Suhyun Choi

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Research Interests

3D Object and Scene Understanding for Spatial AI
(Semantic Segmentation, 3D Reconstruction, Depth Estimation, 6-DoF Object Pose Estimation, Visual Localization)

Education

Hanyang University (ERICA) — Ansan, South Korea
B.S. in Robot Engineering (GPA: - / 4.5) — *Mar 2021 – Present*

Experience

Undergraduate Research Intern — Jan. 2026 – Feb. 2026
Korea Electrotechnology Research Institute (KERI) — *Ansan, South Korea*

- Constructed and preprocessed medical image datasets for deep learning-based biometric analysis
- Generated segmentation masks and performed image–mask alignment for supervised learning pipelines
- Implemented data cleaning and preprocessing workflows for medical imaging datasets
- Reviewed and experimented with GAN-based image analysis models

Projects

Physical Security Mobile Robot System | *PyTorch, YOLO, OpenCV, ROS2* — Mar 2025 – Present

- Designed and implemented a real-world physical security robot system for unauthorized access detection in Kakao Data Center (Ansan)
- Developed a multi-camera multi-object tracking (MCMOT) pipeline for cross-zone surveillance
- Implemented cross-camera person re-identification for continuous tracking across disjoint camera views
- Performed camera calibration and BEV (Bird's-Eye-View) projection for global spatial localization
- Integrated ROS2-based mobile robot dispatch and control system for autonomous interception and patrol

Kaggle Machine Learning Competition | *Python, PyTorch, NumPy, pandas* — Dec 2025 – Present

- Achieved Top 12% on the Kaggle Public Leaderboard among over 3,000 teams
- Built PyTorch-based deep learning models with custom preprocessing and augmentation pipelines
- Designed cross-validation strategies and optimized models based on leaderboard feedback

AI Autonomous Driving Contest | *Python, ROS2, OpenCV, YOLO* — Sep. 2025 – Nov. 2025

- Implemented camera-based lane detection for autonomous path following
- Developed YOLO-based recognition of traffic lights, pedestrians, and obstacles
- Integrated ROS-based Ackermann steering control for autonomous driving

Technical Skills

Languages: Python, C/C++
Frameworks: ROS2, PyTorch
Developer Tools: Git, VS Code, Ubuntu Linux, Docker
Libraries: NumPy, pandas, OpenCV

Certification

KT AI AICE (Associate) | *Certified AI Competency Evaluation* — Mar 2026

TOEIC 875 | *Test of English for International Communication* — Mar 2026

Leadership & Service

Executive Officer (General Affairs Lead) *HY-MEC Robotics Engineering Society* Mar 2025 – Dec 2025

- Planned, executed, and managed an autonomous driving hackathon
- Organized technical seminars and robotics study sessions within the society

Squad Leader & Drill Instructor *Korea Army Training Center, Nonsan* Apr 2023 – Oct 2024

- Led and trained recruits, managing daily drills and discipline