RoboCup 2007
Atlanta

Middle Size Robot League

League development since 1997

- from wall boundaries to regular lines  \(\rightarrow\) ball control and restart strategies
- from manual start/stop to automatic start/stop  \(\rightarrow\) referee box, localization, strategies
- from fixed pre-defined, artificial light to natural light  \(\rightarrow\) robust color classification
- from the possibility to score goals by just kicking to the requirement of passing the ball before scoring  \(\rightarrow\) cooperation
- from robot speed of 0.5 cm/sec up to 4 m/sec \(\rightarrow\) more precise movement control and localization
- from ball speed of 1 m/sec up to 11 m/sec \(\rightarrow\) more precise ball control and positioning
- from flat kicks to flying balls \(\rightarrow\) better image understanding (by goalies...)
- from 5m x 8m field to 12m x 18m one \(\rightarrow\) high resolution image processing and higher opportunity of cooperative behaviors

Recent scientific challenges

- ball-passing and receiving
- strategic positioning at restart
- dribbling among fixed obstacles in unknown disposition
- colour classification in temporally and spatially different light conditions
- coordination and localization (ball passing, team choreography)
- independence from colors outside the field
- teams from different universities: organization and cooperation
- playing with arbitrary goals and arbitrary balls
- understanding sound and visual signals from a referee

Plans for the next future

- play with 7 robots, in a larger field with any flat surface (not carpet) and possibly larger goals (indoor soccer field) (2008-2010)
- play without colored goals (nets in the doors) (2008-2009)
- change corner posts to flagposts as in human soccer (2008)
- reduce network bandwidth to a minimum (2009)
- play without a RED ball but with ANY ball prescribed by FIFA (2010)
- obey to commands not issued by wifi, but by perceiving whistle sound (2009) and gestures (2012)

Further steps to reach the final goal of 2050

- eliminate wifi
- go outside
- fulfill requirements from human teams (would they play against robots?)