

# Seongjun Choi

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Web: <https://csj000714.tistory.com> Github: <https://github.com/DrawingProcess>

## EDUCATION

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Mar.2019 – **Kyung-Hee University** Yongin, Korea  
Present Bachelor of Software Convergence  
GPA 3.33/4.3

## RESEARCH INTEREST

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**Autonomous Driving Robotics 3D Computer Vision NeRF**

## RESEARCH EXPERIENCES

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Mar.2024 – **Visual AI Lab** Kyung-Hee University, Korea  
- Undergraduate Research Intern  
- Keywords: NeRF, Gaussian Splat, Few Shot

Jan.2024 – **Autonomous Intelligence Lab** ETRI, Korea  
Feb.2024 - 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

Mar.2023 – **V2X Researcher** PentaSecuritySystems, Korea  
Jun.2023 [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 various methodologies for LMBD and GMBD  
- Development of Misbehavior Report(MBR) Receiver, an internal component of GMBD  
[Project] V2X Air Application (21.08.-22.03.)  
- Research V2X Communication Service Using C-ITS Message  
- Implement Smart Cross events rules on V2X Device

## PUBLICATIONS

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- [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] “Non-Glare-NeRF: To prevent unwanted glare: A Comparative Study”, 2024 Korea Software Congress (KSC) (1st Author)
- [3] “Coodebook-NeRF: Improving NeRF resolution based on codebook”, 2024 Korea Software Congress (KSC) (1st Author)
- [4] “Exploring the Role of View Direction Settings in Depth Estimation with NeRF: A Comparative Study”, 2024 Korea Computer Congress(KCC) (1st Author)
- [5] “[ITSK-00135] V2X Misbehavior and Misbehavior Report Specification” 2022 ITS-K

## AWARDS

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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

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- 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
- 8. Korea Traffic Sign Classification** July.2020 – Nov.2020
  - Preprocessing: Auto-Labeling speeds up the preprocessing process.
  - Performing Object Detection with LeNet-5 Model
  - Visualization with Windows API

## ADDITIONAL INFORMATION

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### Military Services

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

### Activities

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

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

KHU MAKERS Manager (Mar.2020 - Aug.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)

DevOps (SW Convergence Introduction, SW Development Method & Tools, Data-Center Prog-, SW Engineering)

Projects (Design Thinking, Capstone Design 1/2)