

Robots vie for World Cup glory in Singapore

June 30 2010, by Philip Lim



Spectators watch the RoboCup 2010, an international robotics tournament in Singapore, on June 24. Aside from the technical aspects, football was also picked by the RoboCup Federation due to its universal popularity, which could help raise awareness and interest in robotics, he added.

As World Cup action heated up in South Africa, Pele was making his own piece of football history in Singapore.

Slicing the ball past the goalkeeper in the dying seconds of the match, Pele scored the match-winning goal in the finals of RoboCup 2010, an annual international robotics tournament.

The legendary Brazilian soccer maestro was represented by a humanoid-shaped silver Robo-Pele, the National University of Singapore (NUS) entry into the competition where automatons instead of human players vie for footballing glory.

Organised by the Swiss-based robotics initiative RoboCup Federation, a non-profit group, the June 19-25 tournament was held in Singapore for the first time since its inception in 1997. Istanbul will host the event next year.

Organisers hope the yearly tournament will advance [artificial intelligence](#) and robotics research.

"Soccer is the best game to really show the mental, physical and many, many skills. Its not just mental skills, there's physical, mental, teamwork," said Zhou Changjiu, chairman of RoboCup's Singapore chapter.

Aside from the technical aspects, football was also picked by the [RoboCup](#) Federation due to its universal popularity, which could help raise awareness and interest in robotics, he added.

"From the way we promote science and technology, soccer is very attractive. It's very attractive everywhere, everyone wants to watch soccer right? I think that's the best way to reach out."

The Singapore tournament featured everything from pint-sized androids to 1.3 metre tall robots pitting their skills on the pitch.

More than 500 teams, including those from the Massachusetts Institute of Technology and Harvard University, from 43 countries had their mechanical constructs duke it out in various, size-differentiated leagues.

"Our team is called RO-PE," said NUS mechanical engineering lecturer Chew Chee-Meng, who is the champion team's mentor.

"There are two meanings for this team name. One is Robot for Personal Entertainment, and the other meaning is Robot-Pele. So you know who

we are trying to model after right?" he said with a grin.

Robo-Pele certainly lived up to the football legend, sweeping past robots fielded by Holland's Eindhoven University of Technology as well as US-based Virginia Tech in the group stages before edging Singapore Polytechnic in the finals.

"Forget South Africa, the other [World Cup](#) is happening in Singapore," said Robocup's organisers, as audiences gaped at matches featuring the latest in cutting edge technology rather than the likes of Portugal's Cristiano Ronaldo and Argentinian star Lionel Messi.

However, certain aspects of the game had to be tweaked to accommodate the technological limitations and high cost of developing the robots.

Although the primary objective is still to score more goals than the opposition, teams field two to five robots a side, matches last no longer than 40 minutes and the largest pitch measures just 18 metres by 12 metres (59.4 feet by 39.6 feet).

But placing a robot onto the pitch was no child's play, said Carlos Antonio Acosta Calderon, team mentor of Singapore Polytechnic's team Robo-Erectus Senior, which lost to Team RO-PE in the final match.

"Robotics is a multidisciplinary area... you need different people from different backgrounds with different expertise," he said, adding that mechanical, electronic and computer engineers were involved in creating his team's two robots.

Team RO-PE's Chew also said that Pele's mechanical namesake cost more than 100,000 Singapore dollars (72,000 US) to create, and team members had to programme algorithms for simple tasks such as walking and looking around before it could play in what Pele once described as

the 'beautiful game'.

Despite the financial costs and exhaustive effort required in building and programming a robot, Zhou says the future looks bright.

"I can see in 20 years, every home should have a [robot](#), just like what we have now for PCs (personal computers)," he said.

Zhou is even more bullish on the prospects of robotic soccer teams.

"Our dream is by 2050, to have a team of robots to compete with the World Cup champions," he said.

More information: www.robocup2010.org

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