# l. Robots for human environments

According to Dr Nick Hawes, the future of robots is going to be huge. Here he explains the challenges. 'There's this huge excitement around robots,' says Dr Nick Hawes, Senior Lecturerin Intelligent Robotics, School of Computer Science, University of Birmingham. 1'Everyone really believes, as we do ourselves, that robots are going to have a huge impact on our future — inworkplaces, in roles in various industries.' But there is one problem that motivated Dr Hawes and the group at Birmingham in their research. 'The fact that these robots would only function for two hours, and only do one useful thing once, made us think that we are not getting close to doing the science that will allow robots to have this huge impact.'

3The result of this was 'Bob' the robot, which received much media attention as 'Bob' was shown working as a security guard, patrolling the offices of a security company. 'Bob' was designed as part of a research group called STRANDS, and is made up of seven universities across Europe. 2The STRANDS project has focused on what we can do to make a robot function for more than an hour or two — for days, weeks and months,' says Dr Hawes. There are two interesting things about this, he says.

**Controlled environment**

Firstly, there's the science and engineering challenge of making an autonomous robot, a robot that can do things for itself, function for that length of time in an environment it has no control over. 4Normally when you put robots into places you have to control everything, to tie things down, make sure nobody gets in the robot's way. You want to be able to make a robot cope in a real human environment.'

5Secondly, there are real advantages when a robot can function for an extended period of time. 'The robot can start to learn things about this environment that it wouldn't ever see normally,' says Dr Hawes. 'It gets to see daily routines and patterns: what time people come and go; where you put your mug of tea on your desk every day; things that humans have a common-sense understanding of, but robots don't. Our aim is for robots to learn that over time.'

**From driverless cars to washing machines**

But do we have a fixed image of robots and have certain expectations of what they look like and how they operate? Is our image of robots too human-like, and is that a negative factor? 'I think that is the way science fiction has shown them to date,' says Dr Hawes. 'I'm not really interested in robots that look like humans. There are some advantages to having human-like features, humans naturally understand other humans from their physical movement. Having a robot with some human-like physical movement — with eyes looking at places, positioning your body to look. Humans understand that as having some meaning, and just generally it makes them feel more comfortable about other robots. 'He points out that our environment, from door handles to cupboards, is created for humans so having a human-type robot is easier to fit in. 'But at the same time,' he argues, 'robots are really tools, a technology. Their form should be dictated by their function. A driverless car is a driverless car and that's a robot. To some a washing machine is a robot. There are many autonomous intelligent machines that can do things on their own. 6Some of them may end up looking like humans but most of them won't.'

7The next step with Bob is extending the amount of time he can function. Other STRANDS partners are working in the area of 'care', in a hospital in Vienna where a robot is doing some work. 'There is going to be a big industry building and programming robots so we think our students need to be looking at that,' says Dr Hawes. So at the university they 'teach robotics; we have a Robot Club where students work on Bob and similar robots. 8We are really trying to get everyone, from 18 upwards, working on this technology because it is going to be huge.'

## Ex. 1. Match the vocabulary with the correct definition

**a pattern; huge; to cope; Al; a challenge; to tie (something) down; robotics; a tool**

|  |  |
| --- | --- |
| a task which is difficult but stimulating | *a challenge* |
| very big | *huge* |
| to attach something with ropes so that it cannot move | *to tie (something)* |
| to confront a problem successful | *to cope* |
| a regular or repeated way in which something is done | *a pattern* |
| an instrument that helps us do a task | *a tool* |
| artificial intelligence | *AI* |
| the design and construction of robots | *robotics* |

## Ex. 2. True or false:

1. People think that robots are going to have a big effect on some areas of our lives in the future. *T*
2. According to Dr Hawes, robots were limited because they could not work for a long period of time. *T*
3. There was little interest from newspapers and TV when Bob the robot started working. *F*
4. A robot normally has no problems functioning in a place where human beings live and work. *F*
5. If a robot can function for a longer period of time, it can learn new things it didn't understand before. *F*
6. Dr Hawes says that the majority of robots in the future will look like human beings. *F*
7. The next thing that needs to be done with Bob the robot is to make him able to work for a longer period of time. *T*
8. Dr Hawes thinks that only a small team of experts should work on this technology. *F*

## Ex. 3. Type the correct form of the word in brackets to fill the gaps.

1. Many scientists feel very *excited* (EXCITE) about the future of robots.
2. According to Dr Nick Hawes, robots are going to be of great *importance* (IMPORTANT) in many industries.
3. However, one thing that was *problematic* (PROBLEM) for scientists was the fact that robots could only work for two hours and do one specific task.
4. It was important to invent a robot which had the *ability* (ABLE) to function for more than two hours and so Bob the robot was invented.
5. A robot which can function for a *length* (LONG) of time superior to two hours can begin to learn new things.
6. The *objective* (OBJECT) of the Bob the robot project is to see if Bob can learn about his environment by seeing what is going on around him.
7. It's probable that most robots will be *unlike* (LIKE) how many people imagine them and most will not look like humans at all.
8. Although there are some advantages to having robots which look like humans, robots that look more like machines than people shouldn't be seen *negatively* (NEGATIVE).
9. Dr Hawes thinks that the future of robot technology is very important, and this should give *encouragement* (ENCOURAGE) to students who are interested in this field.