Krishi Attri

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EDUCATION

SEOUL NATIONAL UNIVERSITY | Seoul, South Korea *Sept 2024 – June 2026*
Master of Science in Mechanical Engineering| GSFS Recipient | Soft Robotics and Bionics Laboratory

VILLANOVA UNIVERSITY | Villanova, PA, USA *Aug 2020 – May 2024*
Bachelor of Science in Mechanical Engineering, Minor in Mechatronics | Control & Dynamics

YONSEI UNIVERSITY | Seoul, South Korea *Aug 2022 – June 2023*
Bachelor of Science in Mechanical Engineering | Exchange Student

SKILLS

Language
English (Fluent), Korean (Intermediate), Hindi (Fluent)

Programming Language
MATLAB, Python, Arduino, C/C++, Maple, LaTeX, HTML, MySQL

Software
SolidWorks, ROS, Ubuntu, Ollama, Genesis, OpenCV, TensorFlow, PyTorch, Matplotlib, Git, React, Flask, KiCAD

EXPERIENCE

Graduate Research Student at Soft Robotics and Bionics Lab, Seoul National University | Seoul, South Korea
Sept 2024 – Present

- Conducting research on biomimetic robotic systems, focusing on advanced actuation and adaptive mechanics for multi-terrain mobility as part of a master's thesis project.
- Contributed to the development of PoP-SLAM, achieving state-of-the-art tracking speed and accuracy through innovative neural point-based SLAM techniques.
- Designing and prototyping bio-inspired soft actuators and sensors for robotics applications, integrating insights from literature reviews and experimental findings.

Robotics and Mechatronics Research at Villanova University | Villanova, PA, USA *August 2023 – May 2024*

- Collaborated on a dissertation focused on advancing SLAM algorithms for autonomous localization and navigation in GNSS-denied environments.
- Applied feature extraction techniques from Lidar and camera data to achieve visual odometry for a quad-wheel robot, pushing the boundaries of SLAM capabilities.
- Developed and optimized a robotics control system using ROS, implemented navigation algorithms for path planning and obstacle avoidance, and contributed to Lidar-camera fusion projects with potential research paper publication.

PROJECTS

Master's Thesis Project – Autonomous Robotics *Dec 2024 – Present*

- Leading the design and development of an innovative robotic system integrating advanced actuation and adaptive mechanics for versatile multi-terrain mobility.
- Utilizing AI-driven algorithms and sensor fusion techniques to enable autonomous navigation and environmental mapping in dynamic and challenging environments.
- Designing a cost-effective platform with potential applications in sectors such as search-and-rescue, environmental monitoring, and infrastructure assessment.

PoP-SLAM: Point cloud Projection for SLAM *Sept 2024 – Dec 2024*

- Developed an innovative neural point-based SLAM system with a projection-first rendering strategy, achieving real-time tracking speeds and enhancing computational efficiency.
- Improved tracking accuracy (ATE RMSE ~0.75 cm) and speed (4 FPS), validated through rigorous testing on TUM-RGBD and Replica datasets.
- Designed and optimized a GPU-accelerated neural point cloud framework for efficient 3D mapping and robust performance in synthetic and real-world scenarios.