

**7th International Conference on
Knowledge-Based Intelligent Information & Engineering Systems
3, 4 & 5 September 2003, University of Oxford, U.K.**

**Call for Papers: Invited Session on
*Knowledge-Based and Cognitive Neuroscience Systems for Future Humanoid
Robot Development (Making of Natural Intelligence)***

Topic

Since the early beginning until now, it seems that the projects of development of humanoid robots (walking, gesturing and communication) have been exploring the possibility for natural intelligent control mechanisms to be an alternative solution to the conventional artificial intelligent control mechanisms. The study of neuroscience and behaviour cognitive science indicates the importance of the voluntary behaviour of the humanoid robot, in order to obtain spatial and temporal knowledge and meaningful memory by the robot itself. The robot voluntary behaviour can be effectively used for accomplishing the survival and attaining the behavioural strategy, by actively interacting with a dynamic and morphological environment and society. This allows us to develop studies on the fundamentals of natural intelligence, for example with respect to the semantic role of cognitive human brain functions, in particular on both implicit and explicit modulations of internal factors, such as behavioural, motivational and attentional states. In this sense, the first research problem is how important the quality of voluntary behaviour might be for the emergence of neuroscience cognitive functionality. The second significant problem is the feasibility of the 3-D kinematics, by exploring the multimodal sensing and mechatronic technology of humanoid robot. That is, how high dimensionality of spatial movements, as well as the kinematic smoothness, allows the robot to gain the accurate internal states in terms of finding out the behavioural meanings, motivations and even language abstraction by itself.

This session aims to provide a forum of discussion mainly on the two previous issues towards future humanoid robotic development. Besides papers focusing on future humanoid robot technology, with respect to interdisciplinary areas, such as knowledge-based systems, intelligent systems, neural networks, learning theory, neuroscience, cognitive science, robotics, mechatronics, sensory integration, sensing, human kinematics, other contributions will be highly appreciated.

Instructions for Authors

Only electronic copies of the papers in Microsoft Word, PDF or Postscript forms are acceptable for review purposes and must be sent to the session chair. However, please note that you will be required to send hard copy of the final version of your paper, if it is accepted; electronic submission of final papers is not allowed.

Papers must correspond to the requirements detailed in the Instructions to Authors which will be placed on the Conference Web Site,
<http://www.bton.ac.uk/kes/kes2003/>

All papers must be presented by one of the authors, who must pay fees.

Publication

The Conference Proceedings will be published by a major publisher, for example IOS Press of Amsterdam.

Extended versions of selected papers will be considered for publication in the International Journal of Knowledge-Based Intelligent Engineering Systems,
<http://www.bton.ac.uk/kes/journal/>

Important Dates

Deadline for submission intention : **January 31, 2003**

Deadline for receipt of papers by Session Chair : **February 28, 2003**

Notification of acceptance : **March 28, 2003**

Camera-ready papers to session chair by : **April 18, 2003**

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