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Finance

Fri, Oct 20, 00

## Will they still heal me when I'm 64?

By NIALL MCKAY

Keep smoking, drinking and eating those fatty foods. Don't worry about heart disease or cancer. Don't even worry that you will be alone in your old age.

Technology is going to solve those problems for you. Robots will nurse you and keep you company and believe it or not we are well on our way to being able to grow a new pair of lungs in a beaker. They (whoever they are) are even working on robots that will perform open-heart surgery for us. Sure won't it be grand.

In 2050, if you're feeling a little under the weather all you'll need to do is order a couple of extra pints of blood from the milkman, pop down to the local video store and get the open heart surgery made simple computer program for your robot. Then you will put a beaker with some heart cells in the fridge and once Coronation Street is over, you can have your robot to pop in a new heart.

OK, so perhaps I am exaggerating a little but I spent last week in Pittsburgh, the former steel capital of the United States. These days the city is much more famous as the home of two of the world's best research institutions - Carnegie Mellon University and the University of Pittsburgh.

Carnegie Mellon is best known for its work in computer science and robotics and the University of Pittsburgh is one of the foremost medical research institutions in the US. First stop was Carnegie Mellon where I met Prof Sebastian Thrun, director of the Robot Learning Center. Prof Thrun and his team are working on a nursing robot that will hopefully help the elderly at home.

The two big advances made in robotics in the last five

years are, firstly that they have the navigation problem solved. Robots can now move safely and completely autonomously around a home, that is provided there are no stairs, and secondly they have developed a rudimentary emotional response systems. That is not to say that robots now have emotions but they can pretend they do.

Prof Thrun is not trying to replace nursing care but build a machine that will be useful to the elderly in the home.

"We've succeeded in helping people live longer, now we should help them live better," he said. "But if you can come up with a plan that will provide adequate healthcare for all our elderly then I will give up my research."

At the moment the nursebots functions are pretty limited. It can, for example, remind people to take their medication, it can go out to the Web and retrieve the weather forecast, TV guide or the newspaper and read them back to its owner.

The robot's on-board camera's, TV screen and telephone connection can enable the elderly person's family to check in and see that they are doing OK. The robot is also bright enough to tell if its owner has fallen and call the family or emergency services.

It also has handles which can be used to help the person get about.

But that's about it. Really, it's a sort of intelligent walker. In the near future, Prof Thrun hopes to add robotic arms, which the robot will not be able to use because, although they can recognise people, they can't recognise objects.

However, its owner can operate the arms and lift heavy items. In fact, it is a sort of extension of this that has helped the US military develop a technology that enables surgeons to carry out open heart surgery using robotics.

The surgeons have to operate the robot arms but they can, for instance, use television screens to enlarge the image of the heart and the robot arms can be adjusted to move one millimetre when the surgeon moves his hand one inch. This enables greater accuracy.

My next stop was the University of Pittsburgh where researchers are developing a new science called Tissue Engineering. This is different from cloning because rather than growing a whole person they grow specific tissue. Already, they can grow skin which is being used for skin grafts but they are currently working to grow liver, heart and lung tissue.

There are, as you can imagine, some significant obstacles to overcome but they think they will have it cracked in the next 10 to 15 years. Then you'll probably be able to order a new heart from Amazon.com.

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