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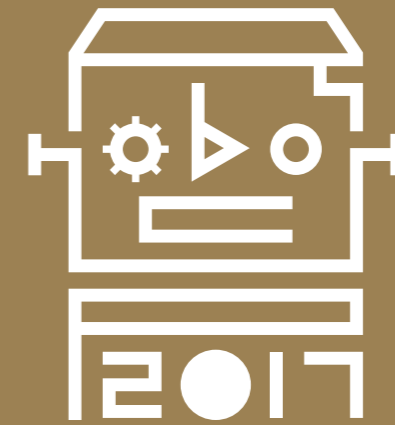


Save the Date
Next RoboCup will be held in Montréal, Canada!
RoboCup Montréal 2018
Palais des congrès de Montréal, Canada
June 15 - 22, 2018



The RoboCup 2017 Nagoya Local Organizing Committee
1-1, Sannomaru 3-chome, Naka-ku, Nagoya 460-8508 JAPAN
Mail: info@robocup2017.org URL: https://www.robocup2017.org

For RoboCuppers!



RoboCup 2017
Nagoya Japan

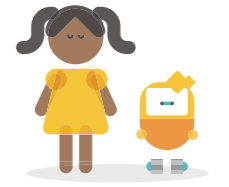
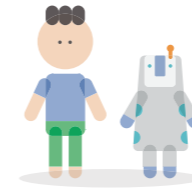
Competition
July 27 to July 30
Symposium
July 31

Participants Booklet



KOOV

Play. Code. Create



Drive with Toyota into the future.

Nature is not ours to create—
Even today's prodigious civilization was not built by us alone;
We owe all we have today to what the past has given us.

To manage and build on this capital and pass it on to our children and their future—
is this not the role we are called on to play?

TOYOTA contributes in many ways—
to the environment, traffic safety, education, culture, community care, and to actively
supporting the voluntary hands-on activities of our employees.

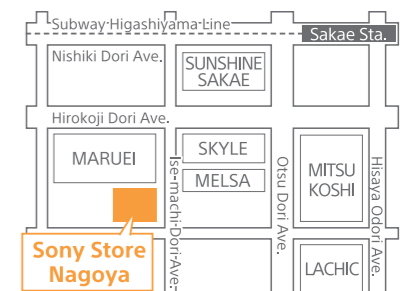
As a global citizen in Japan and around the world
we are committed to sustaining and enriching society.

Sony Store Nagoya

Address: CentRise SAKAE, 3-3-21, SAKAE, NAKA-KU, NAGOYA, AICHI
Open-Close: 11:00-19:00

sony.jp/store/ret-n/

These are Japanese domestic models.



Contents

- 3 Welcome Message**
President of RoboCup Federation / Chairman, RoboCup 2017 / Governor, Aichi Prefecture
- 6 Introduction to RoboCup 2017**
Overview of RoboCup 2017
- 8 Leagues of RoboCup**
RoboCupSoccer / RoboCupRescue / RoboCup@Home / RoboCupIndustrial / RoboCupJunior
- 10 Competition League Finals**
Semifinals / Finals
- 12 Venue**
Portmesse Nagoya / Takeda Teva Ocean Arena
- 18 Symposium**
Overview of RoboCup Symposium 2017 / Program / Keynote Speakers / Co-Chairs
- 22 Related and Co-located Events**
Various Related and Co-located Events
- 24 Amazon Robotics Challenge**
Schedule
- 26 Robot Technology and Industry Exhibition**
Exhibitor's Information
- 30 Social Events**
Ceremonies and Parties
- 31 General Information**
Various General Information / Emergency Call
- 32 Area Information**
Sightseeing around Nagoya / Traffic Access
- 60 Federation and Local Organization**
The RoboCup Federation / The RoboCup 2017 Nagoya Executive Working Committee

Dear RoboCuppers, welcome to RoboCup 2017 Nagoya!



As many one know, Nagoya is the place that RoboCup was born. In 1997, the first RoboCup was held here as a small side event of IJCAI-97. In that time, the performance of our robots were low-level. And, we come back to the birthplace after 20 years' travel around the world. I anticipate that people will be surprised by improvements of this 20 years of robotics and artificial intelligence.

However, we are still on a long way to our 2050's goal, "to develop a team of fully autonomous humanoid robot soccer players shall win a soccer game". Toward this goal, we are introducing new big challenges continuously. For this year, we introduce two standard platform leagues in RoboCup@Home, which will push to establish the way of software developments of home robotics. We also keep to extend outdoor challenge started last year, which will enhance robustness of robotics under uncontrolled environments. Of course, other leagues also have various new challenges and revisions of regulations to encourage researches toward our final goal. We also introduce new collaboration between junior and major, which will build a bridge from children to talented young researchers for future development of RoboCup.

Researches of AI and robotics are accelerating. Recent progress on artificial intelligence will make robotics be applied to wider domains. Many companies in various industrial domains want to introduce these new technologies in their business. Also, several governments try to promote these researches for future developments.

RoboCup will keep its position as a hub of these research activities by all of your researches and performances of your robots. I expect your best performance in Nagoya.

Dr. Itsuki Noda
President of RoboCup Federation

Dear Participants,



On behalf of the Organizing Committee, I cordially welcome you to RoboCup 2017 Nagoya Japan. RoboCup's history began in Nagoya in 1997 when it hosted the first RoboCup games. Since then, RoboCup has been held around the world, its scope and variety of games greatly expanding to become one of the largest robot games competitions in the world. Approximately 3,000 students and scientists participate from around 40 countries and regions. I am overjoyed that for the first time in 20 years, RoboCup will again be held in Nagoya, its birthplace.

Nagoya is a metropolis located roughly in the center of Japan, and is a hub of manufacturing craftsmanship. The roots of Nagoya's passionate craftsmanship culture date back to the 17th century, when Nagoya Castle was constructed. Artisans gifted in both aesthetic and technical skill gathered and competed in Nagoya's castle town, crafting elaborate Japanese clocks and mechanical dolls. The spirit and technique of the passionate craftsmanship cultivated in those times has been passed down into this region's automobile, aerospace, robot, and other fields, supporting development of Japan's industry. Today, Aichi Prefecture—which includes Nagoya—boasts the number one shipment value of industrial products such as robots in Japan.

Through this history, the spirit of passionate craftsmanship has flowed through the people of Nagoya for hundreds of years, who today are highly interested in robots. The people of Nagoya will without a doubt encourage and support you in their competitions.

Nagoya is not only a city of passionate craftsmanship, but has produced many famous feudal military commanders, and is a "Sanctuary of the Samurai." Nagoya has exciting sightseeing spots like Nagoya Castle and LEGOLAND®, and delicious local cuisine known as *Nagoya Meshi*. I implore you to tour Nagoya and enjoy the city for yourself.

It is my utmost desire that this competition becomes an invaluable experience for you.

Takashi Kawamura
Chairman, RoboCup 2017
Mayor, City of Nagoya

Dear Participants,



I offer my heartfelt welcome to all of the participants and officials who have come to Aichi for RoboCup 2017.

Since the first world championship was held in Aichi-Nagoya in 1997, RoboCup has developed into the largest autonomous robot competition in the world. This would not have been possible without the devotion and hard work of the participants, officials, and all others involved. I would like to express my sincere respect for their efforts, as well as my

deepest gratitude for the competition being held here in Aichi once again after 20 years.

The use of robotics and artificial intelligence is anticipated in providing solutions in today's bustling and changing social environment. Aichi is the number one industrial prefecture in Japan, being the center of the automobile, aerospace, and robotics industries, with many businesses and universities engaged in their research and development (R&D). In working toward the goal of developing Aichi as a worldwide hub in the robotics industry, these businesses and universities have organized the Aichi Robot Industry Promotion Council, in which industrial, academic, and government bodies work together to promote the development and spread of robotics.

During the same year as the 2020 Tokyo Olympic and Paralympic Games, the World Robot Summit will be held in Aichi. By holding robot competitions and showcasing newer robots, this summit will strive to accelerate the implementation and R&D of robot use in our daily lives, in society, and in industry. It would give me great pleasure to have everyone participating in RoboCup also attend the World Robot Summit and further your R&D in robotics.

I look forward to each of the participants pitting their wits and hard work against each other during the four days of competitions at RoboCup. I hope that the participants from around the world will network with each other as well as with the exhibiting businesses.

I would like to extend my best wishes for RoboCup 2017 to be a most rewarding experience for everyone involved.

Hideaki Ohmura
Governor, Aichi Prefecture

Introduction to RoboCup 2017

The RoboCup is an international competition based on autonomous mobile robots, which strives for the merger and development of robotics and artificial intelligence.

Setting its target as building a team of humanoid robots that will beat the World Cup soccer champion team by 2050, RoboCup aims to facilitate progress in research on robotics, artificial intelligence and other related areas, and it disseminate the results as fundamental technologies for a wide variety of fields.

Since the first RoboCup was held in Nagoya in 1997, the event has taken place in different countries around the world. Currently, as the world's largest competition involving autonomous mobile robots, the event attracts approximately 3,000 researchers and students from about 40 countries across the world. In Japan, the event was held in Fukuoka in 2002 and in Osaka in 2005, attracting more than 100,000 visitors each time.

Contents of RoboCup 2017

Competition

RoboCupSoccer

Humanoid
Standard Platform
Middle Size
Small Size
Simulation

RoboCupRescue

Robot
Simulation
Rapidly Manufactured Robot Competition

RoboCup@Home

Open Platform
Domestic Standard Platform
Social Standard Platform

RoboCupIndustrial

@Work
Logistics

RoboCupJunior

Soccer
OnStage
Rescue

Symposium

Related Events

Robot Park
Kids Workshop
World Robotics x AI Seminar
Robot Technology & Industry Exhibition

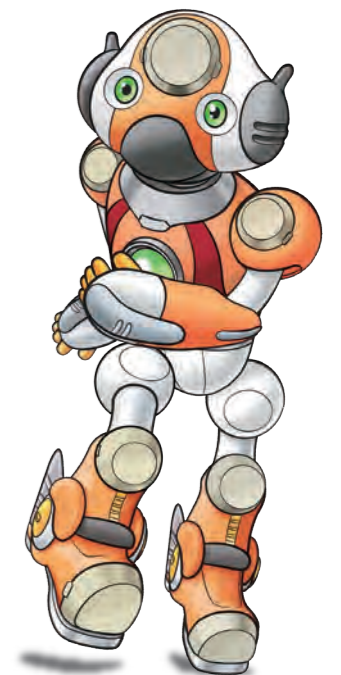
Co-located Events

International Exhibition for Young Inventors
Amazon Robotics Challenge
FLOWER ROBOTICS Seminar
"Development of Home Robots"
Luncheon Seminar
"An Introduction to Sony's Deep Learning Framework"
KOOV Challenge in RoboCup 2017 Nagoya Japan

Overview

RoboCup2017 Nagoya Japan

Venues	Nagoya International Exhibition Hall (Portmesse Nagoya) Takeda Teva Ocean Arena
Organized by	The RoboCup Federation The RoboCup Japanese National Committee The RoboCupJunior Japan Association The RoboCup 2017 Nagoya Local Organizing Committee
Cosponsored by	Chunichi Shimbun Co., Ltd
Endorsed by	Ministry of Education, Culture, Sports, Science and Technology Ministry of Economy, Trade and Industry Japan Tourism Agency Japan Robot Association The Japan Electrical Manufacturers' Association Information Processing Society of Japan Information Processing Society of Japan Tokai Branch The Japanese Society for Artificial Intelligence The Robotics Society of Japan Japan Football Association



RoboCupSoccer

RoboCupSoccer is a soccer game played by robots, which commenced to promote the research and development of robot and AI technologies through friendly competition. While some other robots are radio- or remote-controlled, in this game, the robots have to think for themselves and autonomously make decisions to act.

RoboCupSoccer has eight leagues according to the robot size and form: Small Size, Middle Size, Humanoid (KidSize/TeenSize/AdultSize), Standard Platform, and Simulation (3D/2D).

The Robot Soccer leagues have established rules for each game, covering different field sizes and numbers of robots. Some of these leagues of multiple autonomous robots playing soccer demonstrate strategic plays based on the mapping of the surrounding robots. The rules are amended at appropriate times due, for instance, to technological advance.

Small Size League



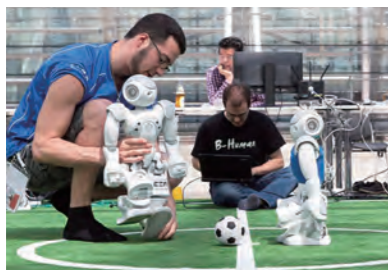
Middle Size League



Humanoid League



Standard Platform League



Simulation League



RoboCupRescue

RoboCupRescue is a competition in which participants compete in disaster strategy for rescue operations, using a major disaster scenario, such as that of an earthquake.

The RoboCupRescue project is divided into three leagues: the Rescue Robot League, the Rescue Simulation League and the Rapidly Manufactured Robot Competition. In the Rescue Robot League, robots carry out rescue operations, overcoming rubble and other obstacles, while acquiring information by themselves. In the Rescue Simulation League, a simulator is used to represent a progressing situation in a disaster-affected area on a computer screen, and many simulated autonomous robots carry out rescue operations through team work. Rapidly Manufactured Robot Competition, which starts since 2017, focuses on the challenges of robots operating in confined spaces and makes use of recent advances in low cost rapid prototyping, electronics and sensors to lower the barrier of entry into robotics research.

Robot League



Simulation League



Rapidly Manufactured Robot Competition



RoboCup@Home

Participants in the RoboCup@Home League compete in the degree to which their robots can perform operations that assist human life in domestic environments such as a living room or a kitchen, using an everyday robot utilization scenario. Important technologies in the competition include robot arm control and manipulation, such as for opening and closing doors and holding objects. Importance is also placed on the robot's ability to track a human being, and the establishment of naturalistic robot-human communication. Additionally, RoboCup@Home tests the use of all kinds of sensors for voice interaction and image recognition technologies.



Open Platform League

Domestic Standard Platform League

Social Standard Platform League

RoboCupIndustrial

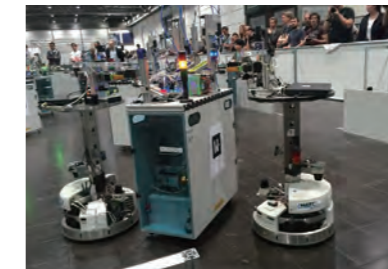
RoboCupIndustrial is a competition between industrial mobile robots focusing on logistics and warehousing systems. In anticipation of Industry 4.0, participants compete in automation through robots, autonomous systems, and mobile robot technology.

Industry 4.0 refers to a manufacturing innovation making optimal use of information technology. It is envisioned that in Industry 4.0, machines will cooperate with each other and with humans to optimize manufacturing sites.

RoboCup@Work



Logistics League



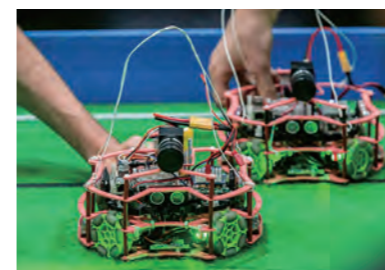
RoboCupJunior

RoboCupJunior is a junior league participated in by children between the ages of 11 and 19. The main focus is on providing a venue for the collaborative learning for all team members, allowing them to cooperate and unite their strengths. RoboCupJunior selects competition themes that raise the participants' curiosity and exploratory drive and encourage them to meet robot design and building challenges.

RoboCupJunior provides three challenges: Soccer, OnStage, and Rescue.

RoboCup 2017 World Championship Nagoya, Japan sets up primary and secondary age categories, for up to 14 and 19 year olds, respectively, for challenges other than Rescue. A primary team must be comprised of members between the ages of 11 and 14. If a team has one or more members aged between 15 and 19, the team is considered a secondary team.

Soccer



OnStage



Rescue



Competition League Finals

Open Hours for Participants **July 25-26, 8:00~22:30 Setup**
July 27-30, 7:00~22:30 Competition

Major Leagues

RoboCup Soccer

Middle Size League			
July 30	Semi Final	9:00	Exhibition Hall 3
	3rd Place	13:00	
	Final	14:30	
	Trustee Game	15:45	

Small Size League			
July 30	Semi Final	10:30	Exhibition Hall 3
	3rd Place	13:00	
	Final	14:00	

Humanoid League			
Kid			
July 30	Semi Final	9:00	Exhibition Hall 3
	3rd Place	12:45	
	Final	14:15	

Teen			
July 30	3rd Place	10:45	Exhibition Hall 3
	Final	13:30	

Adult			
July 30	3rd Place	9:30	Exhibition Hall 3
	Final	12:00	

RoboCup Rescue

Rescue Robot League			
July 30	Final(Round1)	9:00	Takeda Teva Ocean Arena
	Final(Round2)	11:00	

The Rapidly Manufactured Robot Competition			
July 30	Final	9:00	Takeda Teva Ocean Arena

Standard Platform League			
Champions Cup			
July 30	Semi Final	9:00	Exhibition Hall 3
	3rd Place	12:00	
	Final	13:15	

Challenge Shield			
July 30	Semi Final	9:15	Exhibition Hall 3
	3rd Place	11:45	
	Final	12:15	

Mix Team Tournament			
July 30	3rd Place	15:00	Exhibition Hall 3
	Final	15:15	

Simulation League			
2D			
July 30	Playoffs	9:00	Event Hall
	Final Tournament	10:00	
3D			
July 30	Semi Final	10:15	Event Hall
	3rd Place	12:15	
	Final	12:30	

Rescue Simulation League			
Virtual			
July 30	Final	13:00	Event Hall

Agent			
July 29	Semi Final	9:45	Event Hall
July 30	Final	9:45	

RoboCup@Home

Open Platform League			
July 30	Final	12:00	Exhibition Hall 3

Domestic Standard Platform League			
July 30	Final	12:00	Exhibition Hall 3

Social Standard Platform League			
July 30	Final	12:00	Exhibition Hall 3

Junior League

RoboCup Junior

Soccer		
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Light Weight Primary			
July 29	Final Round	13:40	Exhibition Hall 2
	SuperTeam Final Round	10:10	

Light Weight Secondary			
July 29	Final Round	15:00	Exhibition Hall 2
	SuperTeam Final Round	10:50	

Open			
July 30	Final Round	9:30	Exhibition Hall 2
	SuperTeam Final Round	11:30	

Onstage			
Primary			
July 29	Final Round	9:10	Exhibition Hall 2
	SuperTeam Final Round	10:00	

Secondary			
July 29	Final Round	12:40	Exhibition Hall 2
	SuperTeam Final Round	10:00	



RoboCupIndustrial

Logistics League			
July 30	3rd Place	11:00	Exhibition Hall 3
	Final	12:00	

@Work			
July 30	Final Round	12:30	Exhibition Hall 3

Rescue			
Line			
July 29	Final Round	9:30	Takeda Teva Ocean Arena
	SuperTeam Final Round	9:30	

Maze			
July 29	Final Round	9:30	Takeda Teva Ocean Arena
	SuperTeam Final Round	9:30	

Rescue CoSpace			
Primary			
July 29	Semi Final	15:00	Takeda Teva Ocean Arena
	3rd Place	15:40	

July 29	Final	15:40	Takeda Teva Ocean Arena
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July 30	SuperTeam Semi Final	10:45	Takeda Teva Ocean Arena
	SuperTeam 3rd Place	11:00	
	SuperTeam Final	11:15	

Secondary			
July 29	Semi Final	15:40	Takeda Teva Ocean Arena
	3rd Place	16:00	

July 29	Final	16:00	Takeda Teva Ocean Arena
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July 30	SuperTeam Semi Final	10:45	Takeda Teva Ocean Arena
	SuperTeam 3rd Place	11:00	
	SuperTeam Final	11:15	

Venue

Overall Venue Map

As for the location of each tournament, please refer to the full floor layout pages.(P.13-17)



Portmesse Nagoya

Takeda Teva Ocean Arena

Robot Park Rest Space

Exhibition Hall 1 P13

Exhibition Hall 2 P16

Takeda Teva Ocean Arena P17

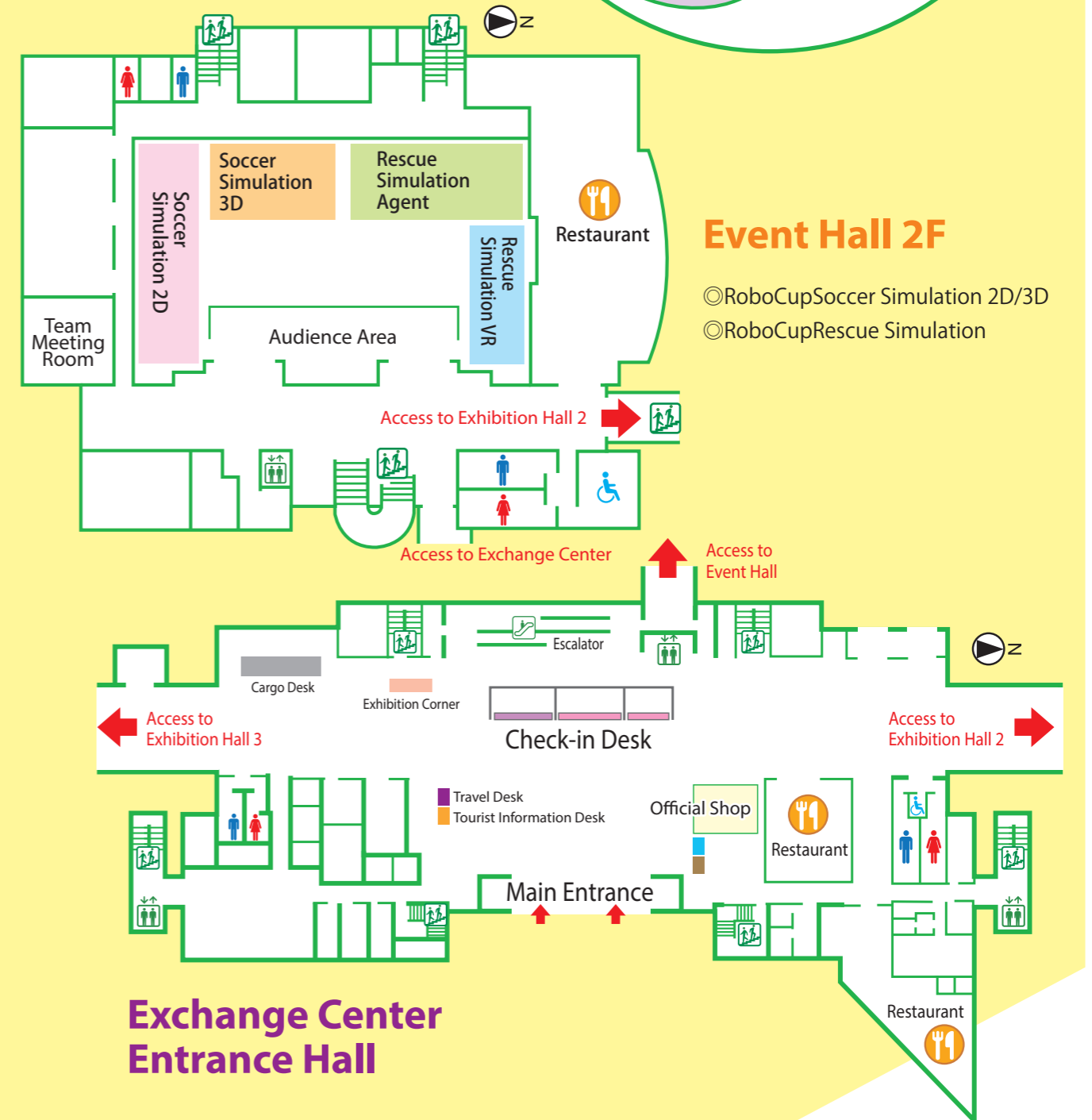
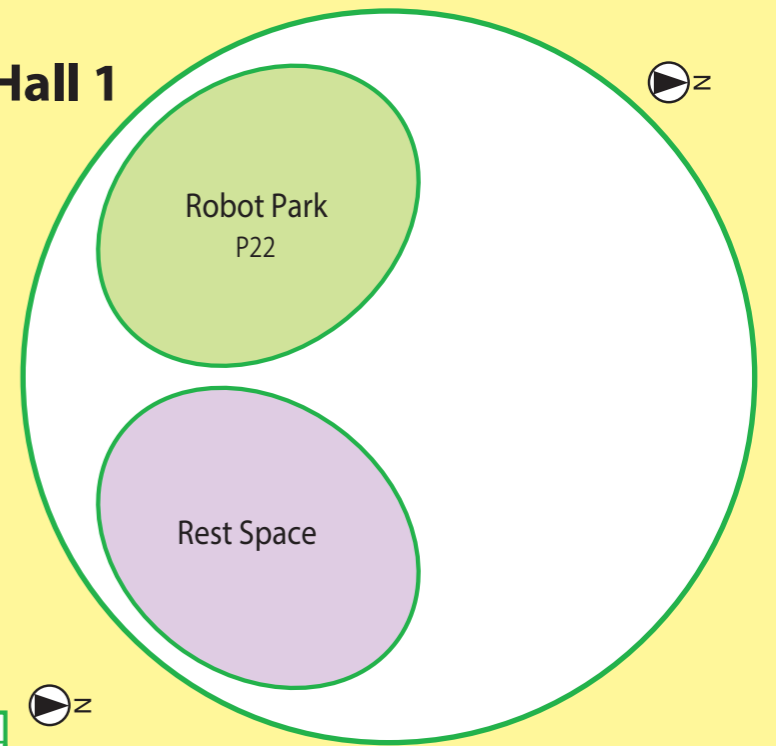
Event Hall P13 Exchange Center P13

Exhibition Hall 3 P14

Parking Garage

- Kitchen Car Area
- Restaurant
- Event Hall/1F-2F
- Exchange Center/1F-2F

Exhibition Hall 1



Exchange Center Entrance Hall

Event Hall 2F

- ◎ RoboCup Soccer Simulation 2D/3D
- ◎ RoboCup Rescue Simulation

Exhibition Hall 3

- ◎RoboCupSoccer
- ◎RoboCup@Home
- ◎RoboCupIndustrial

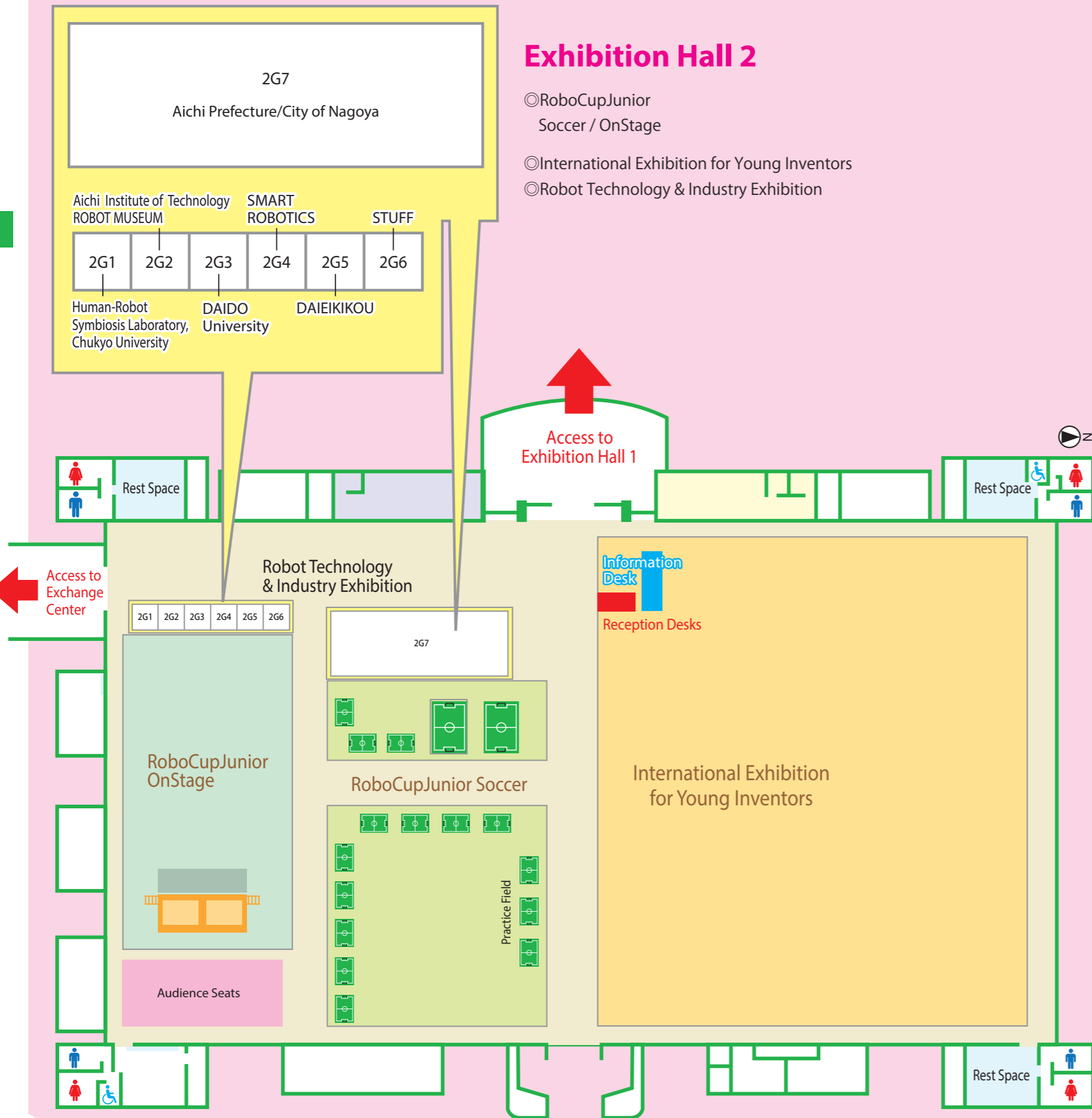
- ◎Amazon Robotics Challenge
- ◎Robot Technology & Industry Exhibition



Please note that the layout of the venue and the allocation of the events are subject to change.

Exhibition Hall 2

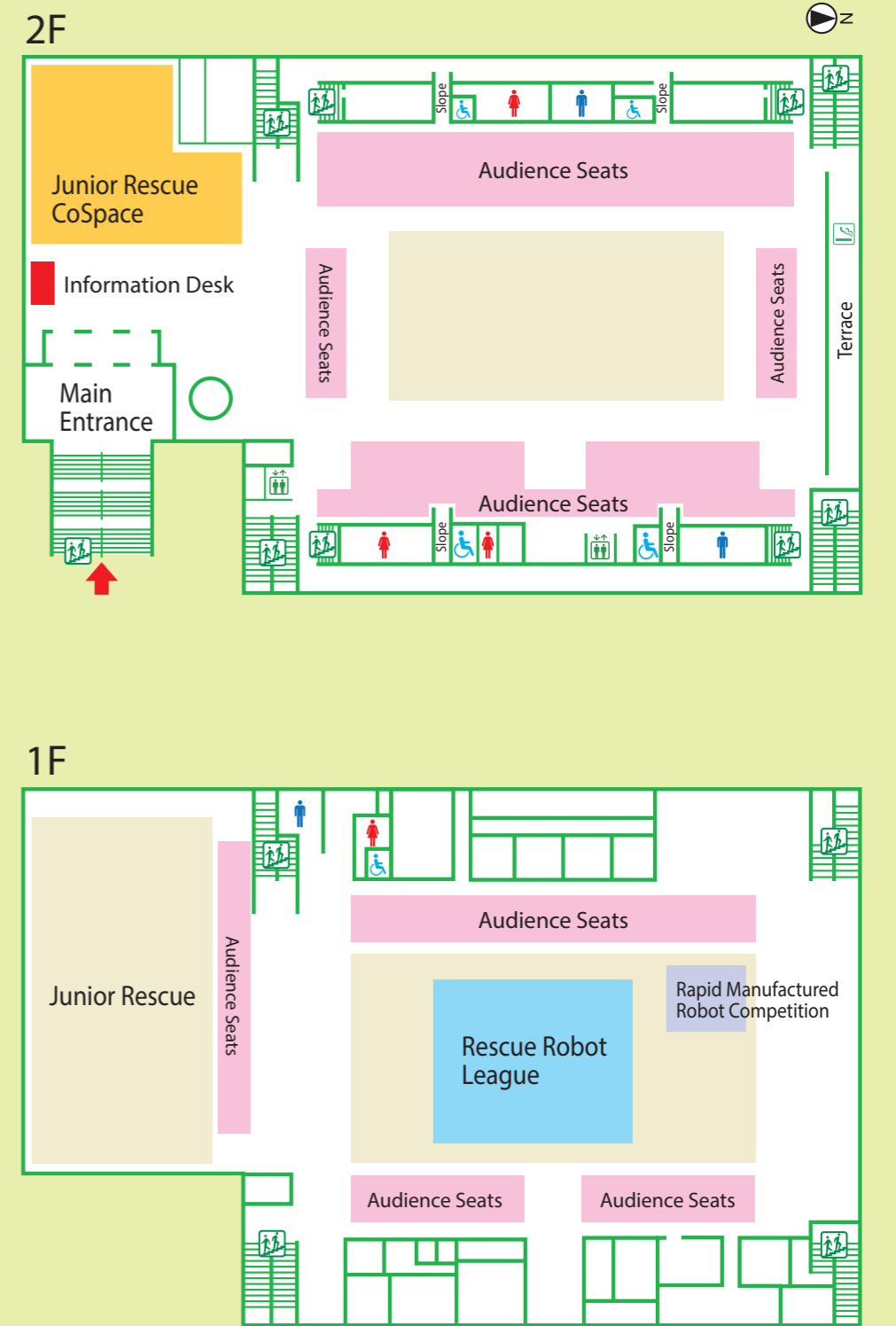
- ©RoboCupJunior Soccer / OnStage
- ©International Exhibition for Young Inventors
- ©Robot Technology & Industry Exhibition



Please note that the layout of the venue and the allocation of the events are subject to change.

Takeda Teva Ocean Arena

- ©RoboCupRescue
- ©RoboCupJunior Rescue / Rescue CoSpace



Overview of RoboCup Symposium 2017

The 21st Annual RoboCup International Symposium will be held in conjunction with RoboCup 2017.

The Symposium is a primary venue for presentation and discussion of scientific contributions to a variety of research areas related to all RoboCup divisions. Its scope includes, but is not restricted to, research and educational activities in robotics and artificial intelligence.

Due to its interdisciplinary nature, the Symposium offers a unique venue for exploring both theory and practice in wide spectrum of research fields. The experimental, interactive, and benchmark character of the RoboCup initiative presents an opportunity to disseminate novel ideas and promising technologies, rapidly adopted and field-tested by a large, and still growing, community.

Date : July 31, 2017

Venue : Aichi University Nagoya Campus
Global Convention Hall

***The venue of the Symposium is located away from the venue of RoboCup competitions.**

Please see the access map on page 21 and the traffic access information on page 34.



Program

08:50 - 09:00 Welcome and Greetings

09:00 - 10:00 Keynote 1

Hajime Asama

10:00 - 10:40 Oral Session 1

Timothy Wiley, Ivan Bratko and Claude Sammut

- *A Machine Learning System for Controlling a Rescue Robot*

Nicolai Ommer, Alexander Stumpf and Oskar von Stryk

- *Real-Time Online Adaptive Feedforward Velocity Control for Unmanned Ground Vehicles*

10:40 - 11:00 Poster Teasers

11:00 - 11:30 Poster Session with coffee break

11:30 - 12:30 Oral Session 2

Timm Hess, Martin Mundt, Tobias Weis and Visvanathan Ramesh

- *Large-scale Stochastic Scene Generation and Semantic Annotation for Deep Convolutional Neural Network Training in the RoboCup SPL*

Nicolas Cruz, Kenzo Lobos-Tsunekawa and Javier Ruiz-Del-Solar

- *Using Convolutional Neural Networks in Robots with Limited Computational Resources: Detecting NAO Robots while Playing Soccer*

Jacob Menashe, Josh Kelle, Katie Genter, Josiah Hanna, Elad Liebman, Sanmit Narvekar, Ruohan Zhang and Peter Stone

- *Fast and Precise Black and White Ball Detection for RoboCup Soccer*

12:30 - 12:50 Poster Teasers

12:50 - 14:00 Lunch and Poster Session

14:00 - 15:00 Keynote 2

Maya Cakmak

15:00 - 16:00 Oral Session 3

Shunki Takami, Kazuo Takayanagi, Shivashish Jaishy, Nobuhiro Ito, Kazunori Iwata, Yohsuke Murase and Takeshi Uchitane

- *Proposed environment to support development and experiment in RoboCupRescue Simulation*

Tetsunari Inamura and Yoshiaki Mizuchi

- *Competition design to evaluate cognitive functions in human-robot interaction based on immersive VR*

Olivia Michael, Oliver Obst, Falk Schmidsberger and Frieder Stolzenburg

- *Analysing Soccer Games with Clustering and Conceptors*

16:00 - 16:15 Poster teasers

16:15 - 17:00 Poster Session with coffee break

17:00 - 17:40 Oral Session 4

Caroline Rizzi, Colin G. Johnson and Patricia A. Vargas,

- *Fear Learning for Flexible Decision Making in RoboCup: A Discussion*

Kenzo Lobos-Tsunekawa, David L. Leottau and Javier Ruiz-Del-Solar

- *Toward Real-Time Decentralized Reinforcement Learning using Finite Support Basis Functions*

17:40 - 18:00 Close Remarks

18:00 Farewell Party

Keynote Speakers



Prof. Hajime Asama
The University of Tokyo

Hajime Asama received his B. S., M. S., and Dr. Eng in Engineering from the University of Tokyo, in 1982, 1984 and 1989, respectively. He was a Research Scientist, etc. in RIKEN Japan from 1986 to 2002. He became a professor of RACE, the University of Tokyo in 2002, and a professor of School of Engineering, the University of Tokyo since 2009. He received JSME Robotics and Mechatronics Award in 2009, RSJ Distinguished Service Award in 2013, etc.

He was the vice-president of Robotics Society of Japan in 2011-2012. an AdCom member of IEEE Robotics and Automation Society in 2007-2009, the president of International Society for Intelligent Autonomous Systems from 2014, an associate editor of Journal of Field Robotics, Journal of Robotics and Autonomous Systems, and Control Engineering Practice, etc. He is a Fellow of JSME and RSJ.

Currently, he is a member of expert committee on fuel-debris retrieval of Nuclear Damage Compensation and Decommissioning Facilitation Corporation (NDF), a member of technical committee of International Research Institute for Nuclear Decommissioning (IRID), a member of technical committee on mockup testing facility of Japan Atomic Energy Agency (JAEA), etc.

His main research interests are distributed autonomous robotic systems, smart spaces, service engineering, embodied brain systems, and service robotics.



Prof. Maya Cakmak
The University of Washington

Maya Cakmak is an Assistant Professor at the University of Washington, Computer Science & Engineering Department, where she directs the Human-Centered Robotics lab. She received her PhD in Robotics from the Georgia Institute of Technology in 2012, after which she spent a year as a post-doctoral research fellow at Willow Garage, one of the most influential robotics companies. Her research interests are in human-robot interaction, end-user programming, and assistive robotics. Her work aims to develop robots that can be programmed and controlled by a diverse group of users with unique needs and preferences to do useful tasks. Maya's work has been published at major Robotics and AI conferences and journals, demonstrated live in various venues and has been featured in numerous media outlets. Tools that she and her students developed are currently being used by robotics companies like Savioke and Fetch Robotics. She received an NSF CAREER award in 2016.

Co-chairs



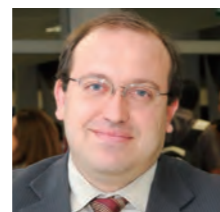
Hidehisa Akiyama
Fukuoka University



Oliver Obst
Western Sydney University



Claude Sammut
UNSW

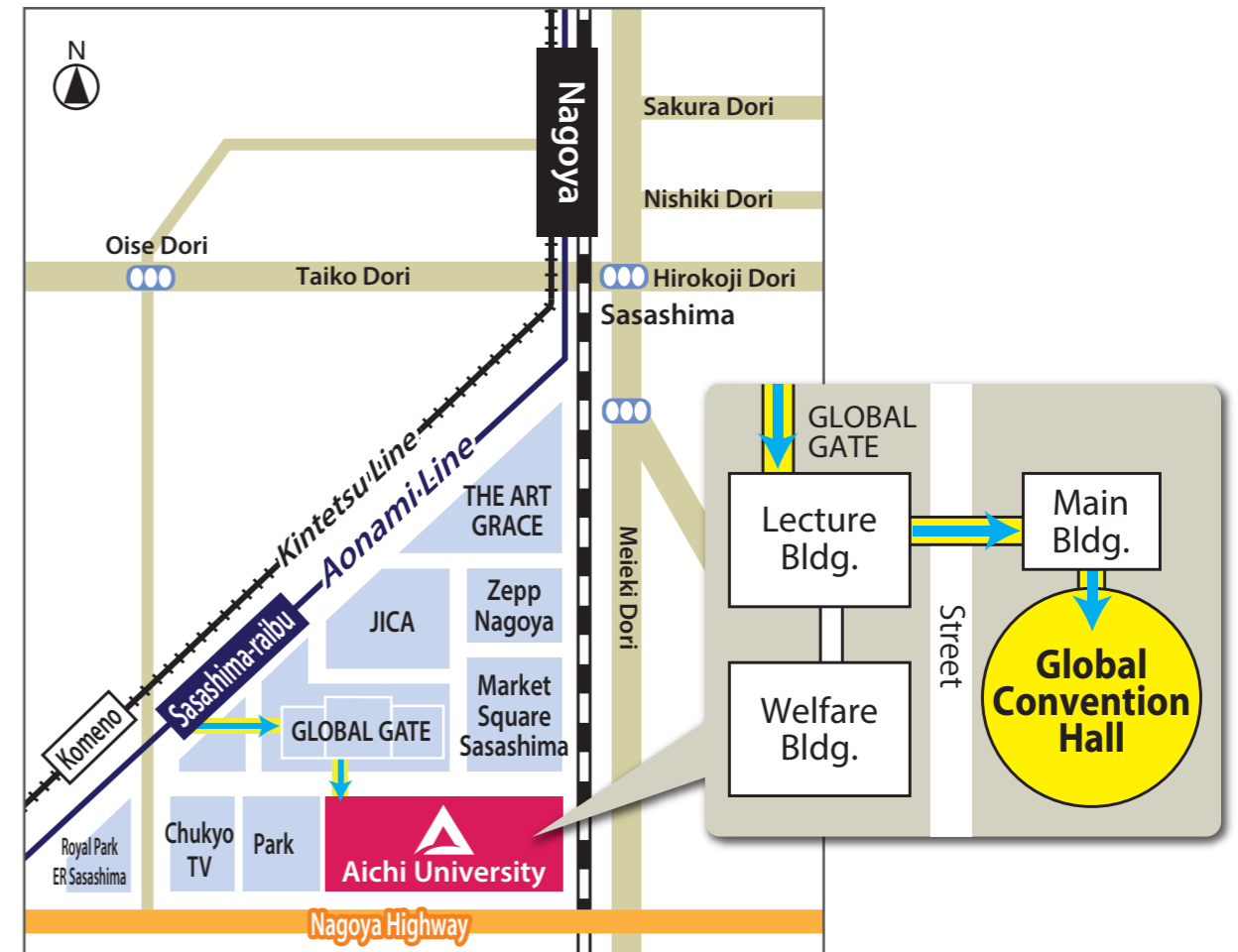


Flavio Tonidandel
Centro Universitario da FEI

Aichi University Nagoya Campus

Access : 4-60-6 Hiraike-cho, Nakamura-ku, Nagoya,
Aichi 453-8777 JAPAN

- 10 minutes' walk from Nagoya Station
- 2 minutes' walk from Sasashima-raibu Station



▲ Campus Mall



▲ Global Convention Hall



▲ Campus Buildings

Related Events

Robot Park

A wide variety of fun demonstration is scheduled at Robot Park. It includes riding in the KABUTOM-RX03 (a giant, rhinoceros beetle-shaped mech), demonstration and free tryout of operating Skeltonics (Exoskeleton Robot Suit), dancing performance by a group of robots, under-water demonstration of robot fish, an exhibition of Sliger Robo (A robot transformed from a vehicle with sliding doors) and much more.

Date : July 27 - 30

Venue : Exhibition Hall 1



▲KABUTOM-RX03



▲Sliger Robo



▲Skeltonics®

Kids Workshop

Workshops designed for kids to learn about the mechanism of engines and the basics of robotics programming as well as building robot fish.

Date : July 27 - 30

Venue : Exchange Center



Mechanical Doll Performance

Karakuri ningyō (or Karakuri Dolls) are traditional Japanese mechanized puppets, originally made from the 17th century to 19th century and said to be the roots of robots. Don't miss the opportunity to see the performance of three of most commonly known Karakuri Dolls: Cha-hakobi ningyo (tea-serving robot) Yumi-hiki doji (young archer) and Mojikaki ningyo (calligraphy writing karakuri dolls).

Date : July 29 - 30

Venue : Exchange Center



World Robotics x AI Seminar Pre-Registration Only

In this seminar, the world's top-level speakers introduce the latest studies in robotics and artificial intelligence. Prior to the seminar, a technical tour is organized to the RoboCup competitions and Amazon Robotics Challenge.

Date and time : July 27, 10:00 – 18:00

Venue : Conference Hall, 3F Exchange Center



Co-located Events

International Exhibition for Young Inventors

The International Exhibition for Young Inventors (IEYI) is an international event created with the aim of "encouraging creativity and an international sense through exhibitions, contests, and the like for inventions made by young people around the world." The first such event was held in Tokyo in 2004, and has since been hosted annually by different major countries.

Date and time : July 27-29, 10:00-16:00

Venue : Exhibition Hall 2



FLOWER ROBOTICS Seminar "Development of Home Robots"

We have developed "Patin", a home use robot for more than 3 years. We will share our knowledge and experience. Key words; the recognition of space, a robot design, a robot as a platform.

Date and time : July 26-27, 14:00-15:30

Venue : 6th Meeting Room, 4F Exchange Center



Luncheon Seminar "An Introduction to Sony's Deep Learning Framework"

This is a session that provides an introduction with tutorials on Sony's new Deep Learning framework that was announced in June 2017. With an introductory lecture from Cogitai CEO and Professor at the University of Texas at Austin Peter Stone, this session will provide an overview of Sony's Deep Learning capabilities.

Date and time : July 28, 12:00 - 13:30

Venue : 4th Meeting Room, 3F Exchange Center

KOOV Challenge in RoboCup 2017 Nagoya Japan Pre-Registration Only

Kids from Japan and China will be up for a competition using KOOV, the innovative robot programming learning kit from Sony Global Education.

Date : July 29 - 30

Venue : 7th Meeting Room, 4F Exchange Center

KOOV Challenge in RoboCup 2017 Nagoya Japan



3RD ANNUAL Amazon Robotics Challenge (ARC)

Schedule

THURSDAY JULY 27, 2017 PRACTICE RUNS

9:30	Team Duke
10:00	NAIST-Panasonic
10:30	Applied Robotics
11:00	IFL PiRo
11:30	CMU PLAID
12:00	ACRV

12:30 BREAK

13:00	MIT-Princeton
13:30	GMU-Negev
14:00	TKU M-Bot
14:30	UJI RobInLab
15:00	NimbRo Picking
15:30	IITK

16:00 BREAK

16:30	Team K
17:00	MC^2
17:30	Team T2
18:00	Nanyang

FRIDAY JULY 28, 2017 STOW TASK

9:30	CMU PLAID
10:00	ACRV
10:30	Team Duke
11:00	NAIST-Panasonic
11:30	Applied Robotics
12:00	IFL PiRo

12:30 BREAK

13:00	Team T2
13:30	IITK
14:00	Team K
14:30	MC^2
15:00	TKU M-Bot
15:30	UJI RobInLab

16:00 BREAK

16:30	NimbRo Picking
17:00	Nanyang
17:30	MIT-Princeton
18:00	GMU-Negev

ABOUT AMAZON ROBOTICS CHALLENGE (ARC)

ARC is a celebration of robotic innovation. There are 16 international teams competing with their own uniquely created robotic hardware and software to pick and stow items from storage. ARC combines:

- OBJECT RECOGNITION
- POSE RECOGNITION

- GRASP PLANNING
- COMPLIANT MANIPULATION
- MOTION PLANNING
- TASK PLANNING
- TASK EXECUTION
- ERROR DETECTION AND RECOVERY



SATURDAY JULY 29, 2017 PICK TASK

9:30	Applied Robotics
10:00	IFL PiRo
10:30	CMU PLAID
11:00	ACRV
11:30	Team Duke
12:00	NAIST-Panasonic

12:30 BREAK

13:00	Team K
13:30	MC^2
14:00	Team T2
14:30	IITK
15:00	MIT-Princeton
15:30	Nanyang

16:00 BREAK

16:30	TKU M-Bot
17:00	UJI RobInLab
17:30	NimbRo Picking
18:00	GMU-Negev

SUNDAY JULY 30, 2017 FINALS & AWARDS CEREMONY

9:30	Final Round 1
10:30	Final Round 2
11:30	Final Round 3

12:30 BREAK

13:00	Final Round 4
14:00	Final Round 5
15:00	Final Round 6

16:00 BREAK

16:30	Final Round 7
17:30	Final Round 8

19:00 Awards Ceremony

AMAZON ROBOTICS, a wholly owned subsidiary of Amazon.com, empowers a smarter, faster, more consistent customer experience through automation. Amazon Robotics automates fulfillment center operations using various methods of robotic technology including:

- AUTONOMOUS MOBILE ROBOTS
- POWER MANAGEMENT
- OBJECT RECOGNITION
- SOPHISTICATED CONTROL SOFTWARE
- COMPUTER VISION
- SEMANTIC UNDERSTANDING OF COMMANDS
- TASK ALLOCATION
- DEPTH SENSING
- MACHINE LEARNING

Robot Technology and Industry Exhibition

Robot Technology and Industry Exhibition is a trade show where participating companies introduce robot-related technology, products and services at the competition venues. With interaction with researchers from all over the globe, we aim to facilitate the development of the technology as well as the improvement of the quality of life, and also bring about the success of related industry and the further expansion of its market.

Date : July 27 - 30

Venue : Exhibition Hall 2 & 3



Exhibitors

Aichi Prefecture/City of Nagoya

2nd Hall
2G7

3-1-2 Sannomaru, Naka-ku, Nagoya, Aichi
460-8501, JAPAN
Tel : +81-52-954-6352 Fax : +81-52-954-6943
E-mail : jisedai@pref.aichi.lg.jp
URL : http://www.pref.aichi.jp/

Main Exhibit
· The robot industry in Aichi Prefecture
· The industry in Nagoya City

Aichi Institute of Technology ROBOT MUSEUM

2nd Hall
2G2

1247, Yachigusa, Yakusa-cho, Toyota, Aichi
470-0392, JAPAN
Tel : +81-565-48-8121 Fax : +81-565-48-0277
E-mail : furuhasi@aitech.ac.jp
URL : http://www.ait.ac.jp/robot/

Main Exhibit
· AIT Tetsujin Project "AIT Tetsujin 13"
· Module Type Search Robot "MMS"

AZAPA Co., Ltd.

3rd Hall
3E4

2F, ORE Nishiki 2-chome Bld., Nishiki 2-4-15,
Naka-ku, Nagoya, Aichi, 460-0003, JAPAN
Tel : +81-52-221-7350 Fax : +81-52-221-7351
E-mail : azp-sales@azapa.co.jp
URL : http://www.azapa.co.jp

Main Exhibit
· Autonomous Electric Vehicle

NTT DOCOMO, INC. Tokai Regional Office

3rd Hall
3C6

Urbannet-nagoya Bldg, 1-10,
Higasisakura 1-Chome, Higasi-ku, Nagoya-shi,
Aichi-ken, 461-8565, JAPAN
E-mail : event_tokai-ml@nttdocomo.com
URL : https://www.ait.ac.jp/robot/

Main Exhibit
· DeviceWebAPI
· Linking

NVIDIA

3rd Hall
3F1

2-11-7 Akasa, kaMinato-ku, Tokyo,
107-0052, JAPAN
Tel : +81-3-6743-8699
E-mail : NVJ-Jetson@nvidia.com
URL : http://www.nvidia.co.jp

Main Exhibit
· NVIDIA Jetson

OKAYA & CO., LTD.

3rd Hall
3C5

2-4-18 Sakae, Naka-ku, Nagoya City, Aichi Pref.,
460-8666, JAPAN
Tel : +81-52-204-8121 Fax : +81-52-204-8385
E-mail : kikaku@okaya.co.jp
URL : http://www.okaya.co.jp/

Main Exhibit
· Robot-control applying motion
capture technology

Exhibitors

Aichi Science & Technology Foundation

3rd Hall
3B5

Aichi Center for Industry and Science Technology,
3rd Fl.1267-1 Akiai, Yakusa-cho, Toyota, Aichi,
470-0356, JAPAN
Tel : +81-561-76-8356 Fax : +81-561-21-1653
E-mail : jutem@astf.or.jp
URL : http://www.astf-kha.jp/project/

Main Exhibit
· Inspection equipment for medical tablet packaging
· Direct drive motor for factory automation

KIT Co., Ltd.

3rd Hall
3A5

AS Building Kanayama, 2-11-15, Iseyama, Naka-ku,
Nagoya City, Aichi, 460-0026, JAPAN
Tel : +81-52-737-7251 Fax : +81-52-737-7252
E-mail : kit-info@kit-japan.co.jp
URL : http://www.kit-japan.co.jp

Main Exhibit
· Rapid Application Development Tool RADEN
· Client Manager RADEN/CM

CKD Corporation

3rd Hall
3B1

250, Oujii 2-Chome, Komaki, Aichi,
485-8551, JAPAN
Tel : +81-568-74-1160 Fax : +81-568-77-3461
E-mail : takao-nakashima@ckd.co.jp
URL : http://www.ckd.co.jp/

Main Exhibit
· Inspection equipment for medical tablet packaging
· Direct drive motor for factory automation

SINTOKOGIO, LTD.

3rd Hall
3D3

3-1, Honohara, Toyokawa-City, Aichi Prefecture,
442-8505, JAPAN
Tel : +81-533-84-7237 Fax : +81-533-85-0073
E-mail : mak-suzuki@sinto.co.jp
URL : http://www.sinto.co.jp

Main Exhibit
· Lucia, a nursing and medical support robot
· Robotic facility for nursing and medical support

STUFF Co. Ltd

2nd Hall
2G6

1-4 Shinbashi-cho, Kadoma-shi, Osaka,
571-0048, JAPAN
Tel : +81-6-6906-6484 Fax : +81-6-6906-4542
E-mail : o-es@rd-stuff.com
URL : http://www.rd-stuff.com

Main Exhibit
· Metal 3D printer + 5 axis machining center
· Self-learning alcohol checker "TISPY"

SMART ROBOTICS CO.LTD

2nd Hall
2G4

#305 Roppongi International Annex, 7-3-16 Roppongi,
Minato-ku, Tokyo, 106-0032, JAPAN
Tel : +81-3-5770-3400 Fax : +81-3-5770-3401
E-mail : t-takeuchi@smartrobotics.jp
URL : https://www.smartrobotics.jp/

Main Exhibit
· Humanoid robot "NAO"
· Own brand Customized Robot / Own brand Servo Motor

Sony Corporation

3rd Hall
3C2

1-7-1 Konan Minato-ku, Tokyo,
108-0075, JAPAN
Tel : +81-3-6748-2111
E-mail :
URL : https://www.sony.net

Main Exhibit
· AI x Robotics: Experiences to simulate curiosity

Softbank Robotics Europe

3rd Hall
3F6

43, rue du Colonel Pierre Avia, 75015 PARIS
Tel : 33177371752
E-mail : contact@softbankrobotics.com
URL : www.softbankrobotics.com

Main Exhibit
· NAO
NAO is a programmable humanoid robot, a reference in education and research
· Pepper
Using Pepper enhances creative problem-solving techniques and encourages multidisciplinary approach.

DAIEIKIKOU

2nd Hall
2G5

4-10-29 Niitaka, Yodogawa-ku, Osaka,
532-0033, JAPAN
Tel : +81-6-6399-7436 Fax : +81-6-6399-7001
E-mail : takeuchi.takayoshi@daiei-kikou.com
URL : http://daiei-kikou.com

Main Exhibit
· Humanoid robot "NAO"
· STEM education using robot

DAIDO University

2nd Hall
2G3

10-3 Takiharu-cho, Minami-ku, Nagoya,
457-8530, JAPAN
Tel : +81-52-612-6111 Fax : +81-52-612-5623
E-mail : koho@daido-it.ac.jp
URL : http://www.daido-it.ac.jp/

Main Exhibit
· Robots for Tying Task on Tie-Dyeing "Shibori"
· Aerial Acrobat Robot Climbing up Row of Swings

Human-Robot Symbiosis Laboratory, Chukyo University

2nd Hall
2G1

101-2 Yagoto Honmachi, Showa-ku, Nagoya,
466-8666, JAPAN
Tel : +81-52-835-7111
E-mail : mkanoh@sist.chukyo-u.ac.jp
URL : http://www.st.chukyo-u.ac.jp/z104123/

Main Exhibit
· Baby doll-oid; Babyloid
· Mini 4WD car with Artificial Intelligence

TIS Inc.

3rd Hall
3D2

Sumitomo Fudosan Shinjuku Grand Tower, 17-1,
Nishishinjuku, 8-chome, Shinjuku-ku, Tokyo,
160-0023, JAPAN
Tel : +81-3-5337-7070 Fax : +81-3-5337-7555
URL : https://www.tis.co.jp/

Main Exhibit
· unibo
· SQ-2

Social Events

Opening Ceremony

July 26 (Wed), 18:00

Convention Hall, 3F Exchange Center, Portmesse Nagoya

Junior Party

July 28 (Fri), 18:30

SCMAGLEV and Railway Park (See the map on P.12)

Junior Award Ceremony

July 30 (Sun), 14:00

OnStage League Stage, Exhibition Hall 2, Portmesse Nagoya

Major Award Ceremony

July 30 (Sun), 17:00

Convention Hall, 3F Exchange Center, Portmesse Nagoya

Major Banquet and Party

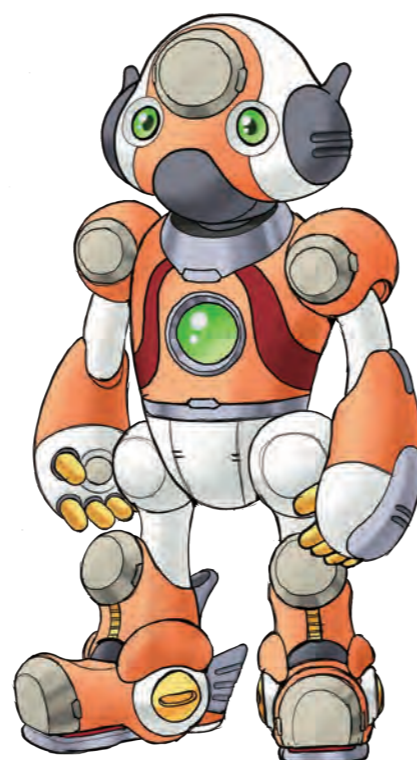
July 30 (Sun), 19:00

Exhibition Hall 2, Portmesse Nagoya

Farewell

July 31 (Mon), 18:00

Food Court, 1F Lecture Building,
Aichi University Nagoya Campus



General Information



Food

Restaurants are located on the 1st floor and 2nd floor of Exchange Center and the 1st floor and 2nd floor of Event Hall in Portmesse Nagoya. There will also be some food trucks outside of the venues.



Internet

Please note that using Wi-Fi at the competition venues (Exhibition Hall 2, Exhibition Hall 3, and Takeda Teva Ocean Arena) is not allowed. Public Wi-Fi service will be available at Exchange Center.



Prayer Room

Prayer Room is located on the 1st floor of Takeda Teva Ocean Arena and on the 2nd floor of Exchange Center.



Smoking

You are not allowed to smoke outside of designated smoking areas in Portmesse Nagoya and Takeda Teva Ocean Area. Please see P.12 for more details.



Shopping

Maker's Pier (a brand new shopping mall where you can enjoy a good selection of food, shopping, and service) is located right next to the venue. You can also find a convenience store at Kinjo-futo station.



ATM

The closest ATM is located in Maker's Pier. Please see the map on P.12.



Badge

Participants are required to wear their badges at all time while they are at the venues.



Certificate of Participation

You will get your certificate when you check-in.



Official Shop

You can purchase Official RoboCup 2017 merchandise at the shop located on the 1st floor of Exchange Center.



Free Water

You can get a bottle of water at the exchange counter in Exhibition Hall 3 and Takeda Teva Ocean Area in exchange for the voucher in your participant bag.



Meeting Rooms

A limited number of team meeting rooms are available in the venue. You can book the rooms at LOC room in Exhibition Hall 3.



Free Train Ticket

You can get a set of tickets for Aonami Line train at the exchange counter on the 1st floor of Exchange Center. The exchange counter is open between 9:00 and 17:00 on July 25 and 26.

Emergency Call

Police
110

Fire, Illness & Injury
119

First Aid Station
+81-52-398-1834

Area Information

Welcome to Nagoya!

Nagoya is located in Aichi Prefecture and its largest city with a population of 2.3 million. Nagoya has a long history and is the birthplace of three notable feudal lords, Oda Nobunaga, Toyotomi Hideyoshi and Tokugawa Ieyasu. Traditional industries like ceramics and textiles as well as key modern industries like automobiles, aviation and machine tools have also developed in Nagoya, and Nagoya plays an important role in Japan's industrial society. Today, Nagoya continues to draw attention and keeps on developing as a Japanese international city.



City Logo

In 1907, it was determined that Nagoya should have a logo. After considering designs requested from a variety of areas, the above logo was approved during a City Assembly meeting in October of the same year. Used as the tally seal by the Owari Tokugawa family, it is referred to as the Maru ni Hachi no Ji, or the Circle Eight Character.



Overview of Nagoya

Area :	326.45 km ² (January 1, 2017)
Population :	2,303,070 (April 1, 2017)
Foreign Residents :	72,683 (the end of 2016)
Average Temperature :	17.0°C (2016)
GDP :	12,355 trillion (2014)
Major Industry :	Manufacturing (automobiles, fine ceramics, aircrafts, machine tools, etc.), Service, Retail



Sightseeing around Nagoya



Nagoya Castle

Nagoya castle is the symbol of Nagoya with a pair of golden shachihoko (legendary dolphin-like fish) perched on the roof. It was built in 1612 by orders of Ieyasu Tokugawa, who founded the shogunate in Edo (now Tokyo). The donjon (main castle tower) has rich interior exhibits in addition to its beautiful exterior. Honmaru Palace next to the main keep was formerly used as the residence and government office and is currently undergoing restoration. Its entrance hall, main hall, reception hall, and serving preparation room are already open to the public. Interior wall paintings and the traditional wooden architecture using aromatic cypress wood combine to make Honmaru Palace truly elegant, on par with Nijo Castle in Kyoto. The entire palace is planned for full display in 2018.



Nagoya City Science Museum

Based on the concept of "Look, touch and learn", this comprehensive science museum allows children and adults alike to enjoy getting in touch with science through various exhibits and experiences. The exterior design emphasizes the spherical "Brother Earth" planetarium, which is listed in the Guinness World Records as the largest in the world with an inner dome diameter of 35 meters. In addition, the museum houses nearly 220 different exhibits, including four large-scale entertaining exhibits where you can experience natural wonders, such as a 9 meter tall artificial tornado.

Atsuta Jingu

Atsuta Jingu, which dates back 1,900 years, is a stately shrine surrounded by greenery, including many towering trees that are a thousand years old. The shrine houses "Kusanagi-no-Mitsurugi" which is a legendary Japanese sword and one of the three Imperial Regalia of Japan.



LEGOLAND® Japan

Opening in April 1, 2017, this outdoor theme park is a place where children aged 2 to 12 and their families can have fun all day long. Here you can enjoy rides for the whole family, LEGO® models to handle and make, and interactive adventure attractions whose themes reflect the worldview of LEGO® bricks. The park comprises seven differently themed areas with over 40 attractions and shows.



SCMAGLEV and Railway Park

Next to the RoboCup's venue (Nagoya International Exhibition Hall) is the SCMAGLEV and Railway Park, a railway museum. It houses 40 railway vehicles, including superconducting maglev shinkansen as well as earlier generations of shinkansen and JR trains. At this museum, visitors can enjoy various attractions, such as a train driving simulator and a huge railway diorama.

Osu Shopping district & Osu Kannon Temple

The Osu shopping district is huge and popular shopping area containing over 1,200 shops and restaurants. All kinds of shops, including electrical appliance shops, secondhand clothing stores, restaurants and cafes are open. The mall is always crowded with people and filled with energy. Many events such as festivals and markets are held throughout the year. Osu Kannon Temple was moved from Osu Village, Mino Province to the current location by the Shogun Ieyasu Tokugawa in 1612.



Nagoya-meshi (Local dishes of Nagoya)

The term "Nagoya-meshi" is only applied to the local cuisine in Nagoya. It is characterized by a salty-sweet harmony of subtle sweetness and spices. These flavors, found neither in Tokyo or in Kyoto, have a rapidly growing number of passionate fans.



Toyota Automobile Museum

This museum provides an organized introduction to approximately 100 years of automotive history, covering the development of the automobile since the late nineteenth century. This history of the automobile is embodied in the museum's international collection of antique cars.



Korankei Gorge

Korankei Gorge, home to about 4,000 maple trees, is one of the region's best-known spots for viewing the brilliant colors of autumn. To give visitors added pleasure, the gorge is illuminated at night during the foliage-viewing season.

Nagoya Omenashi Bushotai

Nagoya Omenashi Bushotai is a performance troupe at Nagoya Castle that wears suits of armor from the Warring States period of 400 years ago, comprised of 6 bushos (army generals) and 4 jingasa soldiers. They welcome and entertain visitors to the Castle with martial art performances.



©2009 Nagoya Omenashi Busho-Tai Secretariat

For more information, please check the websites below!

NAGOYA-INFO

Nagoya Shopping & Dining Guide

<http://www.nagoya-info.jp/en/>

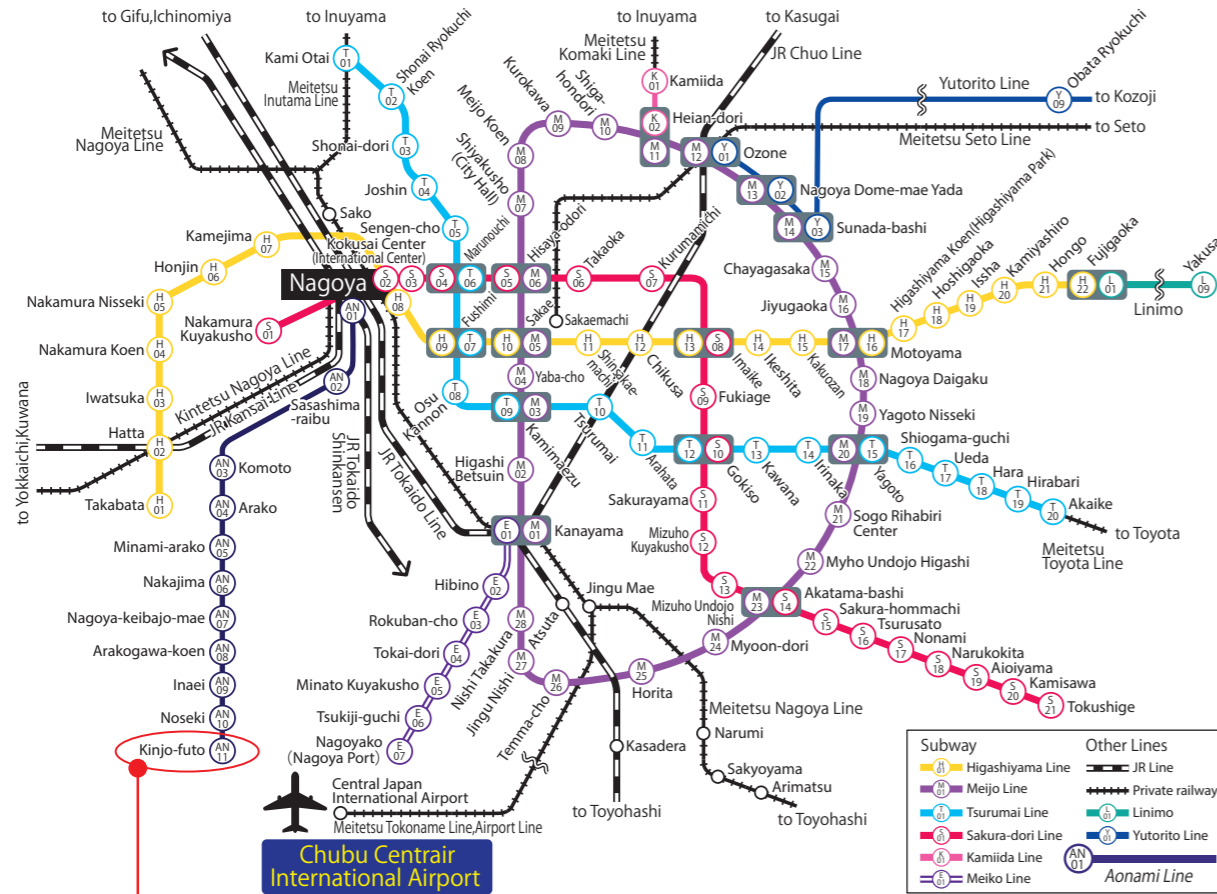
<http://www.nagoya-sdg.jp/en/>

Traffic Access

from Nagoya Station to the Venue

From Nagoya Station you can take a direct train to the venue in about 24 minutes via the Aonami Line.

At the destination of Kinjo-futo station, you will see the venue as soon as you exit, only 1 to 5 minutes away on foot.

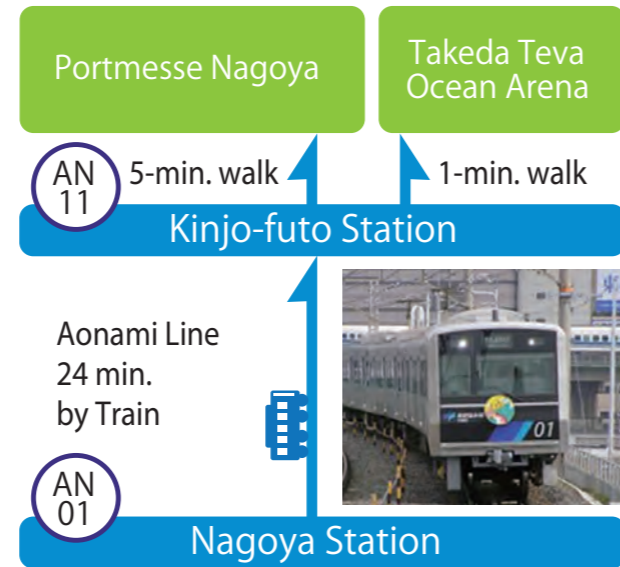


Area Information

Area Information



Exit of Kinjo-futo Station



Aonami Line Time Table

July 25 Tue and 26 Wed

Nagoya (For Kinjo-futo)

Hour	Minute				
6	00	20	40		
7	00	10	20	30	40 50
8	00	10	20	30	40 50
9	00	10	20	30	36 45 56
10	00	15	30	45	
11	00	15	30	45	
12	00	15	30	45	
13	00	15	30	45	
14	00	15	30	45	
15	00	15	30	45	
16	00	15	30	45	
17	00	10	20	30	40 50
18	00	10	20	30	40 50
19	00	10	20	30	45
20	00	15	30	45	
21	00	15	30	45	
22	00	18	40	57	
23	17	36			

Kinjo-futo (For Nagoya)

Hour	Minute			
6	09	30	51	
7	01	21	31	41 51
8	01	11	21	31 41 51
9	01	11	28	44 59
10	14	29	44	59
11	14	29	44	59
12	14	29	44	59
13	14	29	44	59
14	14	29	44	59
15	14	29	44	59
16	14	29	43	51
17	01	11	21	31 41 51
18	01	11	21	31 41 51
19	01	15	30	45
20	00	15	30	45
21	00	15	30	47
22	08	28	46	
23	08	30		

July 27 Thu and 28 Fri

Nagoya (For Kinjo-futo)

Hour	Minute				
6	00	20	25	40	
7	00	10	20	30	40 50
8	00	10	20	30	40 50
9	00	10	20	30	36 45 56
10	00	15	30	40	45 55
11	00	15	30	40	45 55
12	00	15	30	40	45
13	00	10	15	30	40 45
14	00	15	30	45	
15	00	15	30	45	
16	00	15	30	45	
17	00	10	20	30	40 50
18	00	10	20	30	40 50
19	00	10	20	30	45
20	00	15	30	45	
21	00	15	30	45	
22	00	18	40	57	
23	17	36			

Kinjo-futo (For Nagoya)

Hour	Minute			
6	09	30	51	
7	01	21	31	41 51
8	01	11	21	31 41 51
9	01	11	28	44 59
10	14	29	44	59
11	14	29	44	59
12	14	29	44	59
13	14	29	44	59
14	14	29	44	59
15	14	29	44	59
16	14	29	43	51
17	01	11	21	31 41 51
18	01	11	21	31 41 51
19	01	15	30	45
20	00	05	15	30 45
21	00	15	30	47
22	08	28	46	
23	08	30		

July 29 Sat and 30 Sun

Nagoya (For Kinjo-futo)

Hour	Minute				
6	00	20	25	40	
7	00	17	29	40	50
8	03	12	16	28	40 50 57
9	00	12	15	30	45 56
10	00	12	15	26	30 45
11	00	12	15	30	40 45
12	00	12	15	30	40 45
13	00	12	15	30	40 45
14	00	15	30	45	
15	00	15	30	45	
16	00	15	30	45	
17	00	15	30	43	
18	00	12	29	45	
19	00	15	30	45	
20	00	15	30	45	
21	00	15	30	45	
22	00	18	40	57	
23	17	36			

Kinjo-futo (For Nagoya)

Hour	Minute			
6	09	30	49	
7	01	21	33	46
8	00	11	21	32 46
9	00	11	28	44 59
10	14	29	44	59
11	14	29	44	59
12	14	29	44	59
13	14	29	44	59
14	14	29	44	59
15	14	29	44	59
16	14	29	40	43
17	00	10	15	31 40 44
18	01	12	21	29 46 50
19	01	15	30	42 45
20	00	10	15	30 40 45
21	00	15	30	47
22	08	28	46	
23	08	30		

"○" means rapid train (17minutes at the shortest between Nagoya and Kinjo-futo)

brother
at your side

Why "Brother Earth"? Brother Earth, the name of the Planetarium, represents our hope that generations of children will deepen their interest and develop attitudes toward protecting the beautiful global environment.

Nagoya City Science Museum
Planetarium

Brother Earth

The World's Biggest
35m Planetarium
Guinness Record



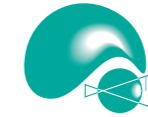
Brother
Earth

Working with you for a better environment
www.brotherearth.com

Naming rights partner of Nagoya City

BROTHER INDUSTRIES, LTD.

Nagoya City Science Museum : 5 minutes to the south on foot from the Exit 5 of Fushimi Station on Subway Higashiyama or Tsurumai Line



公益財団法人

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事業内容

- ① 研究に対する助成
- ② 国際会議、学術講演会、フォーラム、シンポジウム、セミナー、研究集会及び研修会の開催に対する助成
- ③ 講演会、フォーラム、シンポジウム、セミナー、研究集会及び研修会の開催
- ④ 出版物の編集及び刊行
- ⑤ 図書、文献、資料及び情報の収集、保管及び提供
- ⑥ その他目的を達成するために必要な事業

平成29年度 助成金交付の公募

助成の対象

- ・情報科学に関する研究
- ・情報科学に関するフォーラム・シンポジウム等開催

申請書受付期間

平成29年6月1日(木)から8月31日(木)必着

応募方法及び詳細

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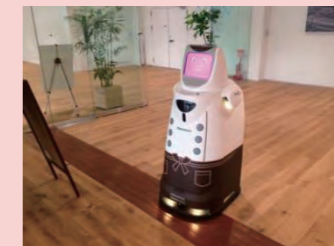


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Use cases outside a hospital



Transportation robots in factory



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Guidance

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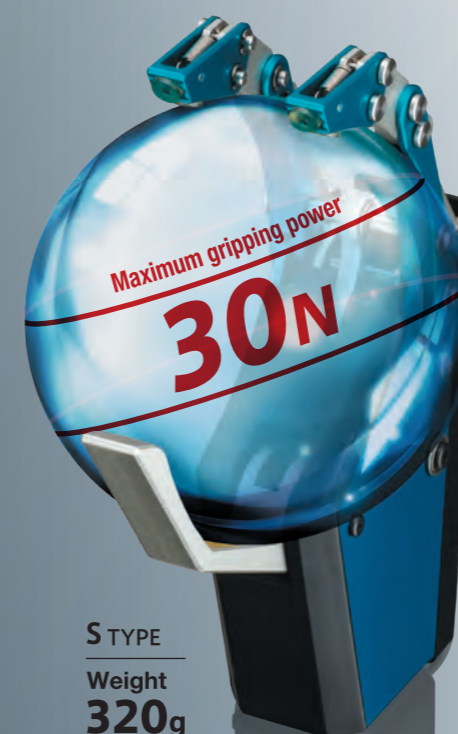
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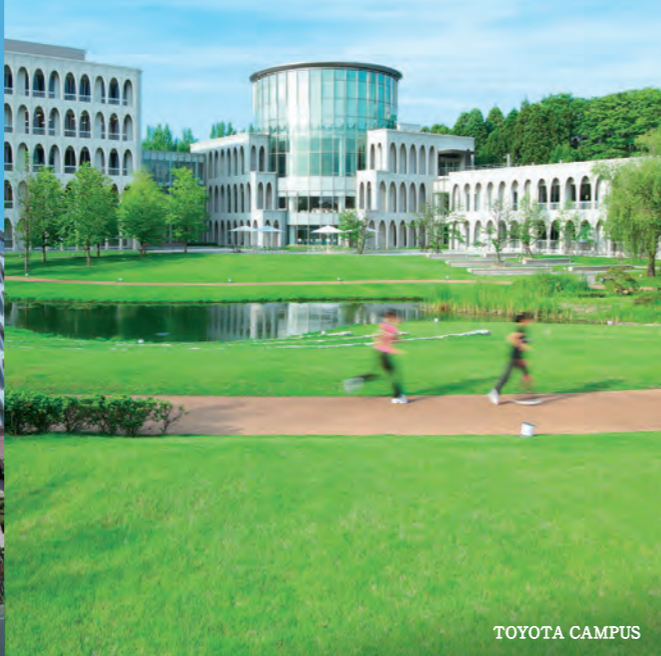
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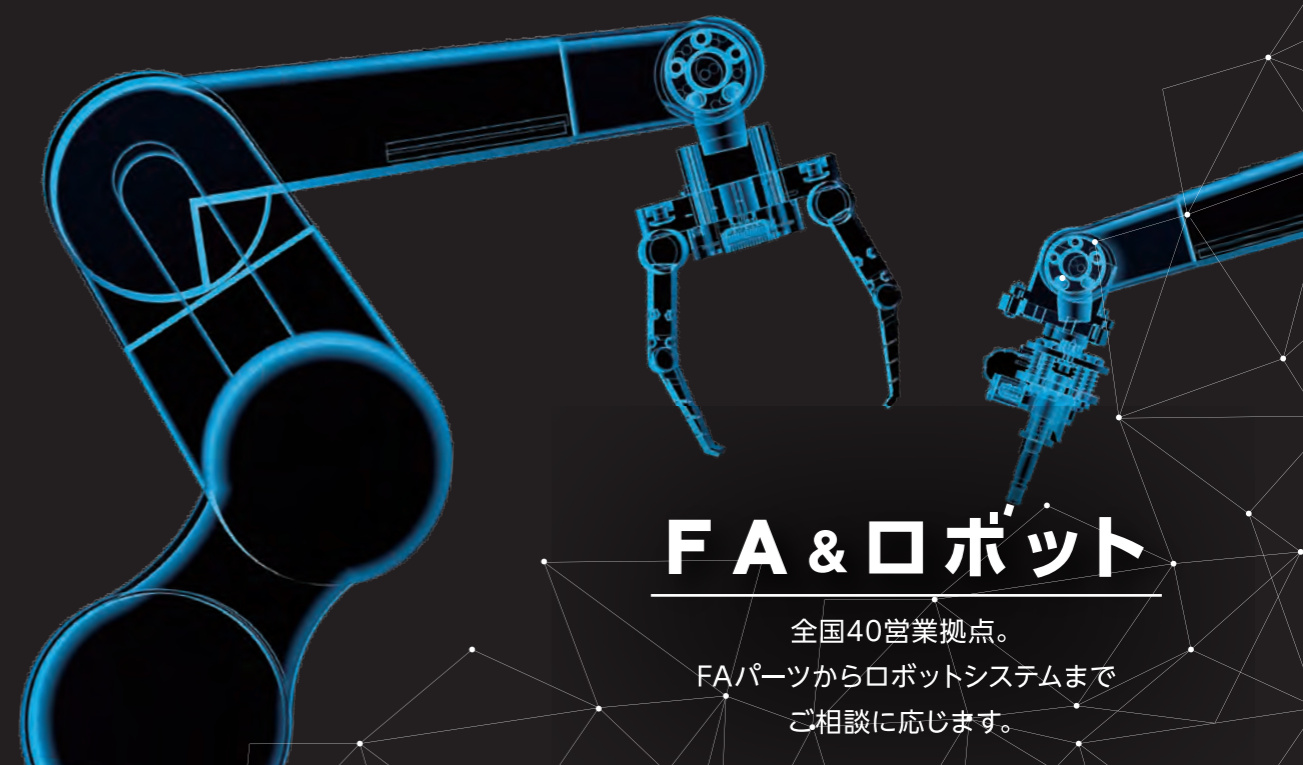


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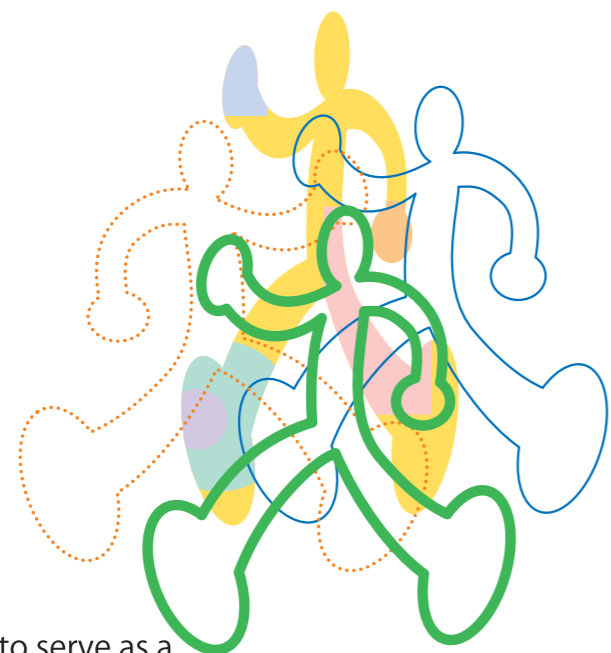
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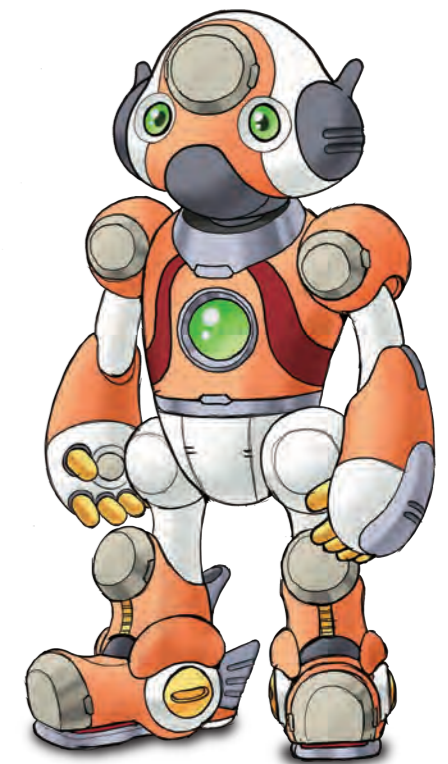
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Photo of Agile Justin autonomous robot courtesy of German Aerospace Center (DLR), Robotics and Mechatronics Center



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



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NAO is a cute, programmable humanoid robot that will help you create unique, interactive classroom experiences. NAO has been the Standard Platform for the robot soccer league for 10 years!

Pepper is a high performance robotic platform designed for a wide range of multimodal expressive gestures and behaviors, making it ideal for researchers and educators. Pepper is the Social Standard Platform for the Robocup @home league for the 1st year.

Learn more at: www.ald.softbankrobotics.com/en/robocup-2017

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Federation and Local Organization

The RoboCup Federation

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3RD ANNUAL Amazon Robotics Challenge (ARC)



ABOUT AMAZON ROBOTICS CHALLENGE (ARC)

ARC is a celebration of robotic innovation. There are 16 international teams competing with their own uniquely created robotic hardware and software to pick and stow items from storage. ARC combines:

- OBJECT RECOGNITION
- POSE RECOGNITION
- GRASP PLANNING
- COMPLIANT MANIPULATION
- MOTION PLANNING
- TASK PLANNING
- TASK EXECUTION
- ERROR DETECTION AND RECOVERY

The robots are scored by how many items are successfully picked and stowed in a fixed amount of time. Finalists are competing for more than **\$250,000 USD** in prizes.

AMAZON ROBOTICS, a wholly owned subsidiary of Amazon.com, empowers a smarter, faster, more consistent customer experience through automation. Amazon Robotics automates fulfillment center operations using various methods of robotic technology including:

- AUTONOMOUS MOBILE ROBOTS
- SOPHISTICATED CONTROL SOFTWARE
- TASK ALLOCATION
- POWER MANAGEMENT
- COMPUTER VISION
- DEPTH SENSING
- MACHINE LEARNING
- OBJECT RECOGNITION
- SEMANTIC UNDERSTANDING OF COMMANDS

Headquartered in Boston, Massachusetts, USA, Amazon Robotics is located in the epicenter of robotic innovation and has developed corporate and academic partnerships to support innovation throughout the robotics ecosystem, to bring cutting edge technology into the field faster.

