

Introduction to the special issue on robotic vision

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Accommodating environmental variations through control based on sensory feedback is critical in extending the practical applicability of robots in industrial automation, mining, prosthetics, military technology, and other fields. Of the sensory mechanisms under active research, vision provides the richest source of useful data for robotics and has become a key area for increased attention. In recognition of this trend *Robotica* has devoted this entire issue to the field of robot vision.

This special issue consists of a sample of papers concerning methodology, supporting computer architectures and applications development without attempting to be comprehensive or complete in representing this large and important area of research.

Jarvis (pp. 3–15) surveys vision research relevant in robotics applications. This paper is written in a tutorial style as a background briefing for the non-specialist. Kent and Albus (pp. 17–25) develop theoretical and conceptual ideas concerning servoed world model systematics. Fu (pp. 27–31) provides an up-to-date look at special image analysis computer architectures for high speed

processing.

We also include a number of application case studies. Sternberg (pp. 33–40) gives an interesting example of parallel processing in machine vision. Sawano et al (pp. 41–46) provide a case study for down-to-earth application of vision to seam tracking in industry. Kuroda et al (pp. 47–53) offer a paper on work which is novel in the sense of using ultrasonics as a medium of imaging rather than the more common optical mode.

It is worth noting that robotic vision, whilst continuing to be a topic of intense academic interest, will, in the future, become considerably more widely available as an application-oriented capability in the marketplace in the wake of technological advances making increasing computing power available at ever-diminishing cost. This trend is particularly significant for robotic vision which has tended to be very computer-intensive.

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Special Announcement

SIXTH INTERNATIONAL CONGRESS OF THE WORLD ORGANISATION OF GENERAL SYSTEMS AND CYBERNETICS

ORGANISED BY THE COLLÈGE DE
SYSTÉMIQUE OF AFCET
(ASSOCIATION FRANÇAISE POUR
LA CYBÉRNÉTIQUE, ECONOMIQUE
ET TECHNIQUE)

September 10–14, 1984, Paris (France)

This triennial congress is sponsored by many international and national bodies. The Congress Committee consists of the following members: Elie Bernard-Weil (CNEMATER, Hôpital de la Pitié, Paris; Pierre Davous (Euroquip, Vaucresson); Alain Dussauchoy (Université Lyon I, Lyon); Jean-Louis Le Moigre (GRASCE, Université d'Aix-Marseille, Aix-en-Provence); Bernard Paulré (Université Paris IX, Paris); Robert Vallée (Université Paris-Nord, Paris); Bernard Walliser (Ecole Nationale des Ponts et Chaussées, Paris). There are also two co-opted members representing the WOGSC, viz. T. C. Helvey (Director for External Affairs of the WOGSC; Norbert Wiener Gold Medallist, USA) and J. Rose (Director-General of the WOGSC, UK).

Aims and Themes

The aim of this interdisciplinary congress, which follows the previous five congresses (London, 1969; Oxford, 1972; Bucharest, 1975; Amsterdam, 1978; Mexico

City, 1981) is to present contemporary aspects of Cybernetics and Systems and to examine various developments in these and allied fields.

The following are the proposed themes and topics for the congress: Foundations, Epistemology, Analogy, Modelisation, General Methods of Systems, History of Cybernetics and Systems Science Ideas; Information, Organisation, Morphogenesis, Self-reference, Autonomy; Dynamic Systems, Complex Systems, Fuzzy Sets; Physico-Chemical Systems; Engineering Systems, Automation, Simulation, Robotics, Artificial Intelligence, Learning; Biological Systems, Neurocybernetics, Autogenesis, Physiology, Systemic Therapy, Ethology, Ecology; Human and Social Systems, Anthropology, Economics, Development, Management, Education.

It is to be noted that no topic relevant to cybernetics and systems in the widest sense or type of approach is excluded.

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Addenda

1. The official languages of the Congress are French and English. Simultaneous translation facilities will be available (from French into English, and vice versa) during the plenary sessions.
2. The Sixth Congress is held a week before the SICOB CONVENTION in Paris.
3. Please direct all enquiries to AFCET, as above.