



OnStage Rules (2016)

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Note: Changes from 2015 rules are highlighted in red.

Translated by RoboCupJunior Hong Kong

RoboCupJunior OnStage Technical Committee 2016:

Susan Bowler – Chair (Australia), susan.bowler@education.tas.gov.au

Josie Hughes – (UK), jaeh2@cam.ac.uk

Tiago Caldeira (UAE), tiago.caldeira@ibtikar.io

Shoko Niwa – (Japan), chocola@fc4.so-net.ne.jp

Lisbeth Uribe – (USA), luribe@theschool.columbia.edu

RoboCupJunior OnStage (formerly Dance) invites teams to develop a creative stage performance using autonomous robots that they have designed, built and programmed. The objective is to create a robotic performance of 1 to 2 minutes that uses technology to engage an audience. The challenge is intended to be open-ended. This includes a whole range of possible performances, for example dance, storytelling, theatre or an art installation. The performance may involve music but this is optional.

Teams are encouraged to be as creative, innovative and entertaining, in both the design of the robots and in the design of the overall performance.

RoboCupJunior台上表演(以往的舞蹈賽)邀請隊伍運用他們設計、組裝及已編寫程式的自主機械人去創作舞台表演。目標是創作一個1至2分鐘長的機械人表演，透過技術去吸引觀眾。挑戰是傾向開放式的。這包括全部可能表演範圍，例如舞蹈，講故事，戲劇或藝術裝置。表演可涉及音樂，但為非強制的。鼓勵隊伍的機械人設計及整個表演設計兩方面都具創造性、革新性及娛樂性。

These are the official rules for RoboCupJunior OnStage event 2016. These rules have priority over any translations. **The rules, score sheets, and all forms of documentation can be downloaded from the official RoboCupJunior website (<http://robocupjunior.org/>).** Teams are encouraged to study these **in detail**. All teams must comply with the rules for competing in RoboCupJunior 2016, including the age categories and team sizes stated.

這是2016年的RoboCupJunior臺上表演的官方賽規。這些規則優先於任何其他翻譯。賽規、計分表、及所有文件的表格都可從RoboCupJunior的官方網頁下載(<http://robocupjunior.org/>)。鼓勵隊伍詳細了解賽規，所有隊伍必須遵從RoboCupJunior 2016的比賽賽規，包括年齡組別及隊伍人數。

Changes from RoboCupJunior Dance 2015 rules

由RoboCupJunior舞蹈2015修改而成

Changes from previous Dance rules are highlighted in red. The rules have changed significantly for 2016 so all **teams should make sure they study the new rules**. The rules have been changed to deepen and broaden the educational benefits of competing in RoboCupJunior.

紅色部分是由之前的舞蹈賽規修改而成。2016年賽規有重大修改，因此所有**隊伍應確保他們了解新賽規**。規則已變得更為深化和擴大在RoboCupJunior比賽的教育效益。

Specifically, please pay attention to the following:

具體地，請注意以下事項：

- **Performances that are innovative and creative in their use of technologies are desired for the competition where the emphasis is on the robotic performance**
表演所使用的技術期望具有革新和創造性，比賽強調的是機械人的性能。
- **Open technical demonstration (see Section 3), which is a new addition to team's tasks.**
公開技術示範(見部分3)，為新增的隊伍任務。
- **A maximum of two human performers are allowed on the stage at any one time**
任何時間只容許最多兩名表演者在舞台上。
- **New score sheets have been produced and are available at robocupjunior.org**
新的計分表將會在robocupjunior.org網頁上提供。



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- Performances which use line following are discouraged and are not allowed for secondary teams.
表演中使用循軌跡走並不鼓勵，中學組更是禁止使用。
- All team members are encouraged to have a technical role in the team
鼓勵所有隊伍的隊員都擔當技術人員角色。
- Props and/or scenery are no longer rewarded. The focus of the performance should be on the robots!
小道具及/或佈景不再給予分數，焦點應集中於表演的機械人。
- Secondary teams are allowed to use up to 8 coloured markers (4 orange and 4 green, see Appendix for more information) on the stage to aid navigation if they wish.
中學組容許使用最多8個標示物(4個橙色及4個綠色，詳情見附件)放於舞台上，以協助機械人導航。

Overview: 概述

Teams are judged in three areas; OnStage performance, Open technical demonstration, and technical interview.
隊伍從三方接受評審，台上表演、公開技術示範和技術面試。

OnStage performance: 1-2 minute stage performance in which a performance routine is judged according to creative, innovative and entertainment criteria. Teams must show originality, **creativity** and innovation throughout their performance routine. It is expected that all participating teams perform their performance at their best. **See the Performance Score Sheet.**

台上表演：1-2分鐘的舞台表演是根據表演環節的創造性、革新性及娛樂性為標準來評審。隊伍在整個表演環節中，必須展現出獨創性、**創造性**、革新性。期望所有參加隊伍表現出他們最佳的表演。見表演計分表。

Open technical demonstration: 5 minute stage demonstration to showcase the capabilities of their robots. Teams should demonstrate and describe the capabilities of their robots such as interaction with humans or with each other, using colored markers for navigation, or a particular mechanism, sensor system or algorithm that has been developed. Teams need to present a technical description of how the capabilities have been developed, the challenges overcome and the technologies involved.

This is assessed on the demonstrations, description of robot(s) capabilities, and the quality of the presentation. See the Open Technical Demonstration Score Sheet.

公開技術示範：5分鐘的舞台示範以展示他們機械人的功能。隊伍應示範及描述他們機械人的功能例如機械人與人或機械人之間的互動，使用有顏色的標示物來導航，或被研發的特別機械裝置、傳感器系統或演算法。隊伍需要提及這些功能如何被研發出來，如何克服挑戰和所涉及的技术。

示範會被評審，包括對機械人(多個)功能的描述和演示的優劣。見公開技術示範計分表。

Technical interview: 15 minute face-to-face interview between the team and the judges in which all robots and programming are judged against technical criteria. Creative and innovative technical aspects are rewarded with higher scores. Judges are interested in determining students' understanding of the robotic technologies they have used. Teams must show authenticity and originality with regard to their robots and performance in this interview.

技術面試：每隊和裁判作15分鐘的面對面面試，以所有的機械人和編寫程式作為評審的技術標準。具創意和創新技術方面會獲更高分數。裁判團也有興趣確定學生對所使用的機械人技術的理解。面試中，有關機械人和表演，隊伍必須展現出真實性和原創性。

Each team members must be prepared to answer questions about the technical aspects of their involvement in the robot design. See the Technical Interview Score Sheet.

每名隊員必須準備好回答有關他們於設計機械人時所涉及之技術方面的問題。見技術面試計分表。

At the international RoboCupJunior OnStage competition, teams will also take part in a SuperTeam Performance.
於國際RoboCupJunior台上表演比賽，隊伍將會參與超級聯隊表演。



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• **SuperTeam Technical challenge:** a robotic performance created by a group of cooperating teams. SuperTeams comprise of two or more participating teams. The SuperTeams are given a short period of time for collaboration at the competition venue. During this time, each SuperTeam must create a new performance that incorporates the work of each participating team. SuperTeams are encouraged to create an exciting and entertaining robotic performance, expressing their friendship and cooperation and demonstrating what they have learnt from each other.

超級聯隊技術挑戰: 由合作隊伍組隊創作一個機械人的表演。超級聯隊由兩支或更多參加隊伍組成。讓超級聯隊在短期內於比賽場合作。這段時間，每個超級聯隊必須創作一個新的表演，這需要集合每支參與隊伍的工作。鼓勵超級聯隊創作出使人興奮和有娛樂性的機械人表演、表達他們的友誼與合作，展示出他們有什麼相互學習之處。

The SuperTeam Challenge is a special program for the international event and is not obligatory for regional events. The rules of the SuperTeam challenge are provided in a separate document, teams who participate in the international event are strongly encouraged to carefully read the SuperTeam 2016 rules in advance of the international finals.

超級聯隊挑戰為國際賽特別的節目，而不是強制性的區域賽。超級聯隊挑戰的賽規於另一份文件內提供。我們強烈建議參加國際賽的隊伍於國際總決賽前，詳細閱讀超級聯隊2016的賽規。

1. Robots 機械人

1.1. Robot technology 機械人技術

1.1.1. Teams are encouraged to use technologies creatively. Innovative or unusual use of technology (including sensors) is encouraged and will be rewarded. For example, laptops, notebooks, mobile phones, tablets, Raspberry Pi and other similar devices **can be used** as robotic controllers, on stage as part of the performance. **Under no circumstances will mains electricity be allowed to use on the stage.**

鼓勵隊伍有創造性地使用技術。鼓勵創新或獨特的技術使用(包括傳感器)和可能獲獎賞。例如手提筆記本、手提電腦、平板電腦、Raspberry Pi及其他相似裝置**可被使用**作機械人的控制器，作為舞台表演的一部分，但無論如何都不容許使用舞台的電源。

Teams are encouraged to use technology in unusual, innovative or inspired ways to create an engaging performance. If you are unsure whether the technology you are using is appropriate please contact the **Technical Committee Chair** before the competition.

鼓勵團隊使用技術時以獨特、創新或賦創造力的方式去創作有吸引力的表演。如你不確定您所使用的技術是否是恰當，請在比賽前聯絡**技術委員會主席**。

1.1.2. **Robots must perform autonomously.** 機械人必須自動地表演。

1.2. Size & number 尺寸和機械人數目

Robots may be of any size. Any robot(s) taller than **1.5 meters** from the stage floor must be discussed with the judges and permission sought. There may be any number of robots on a team. However, using multiple robots does not necessarily result in obtaining higher points.

機械人不限尺寸。任何機械人距離舞台地板高度超出**1.5米**就必須向裁判團商議及獲批准。各隊機械人數目不限。然而，不會因派出多個機械人而取得較高分數。

1.3. Communication 通訊

1.3.1. Robots may communicate with each other on stage. There must be no communication with off-stage devices. The only allowed communication protocols are infrared (IR), Bluetooth (LE and classic) and ZigBee. It is the team's responsibility to make sure that their communication does not interfere with other teams' robots when practicing or performing.

舞台上的機械人之間可互相通訊。不容許與舞台下的裝置有任何通訊。通訊協定只容許紅外線、超聲波、藍芽和ZigBee。練習及表演時，各隊伍有責任確保他們的通訊不會干擾其他隊伍的機械人。

No team is permitted to use other radio frequency (RF) signals (like Wi-Fi or Z waves) this may interfere with robots in other leagues. If you are unsure please check with the **Technical Committee Chair** before your performance.

隊伍是嚴禁使用其他無線電頻率信號(如WiFi或Z波)，因可能對其他賽事的機械人構成干擾。如果您不確定，請您在表演前交給**技術委員會主席**檢查。



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1.4. Lines and markers for sensing 軌跡及標示物感測

1.4.1. The primary league may use mats on the stage floor. Line following will not receive higher points.

小學組可於舞台地板上使用墊子。沿軌跡走不會獲較高分數。

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1.4.2. The secondary league must not use any mats or tape on the floor.

中學組不容許在舞台地板上使用任何或膠帶。

1.4.3. The secondary league may place up to 8 coloured cylinder markers anywhere on the stage to assist robotic navigation. Four of the markers are coloured orange and four are green. The markers are 210mm in height and 40mm in diameter. Details of how to construct the markers are given in the Appendix. Teams may bring their own cylinders if these satisfy the rules, or markers will be supplied by the organizers.

中學組可放舞台上的任何位置擺放最多8個有顏色的圓柱體標示物來協助機械人導航。標示物四個為橙色和四個為綠色。標示物為210mm高，直徑40mm。如何製作標示物的詳情請閱附件。如隊伍確定圓柱體符合賽規描述可自行帶備，或標示物將由大會提供。

1.5. Additional advice for designing and constructing robots 設計和建造機械人的其他建議

1.5.1. While floor joints will be taped to make them as smooth as possible, robots must be prepared for irregularities of up to 5 mm in the floor surface. Whilst every effort will be made to make the stage flat this may not be possible, teams should be prepared to cope with this uncertainty.

雖然地板接縫將會盡可能平滑地貼合，但機械人仍必須預算地板表面可能有高至5mm的偏差。雖然將盡一切努力使舞台平坦，但這是不可能的。隊伍應有所準備以應付這些不確定的因素。

1.5.2. Although the RoboCupJunior organizers endeavor to make variable lighting including spotlights available, there is no guarantee that direct or intense spotlights will be available. Teams should come prepared to calibrate their robots based on the lighting conditions at the venue. Teams using compass sensors should be aware that metal components of the staging may affect the compass sensor readings. Teams should come prepared to calibrate such sensors.

雖然RoboCupJunior主辦方會盡力使調節照明包括聚光燈，但並不能保證直接或強烈的聚光燈可調節。根據會場的燈光條件，隊伍應事先準備好調校他們的機械人。隊伍使用指南針傳感器應知道金屬部件可能會影響指南針傳感器讀數。隊伍應事先準備好調校傳感器

2. OnStage performance (40% of total score) 舞台上的表演 (為總分之40%)

2.1. Overview 概述

The OnStage performance is an opportunity to demonstrate the technical aspects of the robot(s), design and construction through a stage show. This could be, for example, a magic show, theatre performance, storytelling, comedy show, dance or art installation. Teams are encouraged to be creative, innovative and take risks in their use of technology and materials when creating their performances. Refer to the Performance Score Sheet for more details.

台上的表演為一個通過舞台演出展示機械人技術、設計及結構方面的機會。這可以是，例如，魔術表演、戲劇表演、說故事、喜劇表演、舞蹈或藝術設置。鼓勵隊伍在創作他們的表演時，發揮創意、革新及敢於冒險去嘗試技術及材質。欲知詳情請參閱表演評分表。

2.2. OnStage performance judging 舞台上的表演評審

2.2.1. All teams will be given 2 opportunities to perform before the judges. The highest scoring performance will be used.

所有隊伍將有兩次機會於裁判前進行表演。最高的表演得分將算入個別隊伍總分。

2.2.2. The stage performance will be judged by a panel of at least three officials. At least one of these judges are RoboCupJunior officials who have judged the Technical Interview as well.

舞台表演的評審團將由至少由三名為官方人員組成。評審團中至少一名為RoboCupJunior官方人員，且負責技術面試的評審。

2.3. Stage performance 舞台表演

2.3.1. The duration of the performance routine must be no less than 1 minute and no more than 2 minutes.



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表演環節必須最少維持1分鐘但不多於2分鐘。

2.3.2. Each team will have a total of 5 minutes for their performance. A judge starts a stopwatch when a team member steps a foot on the stage. This time includes stage set-up, introduction and performance routine, including any re-starts due to factors under the team's control. It does not include time needed for packing up and clearing the stage. If the time limit is exceeded due to circumstances outside the team's control (for example problems with starting the music by the technicians) there will be no penalty. The judges have the final say on any time penalties.

每隊伍演出總時間為5分鐘。當隊員踏上舞台的一刻，裁判便會開始計時。這5分鐘包括了舞台設置、介紹及表演環節，也包括任何由隊伍控制因素而導致的重新開始。清理舞台的時間則不包括在內。如果愈時原因是超出隊伍控制的情況下(如問題緣於技術員開始音樂的時間)，將不會因愈時遭扣分。裁判在處理愈時扣分問題上，擁有最終決定權。

2.3.3. 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. **The maximum total time onstage is therefore six minutes.**

緊接每個表演，每隊必須完全清理舞台，執拾及移走任何有關他們表演的物品。完成表演後，表演隊伍有最多一分鐘時間清理舞台。因此在舞台上的時間為最多六分鐘。

2.3.4. A technician designated by RoboCupJunior official will start the music and the audio visual/multimedia presentation for the performance routine.

每輪表演流程，由一名RoboCupJunior指派的工作人員播出音樂及視聽/多媒體展示。

2.3.5. **Teams are strongly encouraged to use the time while they are setting up on the stage to introduce to the audience the performance and the features of their robots.**

強烈建議隊伍在設置他們的舞台同時，向觀眾介紹他們的表現及機械人的功能。

2.4. Restarts 結果

Teams are allowed to restart their routine if necessary, at the discretion of the judges. There is no limit on the number of restarts allowed within their 5 minute-performance time. Penalty marks will be deducted from the score. The team will be asked to leave the stage after 5 minutes.

如有需要，允許隊伍重新開始他們的環節，由裁判斟酌決定。於5分鐘內的表演時間內，不限制隊伍重新開始的次數。分數將會遭到扣減。5分鐘後隊伍會被要求離開舞台。

2.5. Music & video 音樂及影片

2.5.1. Team may use music to complement their performance. Teams may find it useful to include a "beep" at the beginning of their music as a start signal.

隊伍可使用音樂補充他們的表演，隊伍可能發現，在他們的音樂開始處加入“beep”聲作為啟動信號會有幫助。

2.5.2. **If music is used teams must provide their own audio music source.** The preferred transport method is to place the sound file on a memory stick as a MP3 file. The memory stick should be clearly labelled with the team name and category (primary or secondary) and should hold only the MP3 file. It is essential that the music should be given to a sound technician or a RoboCupJunior official before the team's practice period. Teams are encouraged to bring multiple copies of the audio source file.

如隊伍使用音樂，隊伍必須提供自己的音頻音樂源。首選的傳輸方式是將聲音檔儲存為MP3檔放在記憶棒上。記憶棒應清楚地標有隊名、類別(初級組或高級組)和應存放的MP3檔。於隊伍的採排環節前將音樂交給RoboCupJunior官方的音響技術員非常重要。鼓勵各隊伍帶備多份的音源檔案拷貝。

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

音樂應該在音頻資料啟動後，經過幾秒無聲的前奏開始。

2.5.4. Teams are encouraged to provide a visual or multimedia presentation as part of their performance. This can take the form of a video, animation, slideshow etc. A projector and screen will be provided. **The organisers cannot guarantee the height of the projection screen above the stage.**

鼓勵隊伍提供視覺或多媒體演示作為他們表演的一部分。其形式可以為視頻、動畫、放映幻燈片等。大會會提供一個投



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映儀和投映屏幕。大會不能保證舞台上投映機屏幕的高度。

2.5.5. Interaction between the robots and the visual display is allowed and encouraged. A VGA and HDMI cable will be available on stage to which a laptop or other device can be connected to the projector. The length of the cable cannot be guaranteed.

機械人之間以及映像播放的互動是允許且受到鼓勵。可使用VGA電纜與便攜式電腦或其他設置連接到投映儀。電纜的長度不被保證。

2.6. Stage 舞台

2.6.1. The size of the performance stage area will be marked in a rectangular area of 4 x 3 meters (m) for robots with the 4m side facing the judges. This rectangular area is within a stage with a minimum size of 5 x 4 meters.

機械人的表演區域尺寸將被劃分為4 x 3米的長方形區域且邊長4米一面面向裁判團。該長方形區域位於一個最小5 x 4 米的舞台內。

2.6.2. The boundary of the performance stage area will be marked with a 50 millimetre (mm) black tape-line. Teams are allowed to use the black boundary to identify the performance stage area. The floor provided shall be made of flat (non-glossy) white painted MDF (compressed wood fibre).

表演區域的邊界將由50毫米(mm)粗的黑色膠帶標示。這讓隊伍能夠使用黑色膠帶邊界對機械人編程，使其辨認表演舞台區域。舞台的地面是(無光澤)白色漆面的MDF(壓縮木纖維地板)。

2.7. Scenery 佈景

2.7.1. Static props which do not form an integral part of the performance are discouraged since the focus of the performance should be on robots. The kind of props that are considered "interactive" are:

不建議靜止的道具作為表演的主要部分，因為焦點應放在機械人上。這類道具被視為具有互動性：

- Props interact with robots via sensors

機械人透過傳感器跟道具互動

- Props interact with robots via communication (bluetooth or ZigBee, for example).

機械人透過通訊(如藍芽或ZigBee)跟道具互動

If a team decides to use static props, they should be placed on the periphery of the defined stage performance area. Robots can sense static props to perform a certain task or trigger a performance as long as they are placed on the periphery of the defined stage performance area.

如隊伍決定用靜止的道具，他們應放置在規定的舞台表演區域外圍。機械人可以識別靜止的道具以執行某一任務或觸發表達，當它們放置在規定的舞台表演區域外圍時。

2.8. Human-robot and robot-robot interaction 人與機械人 及 機械人之間的互動

2.8.1. Robots may be started manually by human contact, sensor interaction or with remote control (see 1.3) at the beginning of the performance. This is the only physical contact humans may have with their robots. Any clarifications regarding this ruling should be directed to the judges before the competition to ensure the interaction is permitted.

表演開始時，可透過人手接觸、傳感器互動或遙控器(見3.1)啟動機械人。這是隊員唯一可身體與他們的機械人接觸。任何有關該規則的澄清，應在比賽前直接向裁判團查詢以確保該互動是允許的。

2.8.2. Human-robot interaction is encouraged; humans cannot physically touch the robot, just interact with the robot's sensors. Interaction which is used to alter the robot's behaviour directly, e.g. to keep it inside the black lines, will be rewarded far less in comparison to more intelligent interaction (e.g. a robot following human using a camera).

鼓勵人與機械人的互動；人不能與機械人有身體接觸，互動只能透過機械人的傳感器。互動可以用來直接改變機械人的行為，例如使機械人跟隨黑線所獲分數遠少於更智能化的互動(如機械人透過鏡頭跟隨人)。

2.8.3. Interaction between robots is highly encouraged. Robots are allowed to physically touch one another, and can interact through sensors and also wired/wireless communication (refer to 1.3 for allowed wireless communication).

極鼓勵機械人之間有互動。容許機械人之間有身體接觸，能透過傳感器互動，也可以有線/無線方式通訊(參閱1.3部分容



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許的無線通訊)。

2.9. Humans on stage 舞台上的人

2.9.1. A maximum of two human team members may perform with their robots on the stage at any one time during the performance. There is no penalty for humans not performing with their robots. Human performers may be inside and/or outside the marked area but should keep to the 5 x 4 meter area.

機械人在舞台上進行表演期間，只容許最多兩名隊員在台上。若沒有人跟機械人一同表演亦不遭扣分。表演者可身處在標記區域之內或之外，但不能超出5 x 4米的區域。

2.10. Penalties 處分

2.10.1. If a team exceeds the time limit explained in 2.3, the team will be penalized by the loss of points (see performance score sheet).

如有隊伍因2.3中所述而愈時，該隊伍將被處罰遭扣分(見表演計分表)。

2.10.2. If **all of the robot's contact points (e.g. wheels)** move outside the marked boundary of the performance area the team will receive a penalty score. **A contact point is considered to be the point at which a robot touches the stage.** If in doubt please consult with the **Technical Committee Chair** for clarification of "contact point" in relation to your robot design.

如**所有機械人的接觸點(如輪子)**移動到表演區域的邊界之外，隊伍會遭扣分。**接觸點可視為機械人接觸舞台的部分(點)**。如對機械人設計在澄清「接觸點」上有疑問，請與技術**委員會主席**磋商。

2.10.3. Unless a problem is not the fault of the team, any restart will result in a score penalty.

任何一次的重重新啟動將會被扣分，除非問題原因不在於隊伍。

2.10.4. Teams who, in the opinion of the judges, have knowingly produced duplicate robots, costumes or performance movement (duplicate music is allowed) of another team or reused previous years' robots (with or without modifications), costumes or performances will be subject to penalties. This applies to any previous RoboCupJunior Dance or Dance performances.

如裁判認為隊伍的機械人、服裝或表演動作(相同音樂是允許的)明顯是抄襲另一隊伍或再次使用往年的機械人(不論有/沒有修改)、服裝或表演將遭受處罰。這適用於以前任何的**RoboCupJunior**舞蹈或舞蹈表演。

2.11. Preparation for the stage performance 舞台表演的準備

2.11.1. It is the responsibility of the team to ensure that the music and video/presentation is playing correctly before their first performance by liaising with the RoboCupJunior officials.

RoboCupJunior官方人員通知隊伍作首次表演之前，隊伍是有責任確保音樂及影片/演示可正確地播放。

2.11.2. Depending on the configuration of the stage and the sound system at the venue, it is possible that the human starting the robot will not be able to see the RoboCupJunior official starting the audio source; and vice versa. Teams should come prepared for these conditions.

基於舞蹈場地的結構，現場環境影響等因素，啟動機械人的隊員和播放音頻資料的RoboCupJunior工作人員可能是相互間看不見對方「動作」的。因此各隊伍必須準備好以適應這些情況。

2.12. Practice on the main stage 於主舞台上練習

2.12.1. The main performance 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. Please be respectful of the allocated time.

參賽隊伍可於表演舞台上練習。有意練習的各參賽隊伍在公平情況下，採用預訂表預約舞台作短暫的練習。請尊重的分配時間。

2.12.2. The last team to practice on the main stage before performance time starts must fully clean up the stage and clear the stage area at least 3 minutes before the performance start time.

在表演開始前，最後於舞台上練習的隊伍必須將舞台完全清理好，並最少要在表演開始前3分鐘內完成。



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2.13. Content 內容

Any performance that includes violent, military, threatening or criminal elements will be excluded. Any team using an inappropriate name or logo will also be excluded.

任何表演不容許有任何暴力、軍事、威嚇或犯罪元素存在。亦不容許隊伍使用不當字眼或標籤。

Participants are asked to carefully consider the wording and messages communicated in any aspect of their performance. What seems acceptable to one group may be offensive to friends from a different country or culture.

參加者請小心地考慮他們在表演中任何方面所傳達的字詞：比如字詞會否冒犯不同國家或文化的朋友。

2.14. Security and safety 保安及安全

2.14.1. In order to protect participants **and comply with occupational health and safety regulations of the host country**, RoboCupJunior officials and bystanders, routines may not include explosions, smoke or flame, use of water, or any other hazardous substances.

為保障參加者安全、**遵從東道國的職業保健及安全條例**。RoboCupJunior官方人員和旁觀者，慣例是禁止爆炸、煙霧、火焰、使用水、或任何其他有害物質。

2.14.2. A 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 performance to the **Technical Committee Chair one month** before arriving at the competition. The **Technical Committee Chair may also request further explanation** and also a demonstration of the activity before the stage performance. Teams not conforming to this rule may not be allowed to present their routine.

程序中若包含任何可視為危險的情況，包括可能損壞舞台，隊伍在比賽前一個月就必須向**技術委員會主席**提交報告，描述其表演內容。**技術委員會主席可能要求該隊伍進一步的解釋**和在舞台表演前先作示範。不遵守本規則的隊伍，可能不獲准表演。

2.15. Authenticity and originality 真實性及原創性

The performance is to be unique and have never been used in any other RoboCupJunior International competitions. Teams are encouraged to carefully check that all robots and costumes conform to this rule.

表演是唯一的和未曾於任何其他RoboCupJunior國際賽使用過。鼓勵隊伍小心檢查所有機械人及服裝均符合賽規。

3. Open technical demonstration (30% of total score) 公開技術示範 (佔總分30%)

The description of the robots' capabilities should explain to the audience how the robot's capabilities have been achieved. Teams for whom English is not their first language will be provided with a RoboCup official to present their written words if so required. Teams may use a video or other recorded aids to present the description.

描述機械人的能力時，應向觀眾解釋是怎樣使機械人獲得該能力。非英語為母語的隊伍，如有需要，將提供RoboCup官方人員演說隊伍寫好的文字內容。隊伍可使用影片或其他記錄來協助描述。

3.1. Demonstration procedure 示範程序

3.1.1. **Teams will have 5 minutes on stage to give their demonstration. They will additionally have 1 minute to enter and set-up on stage and an additional 1 minute to clear the stage.**

每隊有5分鐘時間在舞台上示範，他們有將額外的1分鐘進駐及設置舞台和額外的1分鐘清理舞台。

3.1.2. **The technical capabilities of their robot(s) should be demonstrated by both describing what has been developed and demonstrating this capability. This could cover any aspect of the performance or technical capabilities of the robot(s), such as interaction with humans, interactions with other robots or the use of a particular sensor.**

示範機械人技術的能力時，應一同描述什麼被開發出來和示範其能力。這可涵蓋表演方面和機械人技術的能力，如與人互動，機械人之間互動或使用的特別傳感器。

3.1.3. **The technical demonstration will be judged by at least two judges.**

技術示範將最少由兩名裁判負責評審。

3.1.4. **The Open Technical Demonstration Score Sheet is used in the judging. It is strongly suggested for teams to read the Score Sheet before the demonstration to make good use of the demonstration. This assesses both the content and**



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presentation of the demonstration.

評審將使用公開技術示範計分表。強烈建議隊伍在示範前閱讀計分表使示範的更好。該評審包括內示範的內容及演示。

3.2. Stage 舞台

The same stage will be used for performance and the technical demonstration, with the same restrictions as given section 2.6 applying.

同一舞台將被用作表演及技術示範，並受到規則2.6部分的約束。

3.3. Demonstration presentation 示範演示

Two microphones will be available for teams to use. Teams are encouraged to produce presentations, videos or use music or a pre-recorded commentary to accompany and assist with their technical demonstration. There is no limitation on the number of team members allowed on the stage.

隊伍將有兩個麥克風可使用。鼓勵隊伍製作演示文稿、視頻或使用音樂或預先錄製的解說旁白，以協助他們示範。這部分不限制隊員在台上的數目。

4. Technical interview (30% of total score) 技術面試(佔總分30%)

4.1. Interview procedure

4.1.1. All teams will have a 15 minutes technical interview judging during the competition.

比賽期間所有隊伍均有15分鐘的技術面試。

4.1.2. Interviews will be judged by at least two RoboCupJunior officials.

面試將最少由兩名RoboCupJunior工作人員評審。

4.1.3. The Interview Score Sheet is used in the interview judging. It is strongly suggested for teams to read the Technical Interview Score Sheet **before** the interview to make good use of the interview.

面試計分表會於面試評審時使用。強烈建議隊伍在面試前已閱讀過舞蹈面試評分，以確保面試回答是有用的。

4.1.4. Teams should ensure that they bring all their robots, and copies of all their programs in a format that can be easily viewed.

隊伍確保帶齊他們所有機械人，及所有程式的副本，並為易於查看的格式。

4.1.5. Each team member must be prepared to answer questions about the technical aspects of their involvement in the robot design.

每名隊員必須準備好回答有關他們於設計機械人時所涉及之技術方面的問題。

4.2. Translator 翻譯員

Interviews will take place in English. If teams require a translator they should inform the RoboCupJunior officials or local organizing committee by e-mail prior to the event to allow translators to be organized.

面試將使用英語。如隊伍需要翻譯員，他們應事前透過電郵通知當地的舉辦委員會，以安排翻譯員。

4.3. Second technical interview 第二次面試

If the judges consider it necessary, teams may be asked to complete a second technical interview. If this occurs, the score from the second interview will be used to calculate the total score.

如裁判認為有必要，隊伍可能被要求完成第二次面試。如果發生這種情況，第二次的技術面試得分將用以計算個別隊伍之總分。

5. Documentation required for the event 所需的活動文件

5.1. Documents 文件

5.1.1. A technical information form will be send to teams prior to the international event. This allows teams to provide a summary of the robots and technology used prior to their interview. Teams should ensure that they submit this form.

技術資料表格將於國際賽前發給隊伍。容許隊伍在面試前提供機械人的摘要及使用的技術。隊伍應確保他們提交了表格。



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5.1.2. The Technical Sheet must be submitted to the judges prior to judging.

技術表格必須在評審前提交給裁判。

5.2. Poster (optional) 海報(選擇性的)

5.2.1. Teams will be given public space to display a poster. The size of the poster should be no larger than A1 (60 x 84 cm). The interview the poster should be displayed in the designated location. Teams may bring the poster to the interview if they contain useful information, however the poster will not be judged during the interview. **Electronic posters will not be accepted.**

將會有公共空間給隊伍展示海報。海報的尺寸不應不大於A1(60 X 84厘米)。面試海報應顯示在指定的位置。如隊伍確定資料有用，可帶同海報前往面試。然而，面試期間海報不會得到評審。**不接受電子式的海報。**

5.2.2. The purpose of the poster is to introduce the team, explain the technology used to develop the robots and document the preparation work. Posters should be made in an **interesting and engaging format**. They will be viewed not only by the judges, but also by other teams and visiting members of the public.

海報作用是介紹隊伍，解釋機械人所使用的技術及記錄準備的工作。海報應做到**富趣味性和吸引力**。它將不僅供裁判觀看，還供其他隊伍和公眾人士觀看。

5.2.3. Areas that are useful to include are: team name, division (primary or secondary), and your country, annotated pictures of the robot under development at various stages and an explanation of the innovative robot technologies used.

有用的部分包括：參賽隊名、組別(小學組或中學組)、所屬國家、機械人在不同研製階段附有注解的照片及解釋機械人所使用的革新技術。

6. Judging and commending 評審及表揚

6.1. Judging criteria 評審標準

The judging criteria and allocation of marks are given in the respective score sheets.

評審標準和分數比重見各計分表內。

6.2. Totaling 總計

6.2.1. The total score of each team is calculated by combining the scores from the team's technical interview and the open technical demonstration, and **the highest score from two OnStage performances. There will no finals.**

各隊伍的總分計算由隊伍的技術面試、公開技術示範和**兩次台上表演最高分的一次合計而成**。該總分不會立入決賽成績中。

6.3. Prizes and awards 獎項

6.3.1. The following trophies will be awarded in each age category (primary and secondary):

以下獎項將會頒發給每個年齡組別(初級組和高級組)：

- **The RCJ International OnStage Team of the Year** is awarded to the team with the highest combined overall mark.
本年度的**RCJ國際舞台表演隊伍**是頒發給總分數最高的隊伍。

- **The RCJ International OnStage SuperTeam of the Year** is awarded to a SuperTeam that has gained the highest SuperTeam performance score.

本年度的**RCJ國際舞台表演超級聯隊**是頒發給超級聯隊表演分數最高的超級聯隊

6.3.2. Awards will also be given to individual teams in the following categories: 授予個別隊伍的獎項有以下類別：

Best Design & Construction 最佳設計及結構

Best Use of Electronic Devices 最佳電子設備的使用

Best Use of Sensors 最佳傳感器使用

Best Programming 最佳程式編寫

Best Robot interaction 最佳機械人互動

Best Open Technical Demonstration 最佳公開技術示範



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The awards will be awarded based on both the Technical Interview, the Open Technical Demonstration and the Performance scores at the discretion of the judges. Individual teams can receive only one award.

這些獎項將根據技術面試、公開技術示範和表演的分數，由裁判決定頒發。個別隊伍可獲頒一個獎項。

6.3.3. There may also be certificates awarded for the following categories: 另外按以下類別也將獲頒證書

Best Team Collegiality: This award goes to the team who, by popular vote, has given the greatest support to the other teams; the support can be demonstrated in a number of ways, such as providing assistance with components, developing friendships and/or giving encouragement to other teams.

最佳隊伍合議：獲該獎隊伍是由民眾投票產生，為其他隊伍給予最大的支持。這支持方式可以有許多種，例如提供組件的協助、與其他隊伍發展友誼和給予鼓勵。

Best Poster: This award goes to the team who, at the discretion of the judges, has produced the best poster that describes the team and robot technology used.

最佳海報：獲該獎隊伍是由裁判所裁定，所提供的最佳海報是描述隊伍和機械人所使用的技術。

Best Creative Presentation: This award goes to the team who, at the discretion of the judges, has produced the most creative and technically interesting digital display that supports and enhances the robot performance. This could be a video, slideshow, images or any other form of digital product that is displayed during the performance.

最佳創意介紹：獲該獎隊伍是由裁判所裁定，為支持和提高機械人的表演，上演最具創意和技術上有趣的數碼顯示。這可能是表演期間所顯示的視頻、幻燈片顯示、圖像或任何其他形式的數碼產物。

Best Novice Team: This award goes to the primary and the secondary teams who have placed highest in the competition overall and have not received another award, and where ALL members of the team are competing at RCJ international for the first time (this does not include a team having a team member(s) who has (have) competed in other RCJ categories).

最佳初次參賽隊伍：獲該獎的小學及中學隊伍在比賽中取得最高成績，未曾取得另一獎項，隊中的所有隊員都必須是第一次參加 RCJ 國際比賽(這不包括隊中有隊員參加過 RCJ 國際賽的其他項目)。

6.3.4. No one team shall receive more than 3 prizes, awards and/or certificates excluding the SuperTeam awards.

無一隊伍可獲頒3個以上的獎項或證書，超級聯隊獎除外。

6.4. Feedback 回響

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

RoboCupJunior 是一項具有教育意義的項目。為保證這個目的，參賽隊員能夠從他們在 RoboCup Junior 的經歷中學習，非常重要。他們能夠在以後的日子有提升的機會。舉辦大會將於比賽完結時，向每隊給予表現的評價。在紙上指出隊伍在比賽中的強項和需要改進的地方。需要注意的是，這些紙不是用來辯駁裁判的判決和比賽成績。

6.4.1. Scores will be given after the first performance to allow teams to better prepare for the second performance.

分數將於第一輪表演後提供，讓隊伍為第二輪作更好的準備。

7. Code of conduct 操行

7.1. Spirit 精神

7.1.1. 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.

期望所有的參加者、學生和教練能尊重 RoboCupJunior 的宗旨。再者，參加者應該銘記 RoboCupJunior 的價值和目標。

7.1.2. 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.



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Remember this is a unique moment!

無論輸贏，重在學習。如果不能抓緊時機與來自全球各地的師生友善交往相互切磋，那你將會是不折不扣的大輸家。謹記千載難逢！

7.2. Fair play 公平比賽

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

期望所有參賽隊伍的目標皆為公平及環保的比賽。

7.2.2. Humans that 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 ask to leave the venue. The team is responsible for removing all debris left from their routine that may interfere with the performance of subsequent activities.

任何人為故意干擾其他機械人或是故意損壞比賽場地的情況，該肇事者若為參賽隊伍成員，將失去其比賽資格；若非隊伍成員，則驅逐出場。各隊伍均有責任清理場地以免影響隨後的表演活動

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

銘記：「助人者，人將助他(勿吝惜援助之手)。RoboCupJunior精神也。」

7.3. Sharing 分享

7.3.1. It is understood that RCJ events with rich technological and curricular developments should be shared with other participants after the competition.

RoboCupJunior國際賽過後，RCJ活動中豐富的技術及課程發展都應與其他參加者分享。

7.3.2. Any developments may be published on the RoboCupJunior web site following the event. **All winning teams should submit a one page PDF summary describing their robots for upload to the RoboCupJunior website. The technical form from the 2014 rules can be used as a guidelines.**

活動過後，任何發展都可能在RoboCupJunior網站上公佈。**所有獲獎隊伍應提交一頁PDF的摘要來描述他們機械人，以上傳至RoboCupJunior網站。可以以2014賽規的技術表格作為準則。**

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

分享資訊進一步加強了RoboCupJunior作為一項具提倡教育的活動。

7.4. Behavior 行為

7.4.1. All movement and behaviour is to be of a subdued nature within the event venue.

賽場內的所有活動和行為都應有所克制。

7.4.2. Competitors are not to enter set-up areas of other leagues or other teams, unless expressly invited to do so by other team members. Participants who misbehave may be asked to leave the building and risk being disqualified from the event.

參賽者不可進入其他同盟或其他隊伍的設置區域，除非明確地得到其他隊伍成員的邀請。行為不端的參賽者將逐出會場甚至取消比賽資格。

7.5. RoboCupJunior officials 工作人員

7.5.1. The officials will act within the spirit of the event.

工作人員的行為應遵守活動的精神。

7.5.2. The RoboCupJunior officials shall not have close relationship with any of the teams in the age group they judge.

RoboCupJunior工作人員不得與任何他們評審的年齡組別之隊伍有親密關係。

7.6. Mentors 教練

7.6.1. Mentors (defined as teachers, parents, chaperones, translator or any other non teammember) are not allowed in the student work area except to assist carrying equipment in or out of the area on the arrival and departure days.



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Note: Changes from 2015 rules are highlighted in red.

Translated by RoboCupJunior Hong Kong

教練(老師、父母、監護人、翻譯員和其他非隊伍成員)不允許駐足於學生工作區域。除了在進館或撤館日，協助隊伍將設備搬進或搬出學生工作區域。

7.6.2. 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 advising on that repair. They must leave the work area immediately after this is completed. Rule 8.7.1 still applies at these times.

如果電腦或其他設備出現問題，且顯然超出了學生可以修好的合理能力水平，導師可以向大會申請許可進入工作區域，其唯一目的是提出維修的建議。完成後教練必須立即離開工作區域。規則7.6.1，這時仍有效。

7.6.3. Mentors are not allowed to set up 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.

教練不允許在舞台上裝配設備，且這應該是隊員的職責。大會將會指派義工給有需要協助設置舞台的隊伍。需要協助的隊伍應先向工作人員提請。

7.6.4. A mentor found in the student work area may lose his/her access to the venue and the team will be penalized.

一旦發現教練在沒有合理原因下出現在學生工作區域，他/她將會被逐出會場和有關隊伍將遭扣分。

7.6.5. A mentor found to be involved with mending, building or programming the robot(s) and/or directing choreography may lose his/her access to the venue and the team marks will be penalized. This applies to both the "individual" and "super team" competitions.

一旦發現教練為機械人進行縫補衣服、組裝、程式編寫和/或指導舞蹈編排，他/她將會被逐出會場和有關隊伍將遭扣分。這適用於“個別”和“超級聯隊”的比賽。

8. Additional information 額外資訊

8.1. Information about the event 有關活動的資訊

8.1.1. Teams will be responsible for checking for updated information during the event. Teams should check the notice boards at the venue and also the RoboCup 2016 website.

活動期間隊伍有責任檢查更新的信息，隊伍應留意會場的告示板以及RoboCup2016網站。

8.1.2. Newsletters will be disseminated during the event to ensure teams and mentors have the latest information.

簡報將在活動期間發佈，以確保隊伍和教練獲得最新信息。

8.2. Contact 聯絡

Queries regarding the rules or their interpretation may be sent to the OnStage 2016 Technical Committee Chair:

如對有關規則或他們闡明有疑問可向2016台上表演技術委員會主：

Susan Bowler – Chair (Australia), susan.bowler@education.tas.gov.au

Note: The English version of these rules shall prevail wherever there is a discrepancy between the English and the Chinese versions.

注意：本賽規的中英文本如有歧義，概以英文本為準。