The Cyborg Experiments

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Abstract:

In this presentation a look is taken at how the use of implant and electrode technology can be employed to create biological brains for robots, to enable human enhancement and to diminish the effects of certain neural illnesses. In all cases the end result is to increase the range of abilities of the recipients. An indication is given of a number of areas in which such technology has already had a profound effect, a key element being the need for a clear interface linking a biological brain directly with computer technology. The emphasis is clearly placed on practical scientific studies that have been and are being undertaken and reported on. The area of focus is notably the use of electrode technology, where a connection is made directly with the cerebral cortex and/or nervous system. The presentation will consider the future in which robots have biological, or part-biological, brains and in which neural implants link the human nervous system bi-directionally with technology and the internet.

Brief Biography

Dr Kevin Warwick is Professor of Cybernetics at the University of Reading, England, the UK, where he carries out research in artificial intelligence, control, robotics and cyborgs. Kevin was born in Coventry, UK and left school to join British Telecom, at the age of 16. At 22 he took his first degree at Aston University, followed by a PhD and research post at Imperial College, London. He subsequently held positions at Oxford, Newcastle and Warwick Universities before being offered the Chair at Reading, at the age of 33. As well as publishing over 500 research papers, Kevin's experiments into implant technology led to him being featured as the cover story on the US magazine, 'Wired'. Kevin has been awarded higher doctorates (D.Sc.) both by Imperial College and the Czech Academy of Sciences, Prague, and received Honorary Doctorates from Aston and Coventry Universities in 2008 and from Bradford University in 2010. He was presented with The Future of Health Technology Award in MIT, was made an Honorary Member of the Academy of Sciences in St. Petersburg in 2004, received The IEE Senior Achievement Medal and in 2008 the Mountbatten Medal. In 2000 Kevin presented the Royal Institution Christmas Lecture entitled "The Rise of the Robots". Kevin's most recent research involves the invention of an intelligent deep brain stimulator to counteract the effects of Parkinson Disease tremors. The tremors are predicted and a current signal is applied to stop the tremors before they start - this is shortly to be lied in human subjects. Another project involves the use of cultured/biological neural networks to drive robots around - the brain of each robot is made of neural tissue. Perhaps Kevin is though best known for his pioneering experiments involving a neuro-surgical implantation into the median nerves of his left arm to link his nervous system directly to a computer to assess the latest technology for use with the disabled. He was successful with the first extra-sensory (ultrasonic) input for a human and with the first purely electronic telegraphic communication experiment between the nervous systems of two humans.