

GCSE Bitesize Computer Science

Cecily Morrison on Kinect sensors

My name's Cecily Morrison and I'm a researcher into human-computer interaction at Microsoft Research, Cambridge. Human-computer interaction is a field of research that aims to understand the design of interaction between people and digital technologies.

At the moment, I'm working with colleagues on a project that's exploring new ways to analyse data collected by the Kinect camera. The Kinect camera is a hands-free controller. It's typically used commercially in gaming and home entertainment.

The project that we're working on now is helping clinicians monitor the progression of multiple sclerosis, a neurological disease that affects two million people. The Kinect has two elements – a video camera and a depth sensor. The depth sensor produces a point cloud that represents a person's position in three-dimensional space. It is a large task to take the point cloud and the associated image and turn it into something that a clinician can use to monitor multiple sclerosis.

The computer vision algorithms used to process these images have to do many of the things that our eyes do automatically before any data analysis can even be done. For example, they must center or normalise the image so that the head is in the same place in all images in order to compare them. Capturing more consistent images makes this process easier. My role as a researcher in human-computer interaction is to make the captured images as consistent as possible by changing the position of the clinicians and the patients before the data is captured.