

# Seokha Moon

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## About Me

I am a Ph.D Student at Korea University, [Vision & AI lab](#) (Advisor: Prof. Jinkyu Kim). Before joining the Vision & AI Lab, I earned a Bachelor's degree in Computer Science from Yonsei University. My research interests lie in the field of Computer Vision, particularly **autonomous robots and autonomous driving**. Recently, I have been focusing on camera-based perception tasks in autonomous driving, including 3D detection and occupancy prediction. I also explored trajectory prediction with an emphasis on modeling interactions between agents, using vision-driven text guidance as supervision to inform the model of relevant contextual cues needed to understand each agent's situation. Currently, I am particularly interested in Vision-Language Navigation for autonomous robots and End-to-End learning frameworks for autonomous driving.

## Education

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|----------------|--|------------------------|
| <b>MS/Ph.D</b> | <b>Korea University</b> , Computer Science and Engineering   | Sep. 2022 to Present   |
|                | <ul style="list-style-type: none"> <li>• GPA: 4.37/4.5</li> <li>• Advisor: Prof. Jinkyu Kim</li> </ul>   |                        |
| <b>BS</b>      | <b>Yonsei University</b> , Computer Science  | Mar. 2016 to Aug. 2022 |
|                | <ul style="list-style-type: none"> <li>• GPA: Overall 3.67/4.3 Major <b>3.97/4.5</b></li> <li>• <b>Coursework:</b> Operating System, Computer Architecture, Algorithms, Data Structures, Computer Graphics, Object-Oriented Programming, Artificial Intelligence, Computational Theory.</li> </ul> |                        |

## Experience

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| <b>NAVER LABS</b> , Robot & AD Localization, Research Intern   | Gyeonggi-do, South Korea<br>Sep. 2024 to Mar. 2025<br>6 months |
| <ul style="list-style-type: none"> <li>• Developed a efficient yet effective 3D occupancy prediction model (StreamOcc).</li> <li>• Achieved SOTA performance while maintaining real-time inference speed and reducing memory usage by more than half compared to previous multi-frame fusion approaches.</li> </ul>  |  |
| <b>42dot.</b> , Motion prediction engineer, Intern   | Seoul, South Korea<br>Aug. 2022 to Dec. 2022<br>4 months       |
| <ul style="list-style-type: none"> <li>• Developed algorithms to infer correlations between agents moving at intersections.</li> <li>• Researched a teacher-student model incorporating a student model that efficiently considers interactions between agents by mimicking teacher networks and teacher models that jointly consider the future movements of other agents.</li> </ul> |  |
| <b>Korea Univ. Vision &amp; AI Lab Internship</b> , Intern   | Seoul, South Korea<br>Jan. 2022 to Aug. 2022<br>9 months       |
| <ul style="list-style-type: none"> <li>• Implemented state of the art Multi-view 3D Object Detection model (ORA3D)</li> <li>• Developed algorithms for the occupancy prediction challenge using the Waymo Open Dataset.</li> </ul>   |  |
| <b>Samsung Electronics</b> , Face Detection Project, Intern  | Seoul, South Korea<br>Mar. 2021 to June 2021<br>4 months       |
| <ul style="list-style-type: none"> <li>• Implemented few shot face detection algorithm using attention mechanism.</li> <li>• Created face dataset and designed a pipeline to augment dataset.</li> </ul>   |  |

## Publications

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- Mitigating Trade-off: Stream and Query-guided Aggregation for Efficient and Effective 3D Occupancy Prediction** 2025  
Seokha Moon, Janghyun Baek, Giseop Kim, Jinkyu Kim, Sunwook Choi  
We propose a novel, efficient, yet effective 3D occupancy prediction model termed StreamOcc, which mitigates the accuracy-efficiency trade-off by applying a stream-based spatiotemporal voxel aggregation method.  
Work done during an internship at NAVER LABS.  
arXiv
- Who Should Have Been Focused: Transferring Attention-based Knowledge from Future Observations for Trajectory Prediction** 2024  
Seokha Moon, Kyuhwan Yeon, Hayoung Kim, Seong-Gyun Jeong, and Jinkyu Kim  
International Conference on Pattern Recognition (ICPR)
- VisionTrap: Vision-augmented Trajectory Prediction Guided by Textual Descriptions** 2024  
Seokha Moon, Hyun Woo, Hongbeen Park, Haeji Jung, Reza Mahjourian, Hyung-gun Chi, Hyerin Lim, Sangpil Kim and Jinkyu Kim  
We introduce a novel approach incorporating visual features from surround-view cameras and textual descriptions for trajectory prediction.  
European Conference on Computer Vision (ECCV)
- Learning Temporal Cues by Predicting Objects Move for Multi-camera 3D Object Detection** 2024  
Seokha Moon, Hongbeen Park, Jaekoo Lee, and Jinkyu Kim  
We propose a Detection After Prediction (DAP) method to explicitly learn the temporal cues.  
IEEE International Conference on Robotics and Automation (ICRA)
- BEVMap: Map-Aware BEV Modeling for 3D Perception** 2024  
Mincheol Chang, Seokha Moon, Reza Mahjourian and Jinkyu Kim  
IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)
- Enhancing Trajectory Prediction Accuracy with Goal Location and Lane Information** 2023  
Seokha Moon and Jinkyu Kim  
We introduce a method to predict the goal location and interact with lane to navigate towards the predicted goal.  
Conference on The Institute of Electronics and Information Engineers (IEIE)  
**Oral**
- RUFI: Reducing Uncertainty in behavior prediction with Future Information** 2023  
Seokha Moon, Sejeong Lee, Hyun Woo, Kyuhwan Yeon, Hayoung Kim, Seong-Gyun Jeong, and Jinkyu Kim  
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Workshop on Vision-Centric Autonomous Driving
- ORA3D: Overlap Region Aware Multi-view 3D Object Detection** 2022  
Wonseok Roh, Gysam Chang, Seokha Moon, Giljoo Nam, Chanyoung Kim, Younghyun Kim, Jinkyu Kim and Sangpil Kim  
British Machine Vision Conference (BMVC)

## Teaching

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- Mathmatics for Computer Science (COSE111)** Spring 2024

**Algorithm** (COSE214)

Fall 2023

**Algorithm** (COSE214)

Fall 2022

## Honors And Awards

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**First Prize of Computer Science**, Yonsei University

Aug. 2021

**HUAWEI scholarship**, Talent Development Foundation

Nov. 2020

## Skills

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**Languages:** C++, C, Python, JavaScript

**FRAMEWORKS & TOOLS:** PyTorch, OpenCV, TensorFlow, Git, Visual Studio, XCode