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OPEN SEMINAR SERIES

Tuesday 18 February 2014

12:00 – 13:00

Sofou Conference Room 7th floor,
L.Sofou Bldg

"The Uncanny Valley: what it is, why it matters and how we might be able to avoid it"

By
Prof. Roger Moore,
Dept. of Computer Science,
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ABSTRACT

The term 'uncanny valley' was coined by Masahiro Mori in 1970 to describe the observation that near-human artefacts (such as a prosthetic hand) can trigger feelings of eeriness and repulsion in the viewer. A classic example is 'Polar Express', the 2004 animated feature film starring Tom Hanks, in which several of the characters (whose movements were derived using motion capture) come across to some observers as strange and uncanny. In science and engineering the uncanny valley has become of increasing relevance to character animation in computer games and to the appearance and behaviour of humanoid robots (such as Geminoid F) where the agents are sometimes perceived as being weird or creepy. Of course the uncanny valley has been the subject of a number of scientific investigations. However, while some studies confirm its existence, others don't find any evidence for it at all! Also, although a number of qualitative theories about the effect have been published, there has been no quantitative model capable of explaining these diverse results until very recently. In 2012, Prof. Moore published a paper in Nature - http://www.nature.com/srep/2012/121115/srep00864/full/srep00864.html - which provided the first mathematical explanation of the uncanny valley effect. Moore's approach (based on a Bayesian model of categorical perception) showed how differential distortion caused by stimuli containing conflicting perceptual cues can give rise to tension in the region of a category boundary. The model also revealed how different observers could have different responses to the same stimuli. This lecture will review the uncanny valley phenomenon, discuss the competing theories (with a special focus on Moore's mathematical model), and will conclude with some suggestions as to how the uncanny valley might be avoided in the design of future robots and autonomous agents.

The seminar series is open to all members of *staff* and *students* of CITY and to any *externals* that wish to attend.

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