

GWANGTAK BAE

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EDUCATION

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|------------------------|--|
| Sep 2022
- Present | Ph.D. in Electrical and Computer Engineering
Seoul National University (SNU) <ul style="list-style-type: none">> Supervised by Prof. Young Min Kim (3D Vision Laboratory)> Research focus : Robust 3D reconstruction and localization |
| Mar 2015
- Feb 2019 | B.S. in Electrical Engineering
Korea Advanced Institute of Science and Technology (KAIST) |

PUBLICATIONS

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| T-RO 2026 | RoEL : Robust Event-based 3D Line Reconstruction
Gwangtak Bae, Jaeho Shin, Seunggu Kang, Junho Kim, Ayoung Kim, Young Min Kim <ul style="list-style-type: none">> We introduce a correspondence-based 3D line reconstruction pipeline for event cameras, from reliable correspondence search to Grassmannian optimization in 3D space. |
| ICCV 2025 | Learning 3D Scene Analogies with Neural Contextual Scene Maps
Junho Kim, Gwangtak Bae, Eunsun Lee, Young Min Kim <ul style="list-style-type: none">> We propose a new task of finding 3D scene analogies, which are dense maps connecting regions sharing similar scene contexts. |
| ECCV 2024 | I^2-SLAM : Inverting Imaging Process for Robust Photorealistic Dense SLAM
Gwangtak Bae*, Changwoon Choi*, Hyeongjun Heo, Sang Min Kim, Young Min Kim (* equal contribution) <ul style="list-style-type: none">> We invert imaging process to improve robustness and accuracy of dense SLAM in real-world data which frequently contains motion blur and varying appearances. |
| ECCV 2022 | SLiDE : Self-supervised LiDAR De-snowing through Reconstruction Difficulty
Gwangtak Bae, Byungjun Kim, Seongyong Ahn, Jihong Min, Inwook Shim <ul style="list-style-type: none">> We propose a self-supervised LiDAR de-noising method that removes noise points in snowy weather, which is one of the biggest challenges for 3D perception in autonomous driving. |

EXPERIENCES

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| Jun 2019
- May 2022 | Research Officer for National Defense
Ground Autonomy Lab, Agency for Defense Development <ul style="list-style-type: none">> Developed LiDAR de-noising methods to enhance robust 3D perception for autonomous driving in adverse weather conditions |
| Dec 2018
- Feb 2019 | Research Intern
Unmanned Systems Research Group, KAIST <ul style="list-style-type: none">> Developed a LiDAR-based lane detection algorithm and a LiDAR upsampling method |

PATENTS

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| KR10-2405818 | Method of Removing Noise, Apparatus for Removing Noise, and Computer Program for the method. |
| KR10-2420585 | Method and Apparatus for Simulating Point Cloud Data of 3D Lidar Sensor in Adverse Weather. |