How to engineer intelligence

March 20 2012

How to Engineer Intelligence takes place at Cambridge Science Festival on March 20, 2012. Credit: FlySi via Flickr

"Do we actually want machines to interact with humans in an emotional way? Will it be possible for them to interact with us?"

Those are just two of the questions posed by UCL academic David Barber as he prepares for his appearance at Cambridge Science Festival on March 20 (6pm).

Barber, who is working on machine learning and applications of probability in information processing, will discuss biological inspirations for computing and how this can help humans to interact with [machines](#) in his talk 'How to engineer intelligence'.

He will discuss the challenges of getting computers to process information in ways that enable interaction with humans to be more

natural. This to an extent is already taking place with smartphones equipped with speech recognition software/ programming such as Siri.

According to Barber, the world expects to be able to interact naturally with machines by expecting them to understand what we say and move naturally in our environment.

He said: "There are already research programmes that attempt to gauge the emotion in someone's voice or face but I'm more interested in a machine that could recognise the emotional significance of an event for a human. In my talk, however, I'm going to mainly address biological inspiration for computing and how this can help humans interact with machines."

Barber is keen to point out that these types of machines might never look like the robots we've seen in movies such as Bladerunner or The Terminator, despite the vast amounts of progress that has taken place in the past 20 years.

The ultimate dream in the future for researchers in the field of machine and information learning would be for machines to not only comprehend what we say in the pure semantic sense, but in an emotional sense as well.

How might a machine in the future react when reading an emotional novel? Could they ever act similarly to humans? Could these intelligent machines feel sad or feel happy? Would these machines understand the emotional consequences of the human sentence 'I've lost my job'?

These questions represent some of the fundamental challenges that lie ahead – necessitating a large database of information about humans and the human world. Any machine that wishes to understand the complexity of social interaction, society and behaviour, needs to have some grasp of

what it really means to be human.

Perhaps the initial step in ever beginning to reverse intelligence is to first understand the theoretical aspects of information processing in the brain. From this, researchers can then analyse how an 'artificial brain' would be able to process or store information in the same way.

Barber highlights a plurality of approaches when trying to understand intelligence which may all help to create a free-thinking machine in the near future. The question that remains, however, is for what purposes might these machines be used?

More information: 'How to engineer intelligence', 20 March, 6pm – 7pm. For more info please visit our website at www.cam.ac.uk/sciencefestival

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