Nayeon Kim

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Work Experience

Samsung Advanced Institute of Technology (SAIT), Korea - *AI Researcher* *Mar 2019 – Present*

- Researching generative models for spatio-temporal modeling in automated industrial processes.
- Developed computer vision algorithms for high-level semantic and geometric understanding of road scenes : Online mapping (NeurIPS '24), 3D lane detection (ICASSP '23)

Korea Electronics Technology Institute (KETI), Korea - *Research Intern* *Dec 2017 – Oct 2018*

- Developed a computer vision algorithm for monocular 3D perception: Depth prediction (KSAE '18)

Publications

Unveiling the Hidden: Online Vectorized HD Map Construction with Clip-Level Token Interaction and Propagation *NeurIPS 2024*
Nayeon Kim*, Hongje Seong*, Daehyun Ji, Sujin Jang

D3DLD: Depth-aware Voxel Space Mapping for Monocular 3D Lane Detection with Uncertainty *ICASSP 2023*
Nayeon Kim*, Moonsub Byeon*, Daehyun Ji, Dokwan Oh

Unsupervised Depth Prediction and Camera Motion Estimation in a Dynamic Environment *KSAE 2018*
Nayeon Kim, MinGyu Park, Youngbae Hwang

Education

Kookmin University (KMU) *Mar 2015 – Feb 2019*
B.S. in Computer Science, Automotive Software Design Advisor: Prof. Yongsoo Joo

- GPA: 4.19/4.5 (Graduated **Summa Cum Laude**)

Patents

Method and Apparatus with Vehicle Driving Control *US-Application No. 18/936,286*
Hongje Seong, Nayeon Kim, Sujin Jang, Daehyun Ji filed on 11/04/2024

Method and Apparatus with Vector Map Learning and Generation *US-Application No. 18/605,119*
Nayeon Kim, Sujin Jang, Dae Ung JO filed on 03/14/2024

Method and Apparatus with Lane Generation *US-Application No. 17/862,821*
Nayeon Kim, Moonsub Byeon, Dokwan Oh, Daehyun Ji filed on 07/12/2022

Method and Apparatus for Determining Slope of Road Using Side View Camera of Vehicle *US-Application No. 17/685,917*
Moonsub Byeon, Nayeon Kim, Daehyun Ji filed on 03/03/2022

Awards & Honors

CEO Commendation Award ('23.4Q DS Vision Awards) *Samsung Electronics* *2024*
Business Division Commendation Award (1H 2022) *Samsung Electronics* *2022*
Grand Award (1st Place), Cloud Programming World Cup (CPWC) *FORUM8* *2017*
Kookmin University Academic Excellence Scholarship *KMU* *2015 - 2017*

Projects

(SAIT) **Automated Semiconductor Cross-Section Analysis** *Jan 2025 – Present*

- Developing an automated system using generative models to analyze semiconductor cross-sectional images and automatically determine optimal stopping points during the milling process.

(SAIT) **Large Language Model Alignment Tuning** *June 2024 – Dec 2024*

- Conducted research on alignment tuning methods to enhance LLM performance and safety for internal model development.

(SAIT) **Online Vectorized HD Map Construction** *Jan 2023 – May 2024*

- Developed an algorithm of vectorized HD map construction that can predict road information in challenging driving road scenes.
- Developed an algorithm that effectively constructs vectorized HD map using only a camera, by applying knowledge distillation from the multi-modal fusion of lidar and camera.

(SAIT) **Lane Detection** *Sep 2019 – Dec 2022*

- Developed an algorithm to predict 3-dimension lane information from a single image that is robust to various driving environments.
- Developed a 2-dimension lane fitting algorithm that can be implemented in real vehicles.

(KETI) **Unsupervised Depth Prediction** *Dec 2017 – Oct 2018*

- Developed an algorithm to improve the performance of the depth map by predicting the movement between images through the flow network.

(KMU) **International College Student Creative Car Competition** *Jan 2018 – May 2018*

- Developed a real-time lane detection algorithm for a 1/4 scale autonomous vehicle, validated through simulation in real-road environments.

(KMU) **Embedded Software Contest** *June 2017 – Nov 2017*

- Developed embedded software that can be implemented in mini cars to enable autonomous driving on the track.

Service

Conference Reviewer: *NeurIPS 2025*

Skills

Program Languages: Python, C++, C

Frameworks: PyTorch, ROS

Languages: Korean(Native), English