Software Survey 2026

Team name

ZJUDancer

Which division(s) are you applying for? If your used software differs between divisions, please fill out the survey once per division.

Small Size (height < 110 cm, weight < 15 kg)

Is your software fully or partially OpenSource? If so, where can it be found?

Fully (2025 version), https://github.com/HighTorque-Robotics/RoboCup_Workspace

Are you using any software developed by other teams? If so, list every component that you are reusing and the team that originally developed it.

No.

Are you using any datasets in your research? If you are using your own datasets, are they public?

We used our own dataset, which is not public.

Please list the scientific publications your team has made since the last application to RoboCup (or if not applicable in the last 2 years).

Our team has not published any scientific papers in the last two years / since the last application.

Are there any other contributions you would like to share with the RoboCup community?

We are going to contribute to the new 3D simulation league, with our Pi+ robot model and open-sourced code.

Which approach are you using to generate the robot walking motion?

We trained a policy using reinforcement learning.

Which approach are you using to generate other motions of the robot (e.g. kicking, standing up)?

By using the BeyondMimic Framework.

Do you have a kinematic or dynamic model of your robot? If so, how did you create it (e.g. measure physical robot, export from CAD model)?

We exported it from the CAD model provided by High Torque Technology.

What approaches are you using in your robot's visual perception?

YoloV8 for RGB detection and PCL library for depth detection.

Are you planning with objects in Cartesian or image space? If you are using Cartesian space, how do you transform between the image space and cartesian space?

Cartesian space. We use the calibrated camera intrinsic and extrinsic parameter matrices to transform the object coordinates from the pixel coordinate system to the Cartesian coordinate system with the robot's foot as the origin.

Do you have some form of active vision (i.e. moving the robots camera based on information known about the world)?

Yes, we use simple proportional control to move the robot's neck in order to keep the ball within the robot's field of view.

What approach are you using to localize your robot?

Particle Filter

Is your team performing team communication? Which communication protocol are you using?

Yes. UDP Broadcasting.

What approach are you using for navigation? Are you avoiding obstacles?

We simply used proportional control to generate velocity for a robot to get to a target place. We are not avoiding obstacles now, but will develop this function before robocup 2026.

How is the behavior of your robots structured? (e.g. Behaviour Trees)

Behavior Trees.

Are you simulating your robot? If so, which simulator are you using and for what purpose do you use simulations?

Yes. We use IsaacLab to train the walking and kicking policies.

What operating system is running on your robot and which middleware are you using (for example Ubuntu 22.04 and ROS2 Galactic)?

Ubuntu 20.04 and ROS1 noetic

Is there anything else you would like to share that did not fit any previous question?

No.