

RoboCup

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"Antonio Ruberti"

By 2050, build a team of fully autonomous humanoid which win against human world champion under the official regulation of FIFA

- Mid-size
- 4-Legged
- Small-Size
- Humanoid



RoboCup additional goals

- Rescue
- Junior

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1 of TOT

Can we accomplish the goal?

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1903



1969



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Computer Chess

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ENIAC
1946



Deep Blue
1997



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RoboCup-97 Nagoya

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35 teams from 12 countries



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RoboCups

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- 98 Paris
- 99 Stockholm
- 00 Melbourne
- 01 Seattle
- 02 Fukuoka
- 03 Padova
- 04 Lisbon
- 05 Osaka
- 06 Bremen

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Mid-size

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- Information on the game acquired through on board sensors
- Communication based coordination (but very unreliable)
- Typically distributed
- Cooperative localization
- Task assignment (very dynamic)



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4-Legged

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Same assumptions as in Mid-size

- larger uncertainty on perception
- slower motion

Action synchronization: the "pass"



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Small-size

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Small and very fast robots

Global vision system

Typically controlled by a remote host (centralized)

Action synchronization

Learning the opponent model

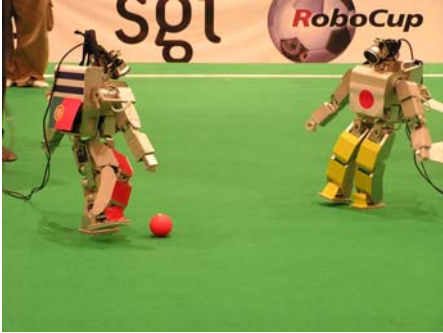


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Humanoid

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Soccer Simulation

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RoboCup Rescue

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Up to now single robot

Cooperative localization
and mapping

Action synchronization
(resource sharing)

Task assignment
(exploration)

MRS in rescue robot
requires autonomy



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RoboCup Rescue Simulation

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3D viewer by Shinjoh & Yoshida

2D log viewer by Kuwata

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RoboCup Jr.

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ART Azzurra Robot Team

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SPQR Soccer Player Quadruped Robot

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