Even in the virtual world, men judge women on looks

HOW is a female avatar supposed to get a fair treatment in the virtual world? They should rely on human females – men can't help but be swayed by looks.

Thanks to video games and blockbuster movies, people are increasingly engaging with avatars and robots. So Karl MacDorman of Purdue School of Engineering and Technology in Indianapolis, Indiana, decided to find out how people treated avatars when faced with an ethical dilemma. Does an avatar's lack of

humanity mean people fail to empathise with them? The answer seems to depend on gender.

He presented 682 volunteers with a dilemma modified from a medical ethics training programme. Playing the role of the doctor, they were faced with a female avatar, Kelly Gordon, pleading with them not to tell her husband at his next check-up that she had contracted genital herpes. The dilemma is intended to make medical students consider issues like doctor-patient confidentiality,

not to produce a right or wrong answer, says MacDorman.

Gordon was presented to the volunteers in one of four different ways, either as an actress superimposed on a computer generated (CG) background or a CG female on the same background (pictured) – and then either edited to move smoothly or in a jerky, unnatural way.

Overall, women responded more sympathetically to Gordon, with 52 per cent acceding to her request compared with 45 per cent of men. But whereas women's attitudes were consistent however Gordon was presented, the male volunteers' attitudes swung sharply. The two human versions

got a far more sympathetic hearing than their avatar counterparts. "Clearly, presentational factors influence people's decisions, including decisions of moral and ethical consequence," says MacDorman.

"The different response from volunteers could suggest men showed more empathy towards characters that they see as a potential mate," he says.

However, Jesse Fox, a humancomputer interaction researcher at Stanford University in California, who has studied female characterisation in virtual environments, believes the less favourable attitude shown by men towards the CG Gordon may be explained by the fact that the avatar was more sexualised than Ethe human one – with a bare midriff and fuller breasts. "Sexualised representations of women are often judged to be dishonest, or 'loose', and more **§** so by men than by women. This ≤ could explain the finding, especially in a situation in which you're talking about sexually transmitted diseases," she says.

The study will be published in a forthcoming edition of the journal *Presence*. Jessica Griggs





Cellphone vibrations inspire mind-controlled movement

IDENTIFYING telltale brain patterns promises to usher in a new era in which all manner of objects can be controlled by thought. But telling brain patterns apart is devilishly difficult. Now cybernetics researchers think a mild buzz from the gadgets that make phones vibrate will focus the mind.

Controlling electric wheelchairs using the power of the mind is emerging as a realistic option for some people with neurodegenerative conditions such as Lou Gehrig's disease. Several groups have already developed such thought-controlled wheelchairs, including Francisco Sepulveda's team at the University

of Essex in Colchester, UK. His system involves wearing an electrode-filled skullcap connected to a PC running brain-computer interface (BCI) software. This can sense four types of thoughts, represented by electroencephalogram (EEG) potentials. The user thinks about their feet to move forwards, their tongue to stop, and their right or left hands to proceed in those directions.

But being able to move in only three directions is clearly very limiting. Sepulveda's team tried to improve on its design by building powerful artificial intelligence software to identify brain patterns associated

with thinking about more complex directions, but success eluded them. "It would only get it right about 60 per cent of the time, which is not enough for the real world," says Sepulveda.

Now Anne-Marie Brouwer and colleagues at the TNO research organisation in Soesterberg, the Netherlands, believe they may have a more liberating approach. They

"If the user wants to go in a 4 o'clock direction, they wait for the right vibration and think 'that one'"

have developed a system called tactile BCI, which uses a physical sensation to provoke an EEG potential called a P300. This is a specific brain response indicating a person's strong interest in a particular stimulus. It gets its name because the signal arises 300 milliseconds after the stimulus.

The researchers placed 12 phone vibrators, positioned like the numbers on a clock, on a belt worn around the wheelchair user's waist. These vibrate sequentially for 3 seconds each. If they wearer wants to go, say, in a 4 o'clock direction, they wait until the appropriate "tactor" vibrates and then think "that one". "That generates a P300 and selects the movement direction you want," says Brouwer.

Tests with 50 volunteers produced good results. "Almost everyone who tried it liked it," Brouwer says.

Tactile BCI could be an important advance, says Sepulveda. "I think Brouwer's work will be useful. It explores a whole new channel - a tactile stimulus instead of a visual or auditory one." Paul Marks