

# RoboCup-99 Stockholm



July 27 - August 6, 1999

## Introduction

The Third Robot World Cup Soccer Games and Conferences, RoboCup-99 Stockholm, will be held July 27 - August 6, 1999 at the Stockholm City Conference Center, Stockholm, Sweden. RoboCup-99 Stockholm will be co-located with the Sixteenth International Conference on Artificial Intelligence (IJCAI-99)

The Robot World Cup, RoboCup, is an international initiative to foster AI and intelligent robotics research by providing a standard problem, a soccer game, where a wide range of technologies can be integrated and examined. This is the third RoboCup event. The first Robot World Cup, RoboCup-97, was held in Nagoya, Japan, in August 1997, and included the participation of more than 40 teams. The second Robot World Cup, RoboCup-98, was held in Paris, in July 98, and more than 60 teams participated. In order for a team of robot agents to actually play a soccer game, different technologies must be incorporated, including design principles of autonomous agents, multi-agent collaboration, strategy acquisition, real-time reasoning, sensor-fusion, and learning. RoboCup is a task for a team of multiple fast-moving robot agents in a dynamic, nondeterministic, and adversarial environment.

## Leagues

- **Real Robot Small Size League (F180):** Teams of up to five real robots of small size (approximately 15 cm in diameter) compete on a 1.525 \* 2.74 m field.
- **Real Robot Middle Size League (F2000):** Teams of up to five real robots of medium size (approximately 50cm in diameter) compete on a 4.575 \* 8.22 m field
- **Simulation League:** Software agents play soccer using the RoboCup soccer server simulator, available from the RoboCup Web page The RoboCup Simulator League is a part of IJCAI's official Challenge Paper Program,

where successful results can be reported at IJCAI-99, Stockholm, Sweden.

- **Sony Legged Robot League:** Teams of up to three Sony legged robots.

# The competition is open to the public!



Opening time: 10 : 00 - 18 : 00 every day, except the 1st of August.

Free entrance

Round robin (July 29 - July 31 ):

RoboCup-99 Stockholm, will be held in two localities during the round robin:

- Small size leagues (F180) : at Electrum (in Kista, north of Stockholm
- Middle size leagues (F2000) reachable by underground from central Stockholm)
- Simulation league : at the Stockholm City Conference Center
- Sony leggedrobot league (near Stockholm central station).

Finals (August 2 - August 4) :

- The quarter finals,
- semifinals, and : at the Stockholm City Conference Center
- finals of all leagues (near Stockholm central station).

Attention !: there is no competition the 1st of August!

# RoboCup-99 General Schedule

Date	Small size League (F180)	Middle size League (F2000)	Simulation League	SONY Legged Robot League
7/27, Tue.		Set-up	Set-up	Set-up, Practice
7/28, Wed.		Round Robin	Set-up	Set-up, Practice
7/29, Thu.	Round Robin	Round Robin	Round Robin	Set-up, Practice
7/30, Fri.	Round Robin	Round Robin, Wild card Game	Round Robin	Round Robin
7/31, Sat.	Round Robin RoboCup Workshop	RoboCup Workshop ( No Games)	Round Robin	Round Robin
8/1, Sun.	RoboCup Workshop ( No Games)	RoboCup Workshop ( No Games)	RoboCup Workshop ( No Games)	RoboCup Workshop ( No Games)
8/2, Mon.	Finals	Evaluation	Elimination Round	Round Robin Extra chance by RoboCup Challenge
8/3, Tue.	Finals	Quarterfinal Game	Semi-finals	Semi-final Game 3rd-place Game Sony Night
8/4, Wed.	Final	Semi-Final Game 3rd-place Game Final	Finals	Final
8/5, Thu.		Post-Conference Meeting		Wrap-up Meeting Post Workshop
8/6, Fri.				

# Teams selected to participate to the competition

## Small Size League (F180)

**CMUnited-99**: Carnegie Mellon University (Manuela Veloso, et al.)

**5dpo** : Faculdade de Engenharia da Universidade do Porto - FEUP (Paulo Costa, et al.)

**Linked99** : Yugen Club (Junichi Akita, et al.)

**FutBOT III** : Universidad Simon Bolivar (Jose Ramirez, et al.)

**Lucky Star or IC3** : Ngee Ann Polytechnic (Yong Fook Seng, et al.)

**Dynamo** : Faculty of Mechanical Engineering, TU-Ilmenau, Germany (Thorsten Roellich, et al.)

**VUB AI-lab team** : Artificial Intelligence Lab, Vrije Universiteit Brussel (Andreas Birk, et al.)

**Owari-bitos** : Chubu University & Aichi Prefectural University (Tomoichi Takahashi, et al.)

**JSTAR99** : (Yuki NAKAGAWA, et al.)

**Rogi 2 Team** University of Girona & LEA-SICA: (Josep Lluís de la Rosa, et al.)

**FU-Fighters** : Free University of Berlin (Sven Behnke, et al.)

**Big Red** : Cornell University (Raffaello D'Andrea, et al.)

**UQ RoboRoos** : University of Queensland (Gordon Wyeth, et al.)

**All Botz** : University of Auckland (Jacky Baltes, et al.)

**TPots** : Temasek Polytechnic, Singapore (G. Sreedharan, et al.)

**Robotis**: HumanInterface Inc. & Korea Univ. (In-Yong Ha, et al.)

**MICROB III**: Université Paris 6 - LIP6 (Mabrouk Belhout, et al.)

**Crimson** : Automatic Control Lab. Department of Electrical Eng. Korea Univ. Seoul, Korea (Byoung-Ju Lee, et al.)

**SingPoly**: Singapore Polytechnic (Honglian, Sng, et al.)

## **Middle Size League (F2000)**

**Raiders** : RMIT (Lin Padgham, et al.)

**AGILO RoboCuppers** : Munich University of Technology (TU Muenchen) (Thorsten Schmitt, et al.)

**ISocRob** : Instituto de Sistemas e Robotica - IST (Pedro U. Lima, et al.)

**Attempto!** : University of Tuebingen, Germany (Andreas Zell, et al.)

**The Ulm Sparrows** : University of Ulm (Gerhard Kraetzschmar, et al.)

**CS Freiburg** : Albert-Ludwigs-Univ. Freiburg (Bernhard Nebel, et al.)

**USC/Dreamteam** : Information Sciences Institute (Wei-Min Shen, et al.)

**Alpha ++** : Ngee Ann Polytechnic (Yong Fook Seng, et al.)

**CS Sharif Univ.** : Dept.of Comp.Eng, Sharif Univ of Technology (M.Jamzad, et al.)

**ART - Azzurra Robot Team** : RoboCup Italia (Daniele Nardi, et al.)

**Stuttgart CoPS** : University of Stuttgart, IPVR (N. Oswald, et al.)

**Matto**: Kanazawa Institute of Technology (Kosei Demura, et al.)

**GMD Robots**: GMD German National Research Center for Information Technology (Joerg Wilberg, et al.)

**Trackies** : Osaka University (Sho'ji SUZUKI, et al.)

**KIRC**: Kyushu Institute of Technology (Masato Fukuda, et al.)

**Dutch Team**: 4 collaborating Dutch Universities: UvA, VU, TUD, UU (Frans Groen, UvA, et al.)

**Real MagiCol** : Universidad del Valle (Colombia) - Universit • d'Evry Val d'Essonne (France) (Adolfo Suarez, et al.)

**Patriarcas** : University of Minho (Fernando Ribeiro, et al.)

**RoboCup-NAIST99**: Nara Institute of Science and Technology (Takayuki Nakamura, et al.)

**5dpo-2000** : Faculdade de Engenharia da Universidade do Porto - FEUP (Paulo Costa, et al.)

**Wheelwright's Antinomians** : Yale University (Christopher Cantor, et al.)

**SP-Sting Wisely** : Singapore Polytechnic (Honglian, Sng, et al.)

## Simulation League

**AT-Humboldt 99:** Humboldt University of Berlin, Germany (Hans-Dieter Burkhard, et al.)

**Headless Chickens III:** Linköping University, Sweden (Paul Scerri, et al.)

**Mainz Rolling Brains :** Institut fuer Informatik Johannes Gutenberg-Universitaet (Daniel Polani, et al.)

**UBU :** DSV, Stockholm Univ/Royal Inst of Techn (Magnus Boman, et al.)

**The Ulm Sparrows :** University of Ulm (Gerhard Kraetzschmar, et al.)

**magnumFreiburg :** Albert-Ludwigs-University Freiburg (Klaus Dorer, et al.)

**RoboLog Koblenz :** Uni Koblenz (Frieder Stolzenburg, et al.)

**Karlsruhe Brainstormers :** University of Karlsruhe (Martin Riedmiller, et al.)

**KULRoT :** University of Leuven (Kurt Driessens, et al.)

**FCFoo:** LiTH Sweden (Fredrik Heintz, et al.)

**CMUnited-99 :** Carnegie Mellon University (Peter Stone, et al.)

**Cyberoos'99 :** CSIRO Mathematical and Information Sciences (Mikhail Prokopenko, et al.)

**Oulu99 :** University of Oulu, Oulu, Finland (Jukka Riekkii, et al.)

**Essex Wizards :** University of Essex, UK (Huosheng Hu, et al.)

**Kasuga-bitos III :** Chubu University (Tomoichi Takahashi, et al.)

**Kappa-II :** ETL (Itsuki Noda, et al.)

**Rogi 2 Team** University of Girona & LEA-SICA: (Josep Lluís de la Rosa, et al.)

**ERIKA :** Information and Computer Science, Waseda Univ., Japan (Takeshi Matsumura)

**TU-Cluj'99 :** Technical University of Cluj-Napoca (Ioan Alfred Letia, et al.)

**Zeng99 :** Fukui University (Tomomi Kawarabayashi, et al.)

**Sibiu Team:** Lucian Blaga University of Sibiu Romania (Daniel Volovici, et al.)

**UvA Team :** University of Amsterdam (Emiel Corten, UvA , et al.)

**AIACS:** private entry (Jan Lubbers, et al.)

**PaSo-Team 99 :** The University of Padua (Italy) (Enrico Pagello, et al.)

**Pardis :** Amir Kabir University of Technology (Shahriar PourAzin, et al.)

**PSI :** Artificial Intelligence Research Center of Program Systems Institute of Russian Academy of Science (Alexei P. Lisitsa, et al.)

**Gongeroos'99 :** University of Wollongong (Aditya Ghose, et al.)

**KU-Sakura2:** Kinki University(Japan) (Harukazu Igarashi, et al.)

**NITStones :** Nagoya Institute of Technology (Kouichi Nakagawa, et al.)

**IALP :** Dipartimento di Informatica, Universit • di Pisa (Maria Simi, et al.)

**Footux-99 :** GREYC University of Caen FRANCE (Serge Stinckwich, et al.)

**11monkeys :** Keio University, Japan (Shuhei Kinoshita, et al.)

**SMACkers99** : I.R.I.T. (Baptiste Pesquet, et al.)

**SP-United** : Singapore Polytechnic (Mdm Voon Ching Choo , et al.)

**YowAI** : The University of Electro-Communications (Takashi Suzuki, et al.)

**Gemini** : Tokyo Institute of Technology (Masayuki Ohta, et al.)

**Polytech100** : Russia , Saint-Petersburg State Technical University , Dep. Of Technical Cybernetics  
(Leo .A. Stankevich, et al.)

## **SONY Legged Robot League**

Carnegie Mellon University : (Manuela M. Veloso, et al)

University of Pennsylvania : (Jim Ostrowski, et al.)

McGill University : (Gregory Dudek, et al.)

The University of New South Wales : (Graham Mann, et al.)

Stockholm University & The Royal Institute of Technology Electrum 230: (Magnus Boman, et al.)

Institute of Informatics Humboldt University Berlin : (Hans-Dieter Burkhard, et al.)

Laboratoire de Robotique de PARIS : (Dominique Duhaut, et al.)

University of Tokyo : (Tamio Arai, et al.)

Osaka University : (Minoru Asada, et al.)

### **Commentators**

MIKE (Electro Technical Laboratory)

### **Soccer Automated Assistant Coach**

**ISAAC** : Information Sciences Institute (ISI) (Taylor Raines, et al.)

# Tournament Info for RoboCup-99 Small Size (F-180)League !

## Group Assignments for Round-Robin Preliminaries

### Group A

5dpo, Faculdade de Engenharia da Universidade do Porto (Portugal)  
All Botz, University of Auckland (New Zealand)  
BigRed, Cornell (USA)  
Robotis (Korea)

### Group B

CMUnited-99, Carnegie Mellon University (USA)  
VUB, Artificial Intel Lab, Vrije Universiteit Brussel (Belgium)  
Rogi2, University of Girona & LEA-SICA (Spain)  
Linked99, Yugen Club (Japan)  
TPots, Temasek Polytechnic (Singapore)

### Group C

RoboRoos, Queensland (Australia)  
Dynamo, Ilmenau Faculty of Mech Eng, TU-Ilmenau (Germany)  
Crimson, Korea University (Korea)  
SingPoly, Singapore Polytechnic (Singapore)  
Owari-bitto, Chubu University & Aichi Pref University (Japan)

### Group D

J-Star99, Kitano Symbiotic Systems Project (Japan)  
FuFighters, Free University of Berlin (Germany)  
microb3, LIP6 (France)  
LuckStar, Ngee Ann Polytechnic (Singapore)

# Tournament Info for RoboCup-99 Middle Size(F-2000) Robot League!

## Group Assignments for Round Robin Preliminaries

Team-#	Group A	Group B	Group C
1	<b>CS Freiburg</b> (U Freiburg)	<b>Attempto!</b> (U Tuebingen)	<b>Trackies</b> (Osaka U)
2	<b>ISocRob</b> (U Lisboa)	<b>Raiders</b> (RMIT)	<b>ART Azzurra Robot Team</b> (Italian Consortium)
3	<b>RoboCup-NAIST99</b> (Nara U)	<b>The Ulm Sparrows</b> (U Ulm)	<b>Agilo RoboCuppers</b> (TU Munich)
4	<b>GMD Robots</b> (GMD)	<b>Real MagiCol</b> (LaMI + U Paris XII)	<b>USC Dreamteam</b> (USC)
5	<b>Dutch Team</b> (Dutch Consortium)	<b>5dpo-2000</b> (U Porto)	<b>Sharif CE</b> (Sharif U)
6	<b>KIRC</b> (Kyushu IT)	<b>Matto</b> (Kanazawa IT)	<b>CoPS Stuttgart</b> (U Stuttgart)
7	<b>Wisely</b> (Singapore Polytechnic)	<b>Alpha++</b> (Ngee Ann Polytechnic)	<b>Patriarcas</b> (U Minho)

# **Tournament Info for RoboCup-99 Simulation League !**

## **Group Assignments and Competition Phases**

### **1. Assignment of teams to groups**

The teams will be broken into 8 groups: A-H. There will be one ceded team (a team that has done well in the past) in each group. The remaining teams will be distributed semi-randomly, but with some consideration for distributing platform requirements evenly among groups and for creating groups with teams from different parts of the world. Some groups will have 4 teams and some will have 5. We will announce the teams in each group once we have heard from everyone regarding their preferred hardware platforms.

### **2. Competition phases**

There will be 2 competition phases :

First a round-robin in which each team plays each other team in its group (3 or 4 games per team). Teams will be ranked based on 3 points for a win, 1 point for a tie, no points for a loss. The tiebreakers will be goal differential (goals for - goals against), goals scored, and coin toss in that order. A forfeit will count as a 2-0 win.

Second, the top 2 teams from each group (16 total) will compete in a standard double-elimination tournament. Any team that loses two games in this round is eliminated. Whichever team is left wins the competition.

# Tournament Info for RoboCup-99 Simulation League!

## Group Assignments for Round Robin Preliminaries

### Group

A	CMUnited99 The Ulm Sparrows Headless Chickens III Zeng99 Dash	Carnegie Mellon University University of Ulm Linköping University, Sweden Fukui University
B	11 Monkeys Sibiu Team FCFoo Pardis Gongeroots	Keio University, Japan Lucian Blaga University of Sibiu Romania LiTH Sweden Amir Kabir University of Technology University of Wollongong
C	Mainz Rolling Brains IALP RoboLoa Koblenz ERIKA Polytech100	Institut fuer Informatik Johannes Gutenberg-Universitaet Dipartimento di Informatica, Universit · di Pisa Uni Koblenz Information and Computer Science, Waseda Univ., Japan Saint-Petersburg State Technical University ,Russia
D	Gemini Footux-99 UBU Kasuga-bito III	Tokyo Institute of Technology GREYC University of Caen FRANCE DSV, Stockholm Univ/Royal Inst of Techn Chubu University, Japan
E	AT Humboldt 99 Paso-Team AIACS NITStones99 magmaFreiburg	Humboldt University of Berlin, Germany The University of Padua private entry Nagoya Institute of Technology Albert-Ludwigs-University Freiburg
F	CMUnited-98 Essex_Wizards Karlsruhe Brainstormers SP-United Cyberoots	Carnegie Mellon University University of Essex, UK University of Karlsruhe Singapore Polytechnic CSIRO Mathematical and Information Sciences
G	UvA-Team KULRoT SMACKers99 YowAI	University of Amsterdam University of Leuven I.R.I.T The University of Electro-Communications
H	Oulu99 PSI Team  Rogi 2 Soft Team KU-Sakura-2 Kappa-II	University of Oulu, Oulu, Finland Artificial Intelligence Research Center of Program Systems Institute of Russian Academy of Science University of Girona & LEA-SICA Kinki University, Japan ETL

## **The RoboCup Federation --- The Robot World Cup Initiative**

RoboCup, The Robot World Cup Initiative, was launched to promote state-of-the-art in robotics and AI research, as well as providing a platform for integrated project-oriented education. It has encouraged international joint projects involving over 35 countries and thousands of researchers. While RoboCup Federation (established in Bern, Switzerland, as a non-profit organization, with operational headquarter in Tokyo, Japan) itself does not have a research group of its own, each of the participant laboratories and corporations advance toward the common goal. The main function of the RoboCup Federation is to organize annual conferences and competitions, and to foster technical exchange among researchers.

One of the effective ways to promote engineering research, apart from specific application developments, is to set a significant long term goal. When significant social impact is achieved by accomplishing such a goal, the goal is referred to as a grand challenge project. Building a robot to play soccer itself does not generate significant social and economic impact, but the accomplishment will certainly be considered a major achievement in the field. We call this kind of project a landmark project. RoboCup is a landmark project .

Our ultimate goal is:

By the mid-21st century, a team of fully autonomous humanoid robot soccer players shall win a game of soccer, complying with the official rules of the FIFA, against the winner of the most recent World Cup.

This goal may sound overly ambitious given the state-of-the-art technology today. Nevertheless, we believe it is important that such a long term goal is to be claimed and identified and pursued. It took only 50 years from the Wright Brother's first aircraft flight to Apollo mission to send man to the moon and safely return them to earth. Also, it took only 50 years, from the invention of the digital computer to the Deep Blue, which beat a human champion at chess. We recognize, however, that building humanoid soccer players requires an equally long period and extensive efforts of a broad range of researchers, and the goal will not be met in the near future. Nevertheless, we believe the goal should be pursued, and we have identified this as the RoboCup challenge. In order to accomplish the mission, a broad range of technologies has to be developed and we believe they will be applied to various social and industrial applications.

## Future RoboCup

RoboCup-2000 Melbourne, August 2000

RoboCup-2001 Seattle (tentative), late August, 2001.

In conjunction with International Joint Conference on Artificial Intelligence (IJCAI-2001)

RoboCup-2002 Japan (city to be announced)

Coincidentally with FIFA World Cup 2002 Korea-Japan

Other RoboCup events will be announced soon.

Please visit

**<http://www.robocup.org/>**  
for up-to-date information.

For further detail, please do not hesitate to contact followings;

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