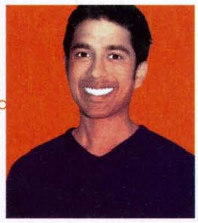
GESTURE-CONTROLLED MOBILE PHONES



VIVEK GOYAL

Principal Research Scientist in the Research Laboratory of Electronics at Massachusetts Institute of Technology

"I'M VERY EXCITED about the integration of 3D movement recognition systems into mobile devices. I think it's going to be a big thing in electronics that will take off soon.

Microsoft Kinect has transformed gaming because people are now used to using 3D gestural interfaces in computer games. Games are one use of these interfaces, but there's potential elsewhere too – including with mobile phones and tablets. Kinect is much larger than a phone and uses a lot of power, so a big challenge is scaling the system down for a mobile device. You want to make the sensors as efficient as possible and advances are being made. But there are also big gains to be made in how you process the data – and that's where my research group is involved.

Let's say your goal is to build a gestural interface, then what you are looking to gather is information about where the user's hands are. There will be other things in the field of view, such as walls. But you are not looking to form a full image of the whole field of view. Once you reduce what you are interested in, then the mathematical modelling and processing allows you to get away with measuring less. We've built prototypes that demonstrate this.

People don't mind adopting new interfaces – a few years ago there were no touchscreens on phones. So consumers are willing to change. But one thing that isn't going to change is that you can't see through your fingers. On a phone, you're obscuring a significant proportion of your screen with them. So if you can do the same kinds of things with gestures as you do on a touchscreen – such as pinch to zoom – that's already a nice development. And once you can move your hands in three dimensions instead of two, then new ideas for different kinds of interface will come along."

You could soon be interacting with your mobile device without even touching it

INCREASINGLY POWERFUL ULTRASOUND

"There's a lot going on in ultrasound imaging research at the moment. Like in our 3D work and many forms of computational imaging, ultrasound is being revolutionised by improvements in data processing. It's also one of the medical imaging methods that tends to be extremely low cost. X-rays are not particularly cheap and can have long-term effects. And while MRI is non-ionising, and so doesn't damage cells, an MRI machine is a huge piece of extremely expensive equipment. Ultrasound can be cheap and what people can get out of ultrasound seems to be improving rapidly these days."