Minseong Kweon

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Research Interests

Neural Rendering, 3D Reconstruction, Depth Estimation, SLAM

Education

University of Minnesota, Twin Cities, United States — *Sep. 2025 — present*
- M.S. in Robotics

Pusan National University, Busan, Republic of Korea — *Mar. 2019 — Feb. 2025*
- B.S. in Mechanical Engineering
- Served mandatory military service — *Aug. 2020 — May. 2022*

Publications

4. **OceanSplat: Object-aware Gaussian Splatting with Trinocular View Consistency for Underwater Scene Reconstruction**
Minseong Kweon, Jinsun Park
- *AAAI Conference on Artificial Intelligence* (**AAAI**), 2026. (Acceptance Rate: 17.6%) (Accepted) [Project Page]

3. **CAR-Stereo: Confidence-aware Adaptive Disparity Refinement for Real-time Stereo Matching**
Chanill Park, Janghyun Kim, **Minseong Kweon**, Jinsun Park
- *IEEE Robotics and Automation Letters* (**RA-L**), 2025. (Accepted)

2. **NoiseGS: Boosting 3D Gaussian Splatting with Positional Noise for Large-Scale Scene Reconstruction**
Minseong Kweon, Kai Cheng, Xuejin Chen, Jinsun Park
- *European Association for Computer Graphics* (**Eurographics**) short paper, 2025. (Acceptance Rate: 53%) [Paper]

1. **ULTRON: Unifying Local Transformer and Convolution for Large-Scale Image Retrieval**
Minseong Kweon, Jinsun Park
- *Asian Conference on Computer Vision* (**ACCV**), 2024. (Acceptance Rate: 32%)[Paper]

Under Review

2. **MrGS: Multi-modal Radiance Fields with 3D Gaussian Splatting for RGB-Thermal Novel View Synthesis**
Minseong Kweon, Janghyun Kim, Ukcheol Shin, Jinsun Park
- *Working-in-progress*
∗ Short version at Thermal Infrared Robotics (**TIRO**) Workshop, **ICRA** 2025. [Poster] [Project Page]
∗ Received **Best Poster Award**.

1. **All-day Depth Completion via Thermal-LiDAR Fusion**
Janghyun Kim, **Minseong Kweon**, Jinsun Park, Ukcheol Shin
- *Under review* at IEEE Transactions on Intelligent Vehicles (**T-IV**). [arXiv]
∗ Short version at Thermal Infrared Robotics (**TIRO**) Workshop, **ICRA** 2025. [Poster]

Awards & Honors

- **Best Poster Award**, Thermal Infrared Robotics (**TIRO**) Workshop, **ICRA** 2025.
- **Honorable Mention**, Undergraduate AI Paper Competition, Summer Annual Conference of **IEIE**, 2024

Academic Services

- **Program Committee & Reviewer** AAAI Conference on Artificial Intelligence (**AAAI**), 2026

Work Experiences

Electronics and Telecommunications Research Institute *Jul. 2023 – Aug. 2023*
Research Intern *Daejeon, Republic of Korea*
Advisor: Dr. Seungmin Choi
Research Area: Visual Localization, Image Retrieval
Project: Visual place recognition for quadruped autonomous robots
- Developed hierarchical visual localization pipeline to achieve robust 6DoF pose estimation for quadruped robots.
- Developed mobile localization application using Unity and NAVER ARC eye API.
- Designed image retrieval module fusing local and global features in visual localization system, reducing the median pose error by 0.27° on the *Aachen Day-Night* dataset without re-ranking.

Related Publication: "ULTRON: Unifying Local Transformer and Convolution for Large-Scale Image Retrieval", ACCV 2024.

Sandburg Inc. *Jun. 2022 – Dec. 2022*
Software Engineer *Busan, Republic of Korea*
- Developed a sales-based credit prediction machine learning module for Alternative Credit Scoring System (ACSS).

Presentations

3. **Self-Similarity Feature Learning for Person Re-Identification**
Minseong Kweon, Jinsun Park
- *Summer Annual Conference of Institute of Electronics and Information Engineers* (**IEIE**), 2024. [Paper (in Korean)]
∗ Received **Honorable Mention** at Undergraduate AI Paper Competition.

2. **Hierarchical Visual Localization for Indoor Autonomous Systems**
Minseong Kweon, Jeonghyun Noh, Chanill Park, Jinsun Park
- *Korea Robotics Conferences* (**KRoC**), 2024. [Paper (in Korean)]

1. **Attention-based Human Activity Recognition with 3-axis Accelerometer Data Conversion**
Minseong Kweon, Jaehyeong Park, Kyunghyun Kim, Jeonghyun Noh, Jinsun Park
- *Korea Computer Congress* (**KCC**), 2023. [Paper (in Korean)]

Patents

1. **Minseong Kweon**, Jinsun Park, "METHOD AND SYSTEM FOR PROCESSING IMAGES BASED ON LOCAL ATTENTION". Korean Patent Application No. 10-2024-0176234. Patent Pending.

Skills

Languages	C/C++, Python, MATLAB, JavaScript
Tools	Github, Linux, ROS, Wandb, CUDA programming
Libraries	NumPy, SciPy, Pytorch, Pytorch3D, OpenCV, Open3D, PyBullet, PyRender, scikit-learn