LINGALA MANISHA

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PROFESSIONAL SUMMARY

AI and Machine Learning researcher with hands-on research experience in robotics, imitation learning, and vision-based AI systems. Skilled in developing real-time AI systems, Large Language Models (LLMs), transformer-based architectures, and deploying AI agents in physical systems. Proven experience in backend AI engineering development for perception, planning, and control in robotics. Passionate about applying artificial intelligence for practical, innovative automation solutions

EXPERIENCE

Robotics Research Engineer (Part-Time) — AI - Robotics, Apr 2025 - Present

- Developed a transformer-based vision AI model for weld defect detection in automotive parts, applying strong problem-solving to improve defect classification accuracy.
- Integrated vision feedback with Yaskawa robots, coordinating with automation engineers, showcasing effective cross-functional communication and team collaboration
- Engineered robust backend AI systems, maintaining high uptime for real-time inspection workflows through creative thinking and deep understanding of automation pipelines
- Delivered project outcomes under tight timelines, demonstrating time management and adaptability in fast-paced industrial environments.

Graduate Researcher

Physical Intelligence Lab, Kyungpook National University — Mar 2024 – Present

- Led development of Vision-Language Action (VLA) models for quadrupedal locomotion, requiring innovative thinking and cross-disciplinary integration of LLMs with robotic control.
- Designed and implemented a vision-guided cucumber harvesting system using YOLOv11 and AGV, showcasing initiative and collaborative teamwork with lab members and hardware vendors.
- Researched LLM-based hierarchical planners and VLA-enhanced robotic motion planners.
- Deployed AI agents for intelligent tissue packing using Action Chunk Transformers.

Research Assistant

Physical Intelligence Lab, Kyungpook National University — Sep 2022 – Feb 2024

- Gained practical skills in control systems, AI, reinforcement learning, and ROS.
- Key Projects:

1. Drone Control with Keyboard interface and also included object detection.
2. Drone Trajectory Tracking: Developed MPC-based control algorithms.
3. Leader-Follower Tracking: Implemented ICLMPC for TurtleBot robots.

EDUCATION

Kyungpook National University — Mar 2024 – Present
Master's in Electronics and Electrical Engineering
CGPA: 4.22 / 4.3
Kyungpook National University — Mar 2022 – Feb 2024
B.Sc. in Electronics Engineering (Double Degree)
CGPA: 3.96 / 4.3
Christ University — Aug 2019 – Dec 2021
B.Tech in Electronics and Communication Engineering
CGPA: 3.94 / 4

CERTIFICATIONS & ACHIEVEMENTS

- Received best thesis award at KNU -EERC event
- Certified researcher - micro1 (July 2025)
- Oral presentation - DLDMP at NodyCon ,NY,USA June-2025
- Embedded systems -Internshala (Jun 2022)
- Introduction to Python programming -Udemy (Nov 2021)
- Matlab Fundamentals -Matlab (Nov 2021)

TECHNICAL SKILLS

Languages: Python, C++, C, HTML, CSS
Platforms & Tools: Linux, ROS, OpenCV, Gazebo, IsaacSim, MATLAB, CUDA
Frameworks: PyTorch, TensorFlow
AI/ML: Deep Learning, Transformers, LLMs, Vision Transformers, MPC, Imitation Learning

PROJECTS

- Behavior Cloning on Franka Robot - Enabled autonomous manipulation on Franka using vision-based behaviour cloning.
- Fuzzy-Based Vehicle Platooning - Implemented fuzzy control for adaptive multi-vehicle platooning.
- Smart Home using Internet of Things (IoT) - Built a sensor-driven home automation system for smart control.

PUBLICATIONS

- "MambaVLA"(Benchmark) - IEEE CCNC (under review), Jul 2025
- "QROOT" - NeurIPS (under review) , May-2025
- "Predictive Action Imitation Learning" - Engineering Applications of AI(under review), Apr 2025
- "Vision-Guided Imitation Learning using ACT" - IEMEK, Nov 2024
- "Imitative Precision"- KNUEERC, Jul 2024