

Open Challenge RoboCup 2013

SPQR Team

The SPQR Team will present for the Open Challenge a library, called PTracking, for Multi-Object Tracking using the whole team of NAOs. In particular, we would like to show the robustness to false positives of such library when estimating the movements of the ball in the field (we call this ball, the “official ball”. Indeed, the Open Challenge will consist in having the whole NAO team moving slowly toward the “official ball” using the estimation provided by the PTracking library and not the estimation provided by their Image Processor. During the experiment we incrementally add in a random position in the field some more balls (of course, they can be seen by some of them) showing that all the team will still go toward the “official ball” ignoring the false ones.

In more details, the experiment will be done in this way:

1. **Setup:** Robots start the demonstration in the border of the field facing the center circle. Each robot has a different starting position so that two or more robots cannot start the demonstration in the same place.
2. **First 30 seconds:** the “official ball” will be placed in the center circle and moved for 30 seconds showing that the robots go toward it.
3. **From 31 seconds to 50 seconds:** the “official ball” will not be moved for 20 seconds. A member of the team will place randomly every 5 seconds a second ball in the field for 2 seconds. So the second ball is visible to the NAOs for 2 seconds and after that it will be removed for 3 seconds and placed again in another position in the field for 2 seconds and removed as soon as the time is passed and so on. The behaviour of the whole team is that they should still follow the “official ball”.
4. **From 51 seconds to 70 seconds:** the “official ball” is stopped again for 20 seconds. In this phase two members of the team will add one ball each following the process explained in Step 3.
5. **From 71 seconds to 90 seconds:** the “official ball” is stopped again for 20 seconds. In this phase three members of the team will add one ball each following the process explained in Step 3.
6. **From 91 seconds to the end:** no more false balls will be added and the “official ball” will be moved in order to show that the robots are still following that ball.