



## RoboCupJunior Dance Rules 2011

RoboCupJunior Dance Technical Committee 2011:  
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These are the official rules for RoboCupJunior Dance event 2011. They are released by the RoboCupJunior Dance Technical Committee. These rules have priority over any translations. Changes from 2010 rules are highlighted in red.

### **Preface:**

Robot dance means, that one or more robots and humans come together with music, dressed in costume and moving in creative harmony. The following dance rules provide a framework on how to structure a human and robot dance performance routine with one or multiple movements.

## **1. PERFORMANCE.**

### **1.1. Kind of Performance**

RoboCupJunior Dance allows teams to create a stage performance. In the performance, robots are **programmed to move in-sync** with music **in a 1 - 2 minute stage routine**. There are two types of dance performances -- *Dance and Theatre Performance*.

'**Dance**' is a performance closely sequenced to the music. The robots are required to move in time to the beat or rhythm of the music selected, in the same way that a human may listen to the beat of music and dance to it. The Dance assessment focuses on the choreography and movement of robot(s) and humans synchronization to music beats.

'**Theatre**' is a performance where music is part of the performance, however, the robot(s) are not required to move strictly in time to the rhythm or beat of the music. 'Theatre' tells a story or develops a theme **like in a play**. Theatre assessment is focused on the overall theatrical presentation. The performance will be judged by how effectively the robot(s) are used to present a theatrical theme. Examples: Nursery rhymes, Star Wars or movie-inspired presentations, Olympic games, recycling, etc.

In order to accommodate different performance types, we have two different performance score sheets. The Dance and Theatre score sheets can be downloaded from the official RoboCupJunior website (<http://robocupjunior.org>). Teams are encouraged to use the score sheets when preparing their dance or theatre performance.

Before a RoboCupJunior event, teams must indicate which category of performance they have prepared so that judges can use the right score sheet to assess their performance. The following are some guidelines that can help teams to make that decision (**D- for Dance and T- for Theatre**):

1. Music is an integral part of the dance (D) or used as a background to supplement the performance (T)
2. Deliberate, accurate and synchronized movement to music (D)
3. A theme with a story is the focus of a theatre performance and the music helps support (T).
4. The focus is on the choreography (D)

Following a stage performance, the judges may suggest a switch in the performance category of Dance or Theatre.

## 1.2. Duration

1.2.1. Each will have a **total of 5 minutes** for their presentation. This time includes **stage performance** set-up, introduction and the performance, including any re-starts due to factors under the teams' control. It does not include time needed for packing up and clearing the stage.

1.2.2. The duration of a performance routine **must be no less than 1 minute and no more than 2 minutes**.

1.2.3. If a team exceeds the time limits explained in 1.2.1 and 1.2.2 as a result of their own fault, the team will be penalized. A judge starts a stopwatch when a team member steps foot on the stage for the maximum five-minute period.

1.2.4. **Following each performance, a team must fully tidy up the stage, pack up and remove any objects related to their performance. The performing team has a maximum of one minute to clear the stage after the end of their performance.**

## 1.3. Music

1.3.1. Teams must provide their own audio music source on a Compact Disc (CD-R, CD-RW) as an Audio track or MP3 file. You must submit **ONLY ONE** music file or audio track for the entire routine. Music should be given to the sound technicians upon arriving to the RCJI event. Teams are encouraged to bring at least two copies of the audio source file. Each audio source file should contain only one copy of the music for each team performance.

1.3.2. Teams are strongly encouraged to bring a good quality audio music source file since their evaluation also depends on the music quality.

1.3.3. The music should start at the beginning of the audio music source with a few seconds of silent lead time.

1.3.4. The audio music source should be clearly labeled with the team name.

## 1.4. Human Team Members

1.4.1. Human team members are encouraged to perform with their robots. They will be considered as 'props.' There is no penalty for humans not performing with their robots.

1.4.2. **The only physical contact humans can have with their robots are:**  
**- to start the robot(s).**

- the physical contact is a part of the performance (This has to be discussed with and approved by the judges PRIOR to the performance).

## 1.5. Scenery

Teams are encouraged to provide their own scenery. Organizers will try their best to provide a projector and a screen for teams wishing to incorporate a visual or multimedia presentation as part of their performance.

## 1.6. Performance Routine

1.6.1. Each team will perform only one Dance or Theatre performance routine. The same performance routine will be repeated if they proceed to the finals in their division. Some minor modifications /improvements of the performance using the same music may be accepted. Any questions or concerns on performance and robot modifications at the venue should be discussed with the chief judge.

1.6.2. A RoboCup official will start the music and the audio visual/multimedia presentation for the routine.

1.6.3. One human team member or several members using multiple robots and props can start each robot, either by hand or a remote control. Teams are strongly encouraged to program their robot to begin the stage performance routine a few seconds after the music starts. As it is extremely difficult to judge precisely when the music will play after the audio source is started. It is hard to time the robot's choreography without knowing exactly when the music will begin. Also, depending on the configuration of the dance stage and the sound system at the venue, it is possible that the human starting the robot will not be able to see the RoboCup official starting the music and vice versa. Teams should come prepared for these conditions.

## 1.7. Restarts and Repeats

1.7.1. Teams are allowed to restart their routine if necessary, at the discretion of the officials. Unless a problem is not the fault of the team, any restart will result in a score penalty. A maximum of two restarts will be allowed. After two restarts, the team must continue with the penalty or leave the stage.

1.7.2. Teams are allowed to repeat their routine at the discretion of the RoboCup judges.

## 1.8. Security

In order to protect participants, RoboCup officials and bystanders, performance routines may not include explosions, smoke or flame, use of water, or any other hazardous substances. Each team whose routine includes any situation that could be deemed hazardous, including the possibility of damaging the stage, must submit a report outlining the content of their dance routine to the chief judge BEFORE the competition. The chief judge may also request a demonstration of the activity before the stage performance. Teams not conforming to this rule may not be allowed to present their dance. Wherever possible, teams shall avoid the use of non-battery source of electricity for any aspect of their performance. If necessary, teams may apply to the chief judge PRIOR to their performance for exemption from this rule. The chief judge may decide to disqualify the performance for safety reasons.



## **1.9. Content**

Any presentation that includes violent, military, threatening or criminal elements will be excluded. Any team using an inappropriate name or logo will also be excluded. Participants are asked to carefully consider the wording and messages communicated in their presentations. What seems acceptable to one group may be offensive to friends from a different country or culture.

## **2. STAGE**

### **2.1. Size**

2.1.1. The size of the performance stage area will be marked in a rectangular area of 6 x 4 meters(m) for robots with the 6m side facing the judges. When the whole body of a robot (main body itself, not including any huge extension from the body) moves outside the marked boundary of the performance area, it will not be disqualified, but the team will receive a penalty score. Human performers may be inside and outside the marked area.

2.1.2. The boundary of the performance stage area will be marked with a 50 millimeter(mm) black tape line, surrounded by a 20mm red tape line. This can allow teams to use the black and red line tape boundary to program a robot to identify the performance stage area.

### **2.2. Surface**

2.2.1. The floor provided shall be made of flat (non-glossy) white painted MDF (compressed wood fiber).

2.2.2. While floor joints will be taped to make them as smooth as possible, robots must be prepared for irregularities of up to 3 mm in the floor surface.

2.2.3. Teams are encouraged to practice on the same flooring type to have a better simulation for robot conditions and reduce the set-up time at the RoboCupJunior International competition.

### **2.3. Lighting**

The RoboCup organizers will strive to make variable lighting including spotlights available. Teams should not expect that the organizers to accommodate each team's needs for the performance stage lightings. We cannot guarantee direct or intense spotlights to be available. It is recommended that teams design their robots to cope with variations in lighting conditions, as lighting naturally varies from venue to venue. Teams should come prepared to calibrate their robots based on the lighting conditions at the venue.

### **2.4. Performance Stage Utilization**

2.4.1. The main performance dance stage will be made available for teams to practice on. In fairness to all teams who may wish to practice, a booking sheet will be used to reserve the stage for a short practice time.

2.4.2. The last team to practice on this stage before the official dance performance period starts must fully clean up the stage and clear the stage area at least 3 minutes before the performance start time.

### **3. ROBOTS**

#### **3.1. Size**

Robots may be of any size. Any robot(s) or prop(s) taller than 4 meters from the stage floor must be discussed with the judges and permission sought.

#### **3.2. Team**

There may be any number of robots on a team. However, using multiple robots does not necessarily result in obtaining higher points.

#### **3.3. Control**

3.3.1. Robots must be controlled autonomously. During a performance, robots must also be 'wirefree' in that they must not be connected to a computer or other devices including power sources. No member of the team may make physical contact with the robot during its performance UNLESS it has been discussed and approved by the judges PRIOR to the performance.

3.3.2. Robots may be started manually by human contact or with a remote control at the beginning of the performance. See also 1.6.3.

#### **3.4. Costumes**

Costumes for robots and human performers are encouraged. Points will be awarded for good use of costumes to enhance a robotics performance.

#### **3.5. Communication**

During the performance, any robot on stage may communicate with another robot from the same team. The source of communication must be infrared (IR), Ultrasonic, or BlueTooth. It is the teams' responsibility to be aware that their robot communication does not interfere with other teams' robots when practicing or performing. No team is permitted to use radio frequency (RF) signals like WLAN wireless communication, as this may interfere with robots in other leagues. Teams with robot communication MUST explain the device as well as the program to the judges at the interview.

### **4. JUDGING**

There will be different performance scoring sheets for the Dance and Theatre categories. The Dance and Theatre score sheets can be downloaded from the official RoboCupJunior website (<http://robocupjunior.org>).

#### **4.1. Authenticity and Originality**

4.1.1. All teams are **asked to present their robots and props** in an interview. Each team's overall score will be decided by the total of their BEST performance and their interview score.

4.1.2. The performance is to be unique. Teams who, in the opinion of the judges, have knowingly produced duplicate robots, costume or performance movement (duplicate music is allowed) of another team or reused previous year's robots of the same team will be interviewed by a panel of three RoboCup dance officials. Penalties range from a possible 10% score reduction to a maximum penalty of exclusion from the competition.

## 4.2. Creativity

The Dance challenge is intended to be very open-ended! Teams are encouraged to be as creative and entertaining as they can. Teams who show creativity and innovation might be rewarded high point scores in the relevant sections.

## 4.3. Judging Categories

4.3.1. Stage performances will be judged according to the following categories:

Programming (e.g., use of loops, jumps, sub-routines, type of programming language used, etc.)

Construction (e.g., robots should be of a solid construction, components should not fall off, appropriate use of gearing, smooth and reliable operation, interesting movements, effective use of mechanics to achieve a purpose, designing own electronics, etc.)

Using Sensors effectively (e.g., to trigger different parts of the program, for detection of boundary line, etc. This category also includes 'other technologies' apart from sensors. Teams can earn more points for complexity and creativity with the use of sensors.)

Choreography (e.g., robots to move in time with music, and change actions as music changes tempo or rhythm. Choreography of humans and robots will be scored separately.)

Costume (e.g., both human and robot costumes will be scored.)

Entertainment Value (e.g., how much does the performance entertain or delight the audience? Originality and creativity of the presentation will be scored.)

4.3.2. Each category might be weighted differently. Teams are encouraged to study the score sheets before their preparation of a performance.

4.3.3. Standard dance and theatre score sheets will be used for judging the interviews and dance performances.

## 4.4. Awards

Note: Rules 4.4.1 and 4.4.2 are not obligatory for national events.

4.4.1. Awards will be given to individual teams that achieve the highest total score in the following categories:

*Programming;*

*Construction;*

*Using Sensors;*

*Choreography;*

*Costume; and*

*Entertainment Value.*

There will also be some special awards for the following categories:



Collegiality Award (the team who, by popular vote, has given the greatest support to other teams) -- this support can be demonstrated in a number of ways, such as providing assistance with components, developing friendships and/or giving encouragement to other teams). The vote described in section 6.4.2 will be used for selecting the best Collegiality Award. The score will be calculated by the following equation:

Score= 10 x (number of votes received)/(number of participating teams)

Best Poster or Best Electronic Demonstration

Novice Team Award -- The primary and the secondary team placed highest in the competition overall, and where ALL members of the team are competing at RCJI for the first time (this does not include a team having a team member(s) who has (have) competed in other RCJI leagues/categories).

Note: Choreography, costume, and entertainment value awards will be awarded to teams in either the Dance or Theatre performance will not depend upon their performance score.

4.4.2. There will be three RoboCupJunior Dance Champion teams for each age division. The winners in each of these two divisions are the teams (or group) that achieve the highest total score are determined by combining the interview and their best performance score. Dance and Theatre performances will be regarded as one league.

4.4.3. RoboCupJunior is an educational project. It is important that team members learn from their experiences with RoboCupJunior, and have the opportunity to improve in later years if they so choose. The RCJI organizers will provide feedback on each team's performance by providing a modified score sheet to each team captain after dance presentations are completed at the conclusion of competition. The score sheet will indicate to the team their areas of strength and also areas needing improvement, as rated by the RCJI judges. It is important to note that these sheets are not to be used to debate positions, decisions or competition scores with the judges.

## **5. DOCUMENTATION**

### **5.1. Authentication**

All teams are encouraged to bring paper or digital documentation describing their preparation efforts. The documentation should be no more than 5 pages (A4 size) and contains a briefing description of the development of their robots and photos. The documentation must be presented during the interview, and may be called upon to help establish the authenticity of a teams' performance. Team should also complete the Dance Technical Robot Information Sheet before the interview. *See Interview Score Sheet for more details.*

### **5.2. Poster Presentation Displays**

5.2.1. Teams will be given some public space to display their materials on a poster board. Since the space available could be limited by the local organizers, teams are encouraged to bring some kind of electronic presentation in Power Point and/or other electronic format that will be displayed at the venue. The organizers will provide screening equipment. The size of the area available for a team's presentation will be announced prior to the event.

5.2.2. Posters or electronic presentations should be made in an interesting and entertaining format, as they will be viewed not only by the judges, but by other teams and the visiting members of the public. Presentations will be judged and an award made to the Primary and

Secondary team with the best presentation. The presentation should provide information about the team and how you prepared for the international event. Areas that need to be covered include: team name, division (primary or secondary), team members' names (and perhaps a picture of the team members), your city and country, a little about your district and school, pictures of the robot(s) under development, and information about your robot and team. Viewers will be interested to learn about:

What you hope to achieve in robotics?

What made you decide to come to RoboCupJunior International this year?

Who/what helped you to get to RoboCupJunior International?

Any interesting/unusual features about your team, robots, background or your participation?

5.2.3. RoboCup officials will review the documentation and may discuss the contents with team members. A prize will be awarded to the team with the most outstanding presentation.

[Please refer to section 4.4.1 for Presentation Award.](#)

## **6. CODE OF CONDUCT**

### **6.1. Spirit**

6.1.1. It is expected that all participants, students and mentors, will respect the RoboCupJunior mission. In addition, participants should keep in mind the values and goals of RoboCupJunior.

6.1.2. It is not whether you win or lose, but how much you learn that counts. You will really miss out on a lifelong learning experience if you don't take this opportunity to collaborate with students and mentors from all over the world. Remember this is a unique moment!

### **6.2. Fair Play**

6.2.1. It is expected that the aim of all teams is to participate in a fair and clean manner.

6.2.2. Humans who may cause deliberate interference with robots or damage to the stage will be disqualified, if part of a team. If not part of a team they will be asked to leave the venue.

6.2.3. The team is responsible for removing all debris left from their routine that may interfere with the performance of subsequent activities.

6.2.4. Remember...helping those in need and demonstrating friendship and cooperation are the spirit of RoboCupJunior as well as for making a better world.

### **6.3. Sharing**

6.3.1. It is understood that any rich technological and curricular developments should be shared with other participants during and after the RoboCupJunior International.

6.3.2. Any developments may be published on the RoboCupJunior Web site following the RCJI event.

6.3.3. Sharing information furthers the mission of RoboCupJunior as an educational initiative.



## 6.4. Collegiality

6.4.1. In keeping with the spirit and collegiality aspects of RoboCupJunior International., a party will be provided by the organizers for all team members, mentors and supporters. It is strongly requested that all such individuals delay their departure sufficiently to attend, even if the party is held after the finals and presentations. The organizers request all team members bring business-sized cards to share with other teams at the party. These cards could include the team name, its members' name(s) and contact details, so students can remain in contact with each other after the event. This is optional, but encouraged. It is also requested, but not compulsory, for team members to wear either national dress, or some icon that identifies them with their country. This can be done in a humorous manner, such as an animal mascot from their country or another creative idea.

6.4.2. Each participating team will have one vote to nominate the team that displayed the greatest cooperative interactions and shared support with other teams. **Please refer to section 4.4.1 for Collegiality Award.**

## 6.5. Behavior

6.5.1. All movement and behavior is to be of a subdued nature within the event venue.

6.5.2. Competitors are not to enter set-up areas of other leagues or other teams, unless invited to do so by **other** team members.

6.5.3. Participants who misbehave may be asked to leave the building and risk being disqualified from the competition.

## 6.6. Mentors

6.6.1. Mentors (teachers, parents, chaperones and other adult team-members) are not allowed in the student work area, except to assist carrying equipment in or out of the area as teams arrive or depart, and to assist with moving equipment on or off the stage. If a problem is encountered with a computer or other device that is clearly beyond the reasonable ability level of a student to repair, a mentor may request permission from the organizers to enter the work area for the sole purpose of attending to that repair. They must leave the work area immediately after this is completed. Rule 6.6.2 still applies at these times. Mentors **are not allowed to** set up such equipment on stage, as this should be the responsibility of team members. Organizers will assign volunteers to teams that need an assistant for stage set-up. Teams should request this assistance to the officials. A mentor found in the student work area without an acceptable reason may lose his/her access to the venue.

6.6.2. Mentors are allowed to place a heavy piece of equipment on stage, however, they are not allowed to repair robots or be involved in programming of students' robots. See 6.6.1.

## 6.7. RoboCup Officials

6.7.1. The referees and officials will act within the spirit of the event.

6.7.2. Interviews will be judged by at least two RoboCup officials. Stage performances will be judged by a panel of at least three officials. One of the performance judges is the RoboCup official who judges the interview as well.



6.7.3. The RoboCup officials shall not have close relationship with any of the teams in the age-group they judge.

## 6.8. Bulletin

Teams will be responsible for checking the updated information during the event. The updated information will be provided on notice boards in the venue, and possibly on the hosting country RCJI website. The information will be announced at the beginning of the event and will be posted on the notice boards as well.

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Queries regarding the rules or their interpretation may be sent to the Chairman of the Technical Committee for Dance, Martin Bader (Germany) at [Martin\\_Bader@gmx.de](mailto:Martin_Bader@gmx.de)