Title: Coexistence Reality: Toward Human-centered Interaction for Seamless Fusion of Real, Virtual, and Remote Worlds

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Date: 13:30-15:00, Wednesday, November 27, 2013

Place: Delta 103 (台達館)

Abstract

New innovative technologies are bringing about lifestyle changes and cultural shifts as well as major impacts on the world economy and social relationships. For example, the internet has enabled a PC to serve as a gateway for information and a means to develop and maintain social relationships, while smart mobile phones, tablet PCs and wireless networks have made network connectivity available from almost any location. Human-centered science and technology have become more important and require more attention from researchers, engineers, and technology users as people seek ways to make their lives more comfortable and convenient.

Futurologists predict the boundaries between human and machine or between reality and virtual reality will collapse by 2020, and the intelligence of machines will gradually begin to transcend human intelligence by 2030. The era of trans-human replacement of human body parts with bionics will come by 2040. These predictions are based on human-centered technology development involving the fusion of NBIC - Nano, Bio, Information, and Cognitive - technologies. In particular, information and communication technology in conjunction with software technology will provide the basis for technology fusion and innovation.

Three worlds are integral to daily life: the real world, virtual world, and remote world. The real world is the space where we are physically present, such as the home or office. In this world there are many artifacts like networked printers, PCs, service robots, TVs, home appliances, prosthetics, motorized video cameras, etc. The virtual world refers to the cyberspace of computer systems such as those provided by computer games, PC user environments, cyber second lives, social network spaces, etc. Finally, the remote world physically exists, but one cannot be there. For example, one cannot be in New York at this instant if you're living in Seoul. In the remote world there are also many artifacts as in the real world.

Human-centered Coexistent Space is defined as the space where one can experience the virtual and remote worlds as if they were the real world. Through various human-centered solutions for coexistence, it will be possible to interact with the virtual world and remote world as the real world. It is expected that Human-centered Coexistent Space will form the basis of future daily life by connecting human beings, artifacts, virtual worlds, and remote worlds together. Finally, networked users can communicate, share information and virtual world, and collaborate together through Human-centered Coexistent Space.

This talk will introduce the concept and core technologies of the Human-centered Coexistent Space and Coexistent Reality for seamless fusion of real, virtual, and remote worlds in the future society.

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