Jiyoon Park

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EDUCATION

Carnegie Mellon University Pittsburgh, PA
Master of Science in Robotic Systems Development May 2024

- Awarded Kwanjeong Educational Foundation Scholarship | GPA: 4.0/ 4.0
- Courses: Designing Large-scale Software Systems | Visual Learning Recognition | Computer Vision | Robot Autonomy | Robot Mobility on Air, Land, and Sea | System Engineering | Game Development

Ewha Womans University Seoul, Korea
Bachelor of Science in Computer Science and Engineering March 2022

- Honors: Summa Cum Laude - Top of Class 22' | GPA 4.17/4.3

SKILLS

C++/C, Python, Java | ROS, Docker, Linux, AWS | PyTorch, OpenCV, NumPy, Pandas, Matplotlib, Weights & Biases | OpenGL, Blender | HTML, CSS, JS, PHP, SQL | Git, JIRA

EXPERIENCE

National Robotics Engineering Center (NREC) Pittsburgh, PA
Software Engineering Intern May 2023 - August 2023

- **Led** a team of 8 interns in developing autonomous outdoor robots, overseeing system design, and **integration testing**, and serving as Localization System Lead. Achieved precise positioning by **fusing** Visual Odometry and GPS data.
- Expanded capabilities of the company's existing **infrastructure** software by designing and developing a real-time **radio mesh network streaming tool** (RTSP, GStreamer, WebRTC).

Ewha Computer Graphics Lab Seoul, Korea
Undergraduate Research Intern February 2021 - March 2022

- Designed and implemented a robust algorithm to determine minimal discrete configurations for the **mobile platform**, ensuring **complete coverage** of the target surface considering **manipulator** reachability.
- Applied impedance control techniques to KUKA IIWA to accurately reproduce the generated spline drawing on the nonplanar surface, **compensating for uncertainties**, incomplete canvas-surface representations, and sensor noises within a **large-scale system**. 🔗

ACADEMIC PROJECTS

Autonomous Green Pepper Harvesting Robot Carnegie Mellon University | Aug 2022 - Current

- **Led** the Perception team for an autonomous green pepper harvesting robot, **spearheading the design** of the cyber-physical, system, and software (perception model) architectures for scalability. 🔗
- Managed extensive **testing**, **cross-functional collaboration**, and software deployment with **Docker** and **version control** to ensure robustness and seamless integration of the perception subsystem.

Replacing a Person in a Video with Another Carnegie Mellon University | Jan 2023 - May 2023

- Developed a **GAN**-based system utilizing Progressive Pose Attention Transfer, Copy-and-Paste Network, and Mediapipe Pose to seamlessly replace a target with an ego character in a video using PyTorch. 🔗

Computer Vision Projects Carnegie Mellon University | Aug 2022 - Dec 2022

- Implemented: 3D **Point Cloud Reconstruction** deploying a 7-point algorithm and triangulation | Augmented Reality using Planar Homography and **RANSAC** | Lucas-Kanade Tracking

Camera Mobile Manipulator Ewha Womans University | Dec 2021 - Mar 2022

- **Led** integration project of IIWA KUKA 7 robotic arm and Ridgeback platform, creating a repeatable camera mobile manipulator system and achieving **1cm indoor localization accuracy** by using the HTC Vive tracker to overcome limitations of wheel odometry and Lidar-based methods.

PUBLICATIONS

- Daeun Song, Jiyoon Park, Young J. Kim, "SSK: Robotic Pen-Art System for Large, Non-Planar Canvas," IEEE T-RO, May 2023. 🔗