Robotic Visions
What do you think about robots?

Parliamentary Seminar
9 March 2010

Robotic Visions provides a unique platform for discussion and debate between young people and robotics researchers.

This document provides a flavour of the students' discussions and the issues that arose at the four vision conferences held to date throughout the UK.

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Robotic Visions - What do you think about robots?

"Robots have such an enormous impact on our lives already and the speed at which the research is developing has important repercussions for our futures. This makes it critical that we identify strong ethical principles for future investigations so we are seeking the views of the very people whose lives will be affected by research developments."

Professor Alan Winfield, Roboticist

Potential Areas of Impact

The student-led discussions identified three specific areas where robots are likely to have an impact:

- medicine
- the military
- in the home

Robots in medical/hospital uses

Students generally appreciated that robots had a role to play in ***'improving healthcare and prolonging life'.*** Most groups also recognized the potential use of robots for prosthetics remote and keyhole surgery. However some students were unsure if robots could deal with something unexpected happening in the surgery and queried who would be held responsible if a robot surgeon made a mistake.

Opinions were more mixed when it came to the use of robots for caring, with some groups believing that ***"Robots could stop my Gran getting lonely"*** or ***"Robots could help old people get about"***. Others expressed some concerns about the introduction of robot carers. They thought that some people would be happy to have a robot carer, as ***"they can have more of a life themselves"*** but might ***"worry [the] robot could go wrong or malfunction"***. One group also thought that some people might be quite scared of the robot or its appearance. They also questioned how you could ensure the robot would be up to the job – ***"people may feel scared as their health is in the hands of a robot".***

Robots and the military

Student thoughts on this subject were mixed. Some participants felt that ***"Robots will be more accurate"*** and that ***"Robot soldiers wouldn't go to sleep on watch"*** and so could increase capability on land and in the air. Some felt they would be cost effective. Others felt that ***"1000 robots dying is better than 1000 humans"***, others questioned whether ***"robot soldiers [would mean] war would be like a game of chess"*** with ***"little loss of human life",*** and ***"would it encourage war?"*** One group thought that the use of robots could increase the likelihood of terrorism due to the differential between countries who are the 'haves' and the 'have nots' in technical capability

Some students thought that robots would struggle to make decisions in a situation that was ***"a bit fuzzy"***. Other students asked ***"Could robots recognize civilians?"*** and some concluded that ***"autonomous killing machines are bad idea. They could go haywire"*** or that they should be used primarily for defensive rather than offensive purposes.

Robots helping people/robots in the home

Housework was seen as an activity where robots could be usefully employed. Many students thought that robots would be especially valuable in helping the elderly around the home but others felt that robots could provide some services but that they should not replace humans, believing that ***"human interaction is important for socialization, happiness and health"***

"In the areas of childcare, policing, military, eldercare and medical robotics, I have spent lots of time reviewing the current legislation around the world and found it wanting. I think there is a need for urgent discussions among the various professional bodies, the citizens and the policy makers to decide what should be done while there is still time. These developments could be on us as fast as the internet and we are not prepared."

Professor Noel Sharkey, Roboticist

Cross-Cutting Themes

Three key cross-cutting themes arose during the student discussions across all of the conferences: human replacement; trust, reliability and safety; and affordability.

1. Human Replacement

The participants could see the benefits of robots replacing humans in difficult or precise tasks, or in dangerous places, and although they recognized ***"there will be new jobs but these will be different to the ones they replace"***.

One group felt that robots are good for very repetitive tasks and some dangerous jobs, but asked ***"where should you draw the line between what robots should and shouldn't be used for?"***

A number of groups raised concerns about robots ***"replacing human workers"*** and the resulting ***"loss of jobs, or salary / payment cut down"*** with one group asking ***"How do we re-skill the people whose jobs have been taken by robots?"***

Participants were also concerned that increased use of robots would mean ***"humans getting lazy"***.

In general participants preferred situations where robots and humans worked together.

2. Trust, reliability and safety

Issues of trust, reliability and safety were discussed at length by the participants. In particular whether the ***"robot could go wrong [and] lose control"***, potentially harming us, was a major concern. Some students felt that robots are only as good as the software programmer involved and that there is still room for human error, they also queried how well a robot would cope in unexpected situations, and who was responsible when something went wrong?

3. Affordability

Participants raised questions around how much robots would cost, who would pay for them, and asked ***"why spend money [on robots] when there are people without homes?"*** One group asked ***"Do the spin-off benefits make it worth spending money on robot research?"*** Participants were also concerned that the high cost of robots would mean that ***"poor people couldn't afford a robot"***, and as a result there would be unequal access to robot technology for the rich and poor – ***"The benefits of robots will only be available to those who can afford them whereas the benefits of robots might be of greatest value to the poorest in society. What's more, it's these people who are most likely to lose their jobs and be replaced by robots."***

Key Messages

The students identified key messages to relevant stakeholders associated with robotics research.

To policy makers

- ***"The public care about the role of robots in society so you should care and make relevant policies."***
- ***"There has to be accountability and hierarchy – no one person with too much control. There need to be lots of checks in the system, monitoring and a licensing system. There needs to be a focus on long-term goals – this goes beyond party politics"***
- ***"We want you to consider the problem of who is responsible if a robot goes wrong and have sensible laws in place"***
- ***"We feel it is important that the public gets educated about robots, in order to prevent misunderstandings and aid their acceptance"***

To scientists and engineers

- ***"The public need to be informed and educated about robots to allow informed opinions and reduce prejudice."***
- ***"You need to prioritise military research into defensive purposes rather than offensive.***
- ***Reliability and safety measures are very important"***
- ***"You should remember that people are going to have to build up trust in robots before they're accepted"***
- ***"Would you take the blame if your robot went wrong?"***

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Robotic Visions is funded through an EPSRC Partnerships for Public Engagement (PPE) award.

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