

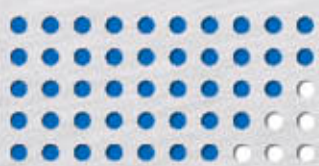


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Physical AI Robot Training Equipment
for Imitation Learning and Reinforcement Learning

PhysicAI Arm



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Homepage



Physical AI Robot Training Equipment
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PhysicAI Arm

Software Specifications

- + Physical AI robot training equipment for imitation learning and reinforcement learning consisting of two 6-axis robot arms, intelligent robot controller, work cell base
- + Enhance mobility and scalability by placing leader robot and follower robot on separate aluminum profile base
- + GUI-based data view labeling replay is possible through monitor · camera · microphone included in leader robot
- + Configure view calibration · AR marker · segmentation · pose estimation pipeline through follower robot and two cameras in follower robot
- + Establish strong grip against lighting · layout change through camera-based vision grasping
- + Support imitation learning and reinforcement learning on both leader and follower robot using intelligent robot controller integrated with ROS 2 open stack
- + Provide model · dataset · toolchain integrated into PyTorch to easily reproduce and share real-world robotics AI
- + Consistently manage teleoperation · dataset standardization · policy learning · evaluation · reproduction in a single framework
- + Support training experiment based on safety training, synthetic data generation, domain randomization through two-way synchronized simulation with real equipment
- + Starting with synchronized multimodal data, validating it on digital twin, and supporting safe learning and deployment on real equipment
- + Generative AI integration is possible, including diffusion policy, VLM/VLA, prompt-based control
- + Provide block pick-and-place examples based on teleoperation data collection and Behavior Cloning
- + Provide digital twin examples based on NVIDIA Isaac Sim

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Embedded Runtime Environment for Application Processor

Openbox with X-Server, Tint2, conky, Oh-My-Zsh, tmux

AI Service

Type A

PyTorch / TensorFlow Lite / ONNX Runtime (Arm Computer Library)
Perception(YOLO), whisper.cpp, llama.cpp, Piper TTS

Type B

PyTorch / TensorFlow / ONNX Runtime (TensorRT)
DeepStream
Perception(PeopleNet/YOLO), VLM Inference, Zero-Shot Detection
Grounding DINO (GDINO), Riva Speech AI Embedded (ASR/TTS)

Middleware and Simulation

ROS2 Humble

NVIDIA Isaac Sim with PhysicAI Arm model

Integrated Development Environment for PC

VSCode, Remote SSH

Real-time log/serial console, package management work-flow

Hardware Specifications

Workcell Base

Size	1200 x 600 x 600 mm		
Leader	Zone	3060/3030 Aluminum Profile, 600 x 600 x 65 mm	
	Angle Architecture	3030 Aluminum Profile, 30 x 300 x 600 mm	
Follower	Zone	3060/3030 Aluminum Profile, 600 x 600 x 65 mm	
Power	220V AC IN / +12V SMPS		

Intelligent Integrated Controller

Arm-Cortex V8 64-bit, 8 GB LPDDR5

Ampere GPU 1024 CUDA cores + 32 Tensor cores

ONNX/CUDA runtime and TensorRT

256 GB Storage

1000 BASE-T Ethernet, 2.4G/5GHz dual-band Wi-Fi, Bluetooth

Leader

Operating System
- 24 inch IPS Display

Servo Driver Board

6-Axis Robotics Arms
- Handler
- Serial Bus Servo Motor:
1x (7.4V) 1:345, 2x (7.4V) 1:191, 3x (7.4V) 1:147 and Encoder

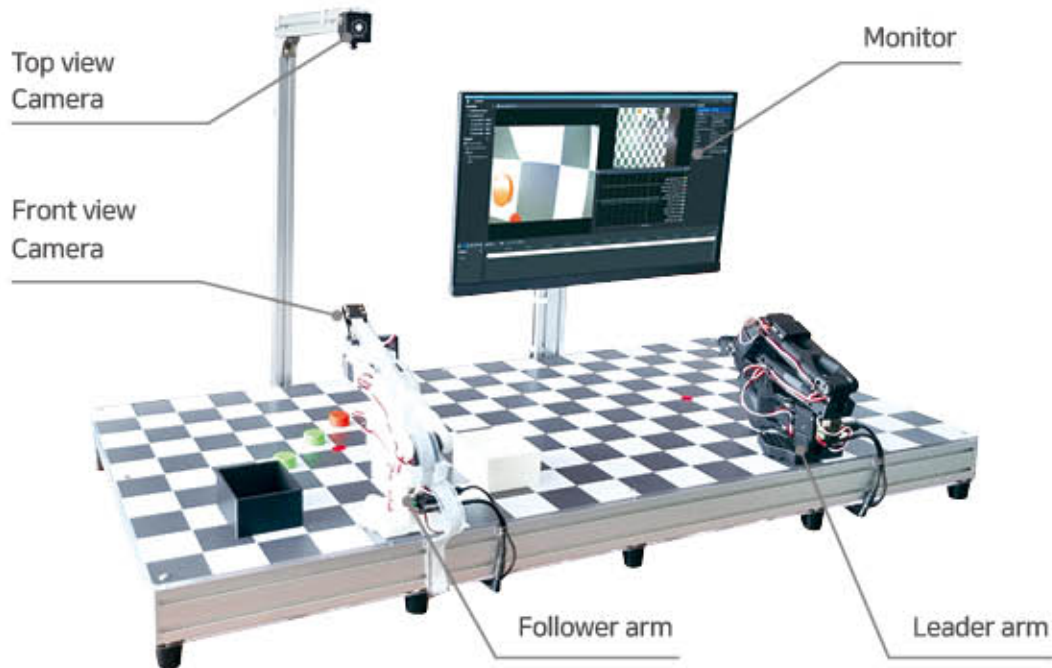
Follower

Camera 2ea
- for motion tracking : 130° 8MP
- for vision-based grasping : 130° 8MP

Servo Driver Board

6-Axis Robotics Arms
- Gripper
- Serial Bus Servo Motor: 6x (12V) 1:345 gear ratio motors for all joints and Encoder

Layout



Training Contents

- Physical AI & PhysicAI-Arm Pipeline Overview
- ROS2 Basic & Interface Standardization
- Vision Pipeline I — Camera Calibration
- Data Collection Strategy & Quality Control
- Behavior Cloning (BC) Baseline
- Model Evaluation & Experiment Management
- Diffusion Policy & Action Smoothing
- Vision Pipeline II — Grasping Core
- Isaac Sim Integration & Digital Twin
- ROS2-based Deployment & Stabilization
- Generative AI Integration

Components



PhysicAI Arm



AC Power Cable



Ethernet Cable



Object 12ea



Object Box 2ea



User Guide

* The above information is subject to change or modification due to product upgrades or other reasons.