

Seongjun Choi

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EDUCATION

Mar.2025 – Feb.2027	Yonsei University M.S. Degree in Electrical and Electronic Engineering Image and Video Pattern Recognition Lab (MVP Lab) Advisor: Prof. Sangyoun Lee GPA 3.86 /4.5	Seoul, Korea
Mar.2019 – Feb.2025	Kyung-Hee University Bachelor of Software Convergence (Robot & Vision Track) GPA 3.6/4.5	Yongin, Korea

RESEARCH INTEREST

Autonomous Driving Robotics 3D Computer Vision NeRF Real World Problem

RESEARCH EXPERIENCES

Oct.2024 –	MVP Lab - Undergraduate Research Intern - Keywords: 4D Gaussian Splatting, Generalizable 3D Reconstruction	Yonsei University, Korea
Mar.2024 – Oct.2024	Visual AI Lab - Undergraduate Research Intern - Keywords: NeRF with Real World (Low Resolution, Glare Surface, ...)	Kyung-Hee University, Korea
Jan.2024 – Feb.2024	Autonomous Intelligence Lab - Research Intern, Autonomous Driving Intelligence Research Section - Keywords: Instance Segmentation, Mono Depth Estimation, Pseudo LiDAR, Optimization - Improve 3D OD performance with Depth Estimation of Interests Based on Instance Segmentation - 4% performance improvement + About 45ms per frame	ETRI, Korea
Aug.2021 – Aug.2023	V2X Researcher [Project] Local Station(LS) (23.02.-23.08.) - Implement communication of Local Station service, that shares object streaming data detected by CCTV [Project] Misbehavior Detection(MBD) (22.03. - 23.01.) - Research methodologies for LMBD and GMBD & Development of Misbehavior Report(MBR) Receiver [Project] V2X Air Application (21.08.-22.03.) - Research V2X Communication Service Using C-ITS Message & Implement events rules on V2X Device	PentaSecuritySystems, Korea

PUBLICATIONS

- [1] “InfoFusion Controller: Informed TRRT Star with Mutual Information based on Fusion of Pure Pursuit and MPC for Enhanced Path Planning”, 2025 International Conference on Consumer Electronics(ICCE) (Oral, 1st Author)
- [2] “Multi-Domain Object Tracking Enhanced by RandConv-based Domain Generalization”, 2025 IEIE (1st Author)
- [3] “Non-Glare-NeRF: To prevent unwanted glare: A Comparative Study”, 2024 Korea Software Congress (KSC) (1st Author)
- [4] “Codebook-NeRF: Improving NeRF resolution based on codebook”, 2024 Korea Software Congress (KSC) (1st Author)
- [5] “Exploring the Role of View Direction Settings in Depth Estimation with NeRF: A Comparative Study”, 2024 Korea Computer Congress(KCC) (1st Author)
- [6] “[ITSK-00135] V2X Misbehavior and Misbehavior Report Specification” 2022 ITS-K

AWARDS

Feb. 2025	1st Prize , Korean Institute of Information Scientists and Engineers, Korea Software Congress 2024
Nov. 2024	1st Prize (Robot & Vision Track) , Kyung-Hee University, Software Convergence Conference 2024
Sep. 2023	1st Prize , Wrtn Prompthon, Wrtn Technologies
Jul. 2022	Excellence Award , “Autonomous Mini-Drone Aviation Competition”, MathWorks
Dec. 2020	3rd Prize, Famous Award , SW Festival 2020, Kyung-Hee University
Aug. 2019	1st Prize , Convergence Design Competition for Self-Driving Vehicles, Sungkyunkwan University

PROJECTS

- 1. Non-Glare NeRF: To prevent unwanted glare (Poster)** Mar.2024 – June.2024
 - Mitigate Glare with Inpainting
 - Use LiDAR and RGB cameras on iPhones to build Data Engine + Depth Evaluation Dataset
- 2. Exploring the Role of View Direction Settings in Depth Estimation with NeRF (Poster)** Mar.2024 – June.2024
 - Directional Datasets: Datasets taken at five separate viewpoints (front, back, right, left, top)
 - Review experimental results between the Directed and All Viewed Datasets
- 3. Faster VirConv: lightweight and faster 3D Object Detection** Mar.2024 – June.2024
 - Architectural Analysis and Lightweight Method for VirConv Models
 - Apply a variety of lightweight algorithms, including Knowledge Distillation, Pruning, and Quantization
 - Finally, 6.2% faster with ROI Tuning and Quantization
- 4. AuTURBO RDSim: Robo Delivery Simulator** Mar.2024 – May.2024
 - Visualization of Rviz sensors and implementation of debugging dashboards
 - Configuring Map Environments and Applying Dynamic Obstacle SFM Models
- 5. Drivable Area Detection: 3D LiDAR + Multi Camera Fusion** Sep.2023 – Dec.2023
 - Analysis nuScenes Dataset & Sensor Calibration
 - Road Plane Segmentation: RANSAC & Removal Object Plane & Removal Shoulder Outside Plane
- 6. Woowa Bros. Robot Delivery Challenge** Sep.2023 – Oct.2023
 - Indoor driving based on navigation: 3D maps can be converted into an occupancy map for navigation
 - Outdoor driving based on GPS: Implementation of path tracking through pure pursuit compared to GPS location
 - Module integration(Sequence Manager): Focus on reusability, reliability and ease of maintenance
- 7. Kookmin University Self-Driving Software Competition** May.2023 – July.2023
 - Robot FSM (Limited State Machine) environment development and code integration
 - Development of Vision-related modules such as stop line recognition
 - Simplify the Object Detection process with ROSbag utilization and Yolo

ADDITIONAL INFORMATION

Military Services

Alternative Military Service in PentaSecuritySystems (Aug.2021 - July.2023)

Activities

OROCA AuTURBO Manager: Autonomous Driving Perception (Mar.2023 - May.2024)

Open Source Contribution Academy (May.2023 - Dec.2023)

San Jose State University: Silicon Valley Innovation & Technology Program (Jan.2021 - Feb.2021)

Relevant Coursework

Robotics & Sensor (Reinforcement Learning, 3D Data Processing, Future Robot Prog-)

AI (Advanced Deep Learning, Explainable AI, NLP, Machine Learning in Practice, Numerical-Analysis Prog-, Deep Learning)

Programming (Web-Python Prog-, Object-Oriented Prog-, Data Structure, Algorithm Analysis)

Math (Calculus, Linear Algebra, Probability Random Processing, Signal & System)