesizing Image and Automated Annotation Tool for CNN based Under Water Object Detection”, in Journal of Korea Robotics Society (KROS), 2019.

Dissertations

- **Myung-Hwan Jeon**, Ambiguity-Aware Multi-Object Pose Optimization toward Visually-Assisted Robot Manipulation. PhD thesis, Korea Advanced Institute of Science Technology (KAIST), 2022.
- **Myung-Hwan Jeon**, Learning-Based Object Detection and 6D Pose Estimation toward Vision-Based Underwater Robotic Grasping. Master’s thesis, Korea Advanced Institute of Science Technology (KAIST), 2020.

Other Publications

- Vipul Vijay Ramtekkar, Liza Dahiya, Nikunj Shah, Kenji Nishimiya, Takahiro Kuroki, Chaehyeon Song, Ayoung Kim, **Myung-Hwan Jeon**, “Robust Depth-Aided Segmentation for Drivable Region Detection in Challenging Environments”, in Off-Road Autonomy Workshop on IEEE International Conference on Robotics and Automation (ICRA), 2024.
- Jaeho Shin, **Myung-Hwan Jeon** and Ayoung Kim, “Infrared Visual-Inertial Odometry via Gaussian Mixture Model Approximation of Thermal Image Histogram”, in Late-Breaking Results Poster on IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2023.
- Wooseong Yang, **Myung-Hwan Jeon** and Ayoung Kim, “Azimuth-aware Noise Removal of FMCW Scanning Radar”, in Late-Breaking Results Poster on IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2023.
- **Myung-Hwan Jeon** and Ayoung Kim, “Measuring Prediction Reliability on 6D Object Pose Estimation”, in Late-Breaking Results Poster on IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2022.
- **Myung-Hwan Jeon**, Yeongjun Lee, Young-Sik Shin, Hyesu Jang, and Ayoung Kim, “Deep Learning Based Underwater Object Detection and Pose Estimation”, in Workshop on IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2018.

PRESENTATIONS

- Invited talk, CUBOX, Jun., 2024.
- Invited talk, Flagship Conferences in KRoC 2024, Feb., 2024.
- Spotlight talk, ICCV 2023 Workshop for Transparent & Reflective objects In the wild Challenges (TRICKY), Oct., 2023.
- Poster Presentation, IROS 2022, Oct., 2022.
- Invited talk, Hyundai Motor Company, Jul., 2023.
- Spotlight talk, IROS 2018 Underwater Workshop, Oct., 2018.

AWARDS AND HONORS

- **Best Paper Award**, 2023 Korea Robot Society (KROS).
- **Top Award**, 2017 Nowon-gu, Seoul Capstone Design Contest.
- **Excellence Prize**, 5th Kwangwoon Software Programming Contest.
- **Excellence Prize**, 12th Kwangwoon IT Exhibition.
- **Special Prize**, 18th Korea Intelligent Robot Contest.
- **Encouragement Prize**, 18th Korea Intelligent Robot Contest
- **Top Award**, 2015 Nowon-gu, Seoul Capstone Design Contest.
- **Top Award**, 17th Korea Intelligent Robot Contest.
- **Chairman's Award**, Texas Instrument (TI) Innovation Challenge: 2013 Korean MCU Design Contest.
- **BMW Special Prize**, 2013 Hanyang University Intelligent Model Car Racing.

SERVEICES

Reviewer

- IEEE Transactions on Robotics (T-RO)
- IEEE Robotics and Automation Letters (RA-L)
- Intelligent Service Robotics (ISR)
- IEEE International Conference on Intelligent Robots and Systems (IROS)
- IEEE International Conference on Robotics and Automation (ICRA)
- IEEE International Conference on Ubiquitous Robots (UR)

LANGUAGES & SKILLS

- Korean, English
- C/C++, Python, MATLAB, PyTorch, TensorFlow, Solidworks
- Microsoft Office, Ubuntu, Windows, L^AT_EX

Revised April 21, 2025