

Software Survey 2025

Team Name

THMOS

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

<https://github.com/MosHumanoid>

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

yes, we measured physical robot and exported from CAD model

Are you using Inverse Kinematics? If so what solution (analytic, (pseudo)inverse jacobian, etc...) are you using?

Inverse Kinematics, Inverse jacobian

Are you simulating your robot? If so what are you using simulation for?

yes, we used Webots to train decision making

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

RL, CPJ

What approach are you using to generate motions for standing up?

RL, CPJ

What approach are you using to generate kicking motions?

RL, CPJ

Do you use any other motions than the previously mentioned? If so, what approaches are you using to generate them?

RL, CPJ

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

we created pictures of playground and balls, they are not public.

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

We use YOLO v5 to detect the football, robots, goal post and the corner points in the field.

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?

image space

How is your robot localizing?

We first use yolo to identify corner points, and then obtain the position information of corner points, and make map matching to estimate our position on the court. Then particle filter is used to fuse the visual odometer information obtained by binocular camera and output the position

Is your robot planning a path for navigation? Is it avoiding obstacles? How is the plan executed by the robot (e.g. dynamic window approach)?

No. No.

How is the behavior of your robot's structured (e.g. Behavior Trees)? What additional approaches are you using?

State Machine.

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

Yes, we let robot to rotate camera to look for ball according to the shared ball location information.

Do you apply some form of filtering on the detected objects (e. g. Kalman filter for ball position)?

No

Is your team performing team communication? Are you using the standard RoboCup Humanoid League protocol? If not, why (e.g. it is missing something you need)?

Yes. yes

Please list contributions your team has made to RoboCup

Our team has participated in the RoboCup Humanoid League (kid-size) for nearly a decade, achieving notable successes and steadily expanding with new members.

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

None

Please list the approaches, hardware designs, or code your team is using which were developed by other teams.

None

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

Ubuntu 22.04 and ROS2 Galactic

Is there anything else you would like to share that did not fit to the previous questions?

No

If you have additional materials you would like to show, please link to them here.

No