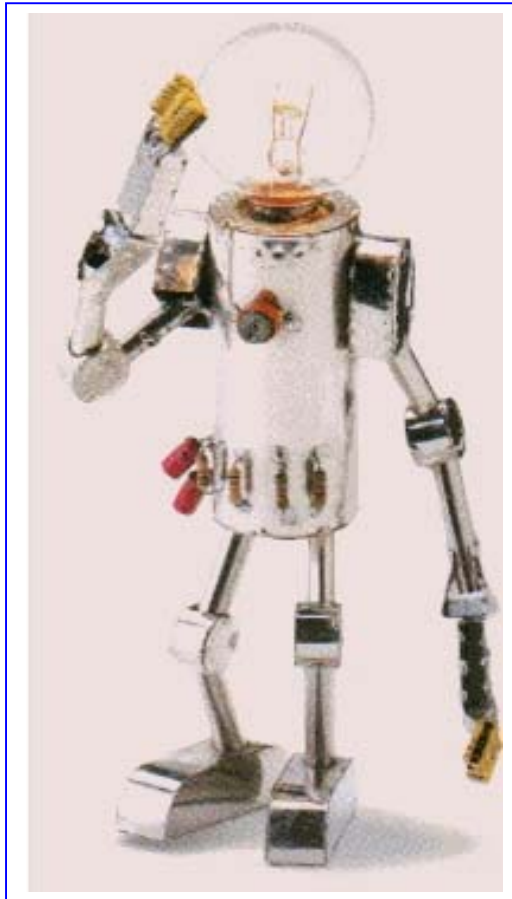


# RoboFesta UK



Promoting science and technology in Britain  
through robot events and competitions,  
education, and teamwork

 RoboFesta-UK is sponsored by the Open University

# RoboFesta News

Number 1, Spring 2001

edited by

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## 1. Introduction

### 1.1 The purpose of this newsletter

On 1 November 2001, we held the inaugural meeting of RoboFesta-UK at the Open University. Almost 100 people came from universities, colleges, schools, government agencies, companies and science centres from across the UK.

The purpose of this newsletter is to keep interested parties informed of the progress that is being made, and to publish our activities more widely for those who could not attend the inaugural meeting. In this newsletter, we will bring together information on the nature of RoboFesta and what we are trying to achieve, before reporting on the steps that have been taken in the last two months.

### 1.2 Future editions of the newsletter

We expect this to be the first of a series of RoboFesta-UK newsletters. If you would like to contribute to future editions please email your suggestion to [robofesta@pen.ac.uk](mailto:robofesta@pen.ac.uk) (or visit the website: [www.robofesta-uk.org](http://www.robofesta-uk.org))

If you would like to be removed from the mailing list please email [robofesta@open.ac.uk](mailto:robofesta@open.ac.uk).

If you would like to be added to the mailing list, please email [robofesta@open.ac.uk](mailto:robofesta@open.ac.uk).

### 1.3 Errors and apologies

We have put this newsletter together on the basis of our shared memory of events. We apologise for any errors and omissions. Many people have been involved in getting RoboFesta-UK going. We hope those not explicitly mentioned will understand the oversight. It is also possible that we have inadvertently misrepresented people's views. In such cases, we will always want to put the record straight, by including corrections in future editions of RoboFesta News. Send your suggestions to [robofesta@open.ac.uk](mailto:robofesta@open.ac.uk).

## 2. What is RoboFesta-UK?

### 2.1 The Origins of RoboFesta-UK

In the 20<sup>th</sup> century, science and technology developed rapidly and made enormous contributions to improving human living standards, but it created many kinds of problems as well. As we enter the 21<sup>st</sup> century, if we are to overcome these problems and develop science and technology further, we must attract young minds to these topics. RoboFesta aims to stimulate young people and help them develop by giving them the opportunity to build things in an exciting context, and to use the potential of the games to interest people in science and technology.

RoboFesta was originally a Japanese initiative to promote science and technology education and understanding through robotics and robotics events. It has spread rapidly around the world, and is currently transforming itself into an independent international foundation, including RoboFesta-Europe and RoboFesta-UK. By giving young people the opportunity to build robots, RoboFesta aims to

develop their creativity, independence and scientific understanding. These opportunities are realised in the context of robotics challenges and robot related contests.

Robot contests combine a “game” element with science and technology in a way that invites people to experience the “wonder” of making things work – that is, of engineering. We aim to contribute to the promotion of science and technology by hosting an International Games Festival and creating an environment which encourages participants from around the world to become more familiar with science and technology.

RoboFesta-UK was founded in 1999 at the invitation of the International Committee. We share the educational and outreach missions of the international RoboFesta Community, and strive to collaborate with others to use robotics as a stimulus for education and public understanding of science and technology in the UK.

On 25<sup>th</sup> November 2001, Jeff Johnson was part of the International Committee of RoboFesta that met at RoboFesta in Yokohama to discuss the future of RoboFesta. At that meeting we produced the declaration which is reproduced as Appendix A.

## 2.2 The Board of RoboFesta-UK

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Milton Keynes – MK7 6AA UK  
jenny@robofesta-uk.org

## 2.3 The RoboFesta Advisory Committee

Apart from our small Board, RoboFesta-UK has a much larger Advisory Committee. The purpose of this Committee is to receive information and suggestions, and to advise on the desirability or feasibility of what we are trying to do. This includes giving us information, and warning us of local events and other considerations that may have been overlooked.

## 2.4 RoboFesta Web Sites

[www.robofesta-uk.org](http://www.robofesta-uk.org)  
[www.robofesta-europe.org](http://www.robofesta-europe.org)  
[www.robofesta.net](http://www.robofesta.net)  
email: [robofesta@open.ac.uk](mailto:robofesta@open.ac.uk)

<http://www.open.ac.uk>  
<http://www.bbc.co.uk/robots>  
<http://www.artificialia.com/RoboCupJr/>

### **3. The Inaugural Meeting of RoboFesta-UK on 1<sup>st</sup> November 2001.**

#### **3.1 Purpose of the Inaugural Open Meeting**

The Board and Committee of RoboFesta-UK are planning to host a major series of RoboFesta events in 2002 and 2003 leading up to the RoboFesta-Europe celebrations in 2004. Our intention is that local committees will organise these events, with our help, in towns and cities all over the UK.

On the 1<sup>st</sup> November 2001 we held an inaugural meeting at the Open University in Milton Keynes. The purpose was to bring together the many UK robotics organisations, university robotics specialists, educationalists, schoolteachers, museum curators, robot manufacturers, school equipment suppliers, government organisations, local authorities, broadcasters, and others. Although many of these groups are involved with robotics in some way (*e.g.* through education, event organisation, or funding) communication between them is not always established as effectively as it might be. A key part of the RoboFesta-UK philosophy is that we work with as many of these established robotics and educational groups in the UK as possible, and help communication between them at a local level. In this way we hope to facilitate an effective national robotics event and education network, making RoboFesta-UK a major event in 2004 with local exposure on a national scale.

RoboFesta stresses teamwork and working together for mutual benefit and to make contributions to education and science and technology in the UK. We hope that others will continue to join us and help to shape and direct this exciting initiative.

Anyone can join RoboFesta, and everyone is welcome to help us undertake the massive task of making RoboFesta-UK-2004 a major success and a milestone in British science, technology, and education. Please come to our meetings, and maybe join the Advisory Committee, or volunteer to help organise RoboFesta in your area.

#### **3.2 Report on the Inaugural Open Meeting, 1<sup>st</sup> November 2001**

After an introductory address on 'Working together towards RoboFesta 2004' by Dr Jeffrey Johnson, RoboFesta-UK chair, the audience was entertained by a talk on RoboCup Junior by Prof. Henrik Lund from the Maersk Institute of the University of Southern Denmark. RoboCup Junior runs various children's robotics competitions at an international venue each year, as well as operating at a local level in towns and cities all over the world. The events include a robot football competition, in which teams of competitors construct and program one or two-player robot football teams to play each other, a simple 'rescue' task, and a 'robot dance' competition in which children build a kinetic sculpture that 'dances' along to a pop tune. Prof. Lund also showed video clips of how consumer robot construction kits (in particular, Lego MindStorms) can be used to create complex robots, including a biped robot, and a robot orchestra that astounded many with its charm. See <http://www.artificialia.com/RoboCupJr>.

MicroMouse is another event that has national exposure and a long history in the UK. Dr. Adrian Johnston of Royal Holloway and Bedford College, London University, explained how, when the tournament was first established, robots had to traverse a maze, the robot finding the centre in the shortest time being proclaimed the winner. Over the years, simply solving the maze has become less of a challenge, and now the competition can resemble a maze-based grand prix, rather than a slowly-solved puzzle.

Prof. Martin Smith of the University of Central England has been involved with organising major robot events and exhibitions over the years. He adjudicates on Scrapheap Challenge, BBC television's Robot Wars and is a Technical Presenter on BBC2's Techno Games, as well as pursuing research in robotics and cybernetics. See <http://www.cybsoc.org>.

Two areas, apart from television, where robots are increasingly getting exposure are on the web and in interactive museums. Jessica Palmer and Natasha Soma gave a presentation on the BBC TechnoGames website. This site has a virtual robot building laboratory and also provides learning journeys through robotic-related content. The team also produces an interactive CD which was made available at the meeting. See also [www.bbc.co.uk/science/robots](http://www.bbc.co.uk/science/robots).

Prof. Noel Sharkey's presentation showed videos of several robots he has been developing for an installation-experiment in ecological robotics at the Magna museum in Rotherham. One of the videos

showed two sorts of robot - predators and prey - in which the predators captured the prey and then vampire-like sucked 'battery juice' from the prey. This installation will be launched in summer, 2002.

Support from government agencies for science and technology education is already available and has produced many initiatives that complement the RoboFesta-UK vision. Tony Kesten of the DTI, and Head of the Engineering Policy Unit, gave a highly relevant talk on Government Support for the Delivery of Science and Technology, Engineering and Maths (STEM) to Schools. In this he explained how the Government has committed £2m p.a. to strengthen STEM delivery, the target being that 'over the next three years, every child under 16 should have an opportunity to participate in an appropriate STEM activity at least once...'. SETNET play a major role in this, by setting up a network of some fifty two SETPoints, to provide advice to teachers about the proliferation of schemes, awards and competitions. From September 2001, the new SETNET will monitor performance of SETPoints against business plans, raise the network profile, ensure best practice, and administer the new Science and Engineering Ambassadors Programme. Tony Kesten then explained how the Science and Engineering Ambassadors Programme will bring together existing schemes such as the Neighbourhood Engineers Programme and Researchers in Residence, allowing supporters of existing activities to retain and increase their profiles, ideally reaching every school in the UK. The programme will be administered by SETNET in support of the strengthened STEM delivery network, providing a framework addressing issues of recognition, competence, quality and insurance. The talk ended by a statement that any RoboFesta-UK events should *be inclusive*, bringing together existing activities and generating a higher profile for robotics, *not creating new events*. RoboFesta-UK events should also be *integrated*, *i.e.* delivered in partnership with existing organisations, notably SETPoints and Science Centres.

Andy Breckon, Chief Executive of DATA (Design And Technology Association), gave a presentation on Design and Technology embedded new technology in the curriculum. Design and technology links the arts to science and mathematics, and is moving towards the heart of the school curriculum. DATA has the objectives of supporting, encouraging, promoting, and developing design and technology in all its branches (see <http://www.data.org.uk>). Data has an agenda for change, including a new paradigm for the subject and its assessment: CAD/CAM in schools; the Marconi ECT Project; the use of smart materials - TEP; more emphasis on systems and control including robotics; and food technology. Various students' showcase examples were shown. The Marconi ECT Project intends to train at least one teacher in every school able to teach ECT (Electronics and Communications Technology) or other appropriate course to GCSE or its equivalent, moving from 18% to 100% in five years. It was explained how DATA will support this with material and its websites. The talk concluded with DATA's view on competitions and RoboFesta:

- RoboFesta-UK must have good educational principles;
- it must have up to date and relevant content and skills;
- it must build on the curriculum and extend it;
- it must be stimulating and fun for pupils;
- it must reward all pupils for their achievement;
- it must raise standards;
- it must provide training and support to teachers to implement a rigorous curriculum;
- it must seek embedding in the curriculum;
- it must have national recognition and celebration.

Dr Ken Young from BARA (the British Automation and Robotics Association) discussed uptake of robotics in an industrial context, and how the line between 'robots' *per se* and automation was blurred (if there was any at all). He also discussed the value of simulations of an automated factory production line, and gave video footage of industrial robots. BARA can play an important role in connecting RoboFesta-UK to practical commercial applications of robots in industrial design and manufacture.

As well as the formal presentations, there were several exhibitions of mobile robots, as well as commercially available products. Several extended breaks were also scheduled to facilitate networking. It was remarked that this was an excellent opportunity for all these disparate organisations, with a similar ultimate mission, to be in the same place together. According to your feedback, we may organise similar meetings in the future.

## **4. Progress since 1<sup>st</sup> November 2001**

### **4.1 Taking the Blue Peter Winners to Yokohama**

The first major RoboFesta event in the UK was the very successful Robot Design Competition held with the BBC Blue Peter television programme. 32,000 children sent in designs, and the four winners' prizes included jetting off to Japan in mid-November to participate in the RoboFesta International Friendship Games held in Yokohama, near Tokyo.

Japan can be a difficult country for visitors at times, but we managed the major logistic challenge of taking around the four families totalling five children and seven parents. We had a day of sight-seeing in Tokyo, followed by three days at RoboFesta in Yokohama. The children presented themselves at a tea party, where they met fifty other children from around the world. The International Friendship Games involved the children building and programming a hexapod robot that had to traverse a small obstacle course, which they all managed, despite the youngest being seven. The event went very well and children had a great time, as did their parents.

### **4.2 The International Committee of RoboFesta, and RoboFesta Europe**

RoboFesta is currently 'owned' by a Japanese educational foundation. Jeff Johnson is on the International Committee, and attended various committee meetings in Yokohama. At these meetings the leading position of RoboFesta-UK in the RoboFesta movement was acknowledged. The future of RoboFesta was discussed, and the need for the name to be legally available as RoboFesta-UK, RoboFesta-Europe, etc.

Currently RoboFesta is being managed by an Interim Committee, that will hand over to a new International Committee in June 2002. It is intended that the world will be divided into three regions: Europe-Africa, Americas, and Asia. Each region will have two representatives on the new International Committee. The idea is that this committee will be democratically constituted, but small enough to make decisions effectively. Local RoboFesta organisations will be autonomous within agreed guidelines and structures.

The Open University is actively working with RoboFesta to establish RoboFesta-UK and RoboFesta-Europe as legally well-defined entities within the new structure.

### **4.3 RoboFesta-Europe**

We are working with our European partners to strengthen RoboFesta-Europe in preparation for RoboFesta 2004. We are hoping to persuade our ministers to make RoboFesta into an EC-supported project. We foresee interesting opportunities to collaborate with our European colleagues, including exchanges and Internet interaction between children in the EC countries. For example, there is a robot club in Finland seeking this kind of relationship.

Formal organisation of RoboFesta-UK is still being discussed, with the first key decision being whether it should be set up as a charity, and if so, what sort. If anybody has a view on this, please get in touch with any member of the RoboFesta-UK organising committee, or email [robofesta@open.ac.uk](mailto:robofesta@open.ac.uk)

## **5. Sponsorship**

RoboFesta is currently sponsored by the Open University. This has included considerable financial support, a great deal of academic time, and maintaining the RoboFesta-UK Secretariat. We currently seek further sponsorship from commercial and other sponsors. Please contact [robofesta@open.ac.uk](mailto:robofesta@open.ac.uk) if you have suggestions.

## **6. Charitable Status**

It is proposed that RoboFesta-UK become an independent educational charity. This is being investigated by the Secretariat at the Open University. If you have any views or advice on this, please contact [robofesta@open.ac.uk](mailto:robofesta@open.ac.uk).

## 7. Plans in the Making

The main goal for RoboFesta-UK is to hold robot events across the UK in 2004, with RoboFesta-UK playing a major role in RoboFesta-Europe. To get there we are planning a series of events in 2002 and 2003. If you are currently organising robotics related events, can host such events, would like to run (or are capable of running) workshops or hands-on sessions at such events, or would like to put out a call for participation at such an event, please get in touch with us and we will disseminate the information across the RoboFesta-UK network ([events@robofesta-uk.org](mailto:events@robofesta-uk.org) or [robofesta@open.ac.uk](mailto:robofesta@open.ac.uk))

### 7.1 Local RoboFestas

We will certainly hold RoboFesta - Milton Keynes in 2002. The details are still being worked out, but we are determined to do it. We will be working with local organisations, including SETPOINT and Countec.

Other possibilities include RoboFesta-Kent, RoboFesta-Wales, RoboFesta-Scotland, RoboFesta-Oxford, and RoboFesta-Manchester. Not to mention RoboFesta-you.

The number of events we can hold will depend on funding. RoboFesta - Milton Keynes is certain. We are currently exploring the possibility of sponsorship from industry players. However, we do not intend for RoboFesta-UK to become a grant-making body. RoboFesta-UK income will be used to publicise RoboFesta-UK activities and purchase robot construction kits that can be used by RoboFesta-UK affiliated events. It will also be used to fund dissemination of robotics-related educational materials to schools in the first instance. If you would like to sponsor RoboFesta-UK events or publications, please get in touch ([sponsorship@robofesta-uk.org](mailto:sponsorship@robofesta-uk.org) or [robofesta@open.ac.uk](mailto:robofesta@open.ac.uk)).

The purpose of the 2002 RoboFesta events is to learn by doing. We hope to have more events in 2003, and then nation-wide events in 2004.

### 7.2 Organisational Considerations

A number of principles came out of the meeting on 1<sup>st</sup> November 2001. These include:

- (i) There are already 1,200 technical events in the UK. They are not co-ordinated, and do not have the optimum impact from the outreach and educational viewpoints. Therefore:  
RoboFesta-UK will invent no new games or events; rather we will cross-promote existing competitions that affiliate to RoboFesta-UK
- (ii) RoboFesta organisers will work with existing organisations. In particular we will work with the national SETPOINT network as far as possible. If you are involved with your local SETPOINT node, will you please ask one of their representatives to get in touch with us ([robofesta@open.ac.uk](mailto:robofesta@open.ac.uk)). We hope to establish contact with all SETPOINT centres in the first quarter of 2002.
- (iii) If RoboFesta-UK expects school teachers to be involved, it must put all activities in a curriculum context. We are exploring various models for incorporating robotics in single and cross-curriculum educational materials. We have a longer term goal to develop a robotics curriculum in its own right. If you would like to become involved in the production of educational materials that tie in with the National Curriculum in any subject area, please email [education@robofesta-uk.org](mailto:education@robofesta-uk.org) or [robofesta@open.ac.uk](mailto:robofesta@open.ac.uk)

The plans for 2002, 2003, and 2004 will embrace these principles, and try to set up and test events with this organisational context.

### 7.3 Which Games and Competitions?

A number of well-established events were identified, including

- |                    |                  |
|--------------------|------------------|
| (i) RoboCup Junior | (iii) MicroMouse |
| (ii) TechnoGames   | (iv) Robot Wars  |

RoboFesta will work with these organisations, and use their rules for competitions where appropriate. If you are involved with a pre-existing robot competition that has a set of well tried and tested rules, please send a copy to [robofesta@open.ac.uk](mailto:robofesta@open.ac.uk)

#### **7.4 Constructive/Destructive Robots**

At the meeting on 1<sup>st</sup> November there some debate on Robot Wars and aggressive or destructive use of robots. This debate will presumably go on for a long time, and RoboFesta-UK currently has no official position on this. Our preference at the Open University is for the constructive and expressive use of robots, and the events we plan to organise in 2002 will have this orientation. Jeff Johnson is a member of the International RoboCup Junior Committee, and we plan to focus on TechnoGames and RoboCup Junior events.

#### **7.5 BETT, The Educational technology Show, Olympia, 9<sup>th</sup> - 12<sup>th</sup> January 2002**

Prof. Henrik Lund will demonstrate RoboCup Junior at this event. See also <http://www.bettshow.com>

#### **7.6 The Robot Show, Olympia, 5-7<sup>th</sup> July 2002**

We plan to work with the organisers of the Robot Show to our mutual benefit. We plan to hold RoboFesta events at the show including, hopefully, national finals of competitions. We hope to be able to distribute tickets in competitions and other ways. See also <http://www.robotshow.co.uk>

## **8. Summary**

8.1 The inaugural meeting of RoboFesta-UK on 1<sup>st</sup> November 2001 was very successful, and many the people participating wanted it to go forward.

8.2 The legal status of RoboFesta-UK is being clarified in the context of RoboFesta-Europe and the International RoboFesta movement.

8.3 RoboFesta-UK has now organised three major events: the Blue Peter Competition, the meeting on November 1<sup>st</sup>, and taking the Blue Peter winners to RoboFesta-Yokohma. It has established itself as a major player in the International RoboFesta movements.

8.4 We are planing RoboFesta events for 2002 - anyone can suggest anything; pre-existing events are encouraged to affiliate with RoboFesta-UK in order to benefit from our growing network and increasing ability to advertise events and gain media attention. We will also work closely with outstanding events to develop educational materials that can complement them in accordance with National Curriculum requirements. We intend to work closely with the SETPoint network, and organisations such as the BBC, DATA, and BARA.

8.5 We are working the organisers of the Robot Show to be held at Olympia 5-7<sup>th</sup> July 2002.

We wish all our readers a happy and productive New Year

Jeff Johnson and Tony Hirst, Faculty of Technology  
Martian Petre, Faculty of Mathematics and Computing  
The Open University, Milton Keynes, UK  
[robofesta@open.ac.uk](mailto:robofesta@open.ac.uk)

# RoboFesta Declaration

1. RoboFesta holds robots to be a symbol of technology that applies knowledge from different engineering disciplines to carry out set goals. RoboFesta promotes the competitive building of such robots by hand.
2. By promoting competition, RoboFesta will foster a new culture centered on the enjoyment of hands-on building as an intellectual activity.
3. By fostering this new culture, RoboFesta will cultivate creative thinkers with highly developed instincts for science and technology.
4. When this new culture is established, RoboFesta will promote a sound and secure industrial community that operates in harmony with nature. RoboFesta will increase communication across generations and across national borders, helping promote world peace and making the global community a better place to live.

The astounding progress of science and technology has brought many benefits to mankind, but this progress will not be easy to sustain. While hi-tech products have become firmly entrenched in daily life, they are produced by technologies so advanced that the products have become nothing more than "black boxes" to their users. A paradox has arisen in which the fruits of advanced technologies are commonplace, while opportunities to understand and appreciate the technologies themselves are disappearing.

To resolve this paradox, we have created RoboFesta, a competitive event for makers of hand-built robots. Robots are a symbol of technology to which humans can readily relate. They are created by bringing together the knowledge of different engineering disciplines to carry out set goals. RoboFesta aims to foster a new culture centered on the enjoyment of hands-on building as an intellectual sport.

If such a culture can be established, it will help foster an extremely large number of aspiring innovators in the fields of science and technology. These innovators will have a thorough knowledge of their fields, along with the keen instincts this knowledge brings. They will need to solve problems creatively from a scientific and technical point of view. The pioneers of tomorrow will appear from such a group. The new culture fostered by RoboFesta will act as an incubator for the scientists and engineers who will create the industrial community of the future. It will lead to new types of industries and jobs in which people enjoy hands-on robot-building as a sport. Robot-building will also encourage communication across generations and across national borders, helping promote harmony with nature and world peace, and making the global community a better place to live.

We pledge to use RoboFesta as a vehicle for the realization of the philosophy expressed herein and to continue to hold the competition for years to come.

November 25, 2001  
The Central Committee for International Robot Games Festival