

# KYBERNETES

*International Journal of Cybernetics and Systems*  
(a quarterly)

EDITOR: Dr J. Rose

ASSISTANT EDITORS:

Professors

F. H. George (U.K.), T. C. Helvey (U.S.A.),  
E. Nicolau (Romania) and Guang-Ming Shen (China)

ADVISORY BOARD:

Professors

S. Dillon Ripley (U.S.A.), U. S. von Euler (Nobel Laureate, Sweden),  
Hua Luogeng (China), M. Manescu (Romania),  
Sir Harry Massie (U.K.) and E. Wolff (France)

There are also 15 section editors from 8 countries and 21 members of the  
Editorial Board from 11 countries

This journal is concerned with the interdisciplinary study of cybernetics and systems in the widest sense. Among the extensive range of topics covered are the following: *Artificial Intelligence, Automation, Cybernetic Modelling, Computer Simulation, Biocybernetics, Economic and Social Systems, Nature and Validation of General Systems, Ecosystems, Adaptive Systems, Philosophy of Cybernetics, the Interrelation between Cybernetics and other Sciences.*

**Kybernetes**, now in its twelfth year of publication, aims to endow cybernetics and general systems with an authoritative voice of its own and to establish a competent forum for the exchange of knowledge and information in relevant fields. One of the primary objectives of this publication is to weed out pseudo-cybernetics claims and to base cybernetics on a sound foundation; hence, highly speculative papers that lie on the fringe of cybernetics and systems sciences will not be published. The journal contains only *original papers*; it is the official publication of the World Organisation of General Systems and Cybernetics.

Enquiries and orders to:

Thales Publications (W.O.) Ltd  
4 Pleck Farm Avenue  
Blackburn BB1 8PE  
England  
(Tel. 0254-55307)

SUBSCRIPTION RATES PER VOLUME OF FOUR QUARTERLY ISSUES  
(includes air mail delivery to countries outside Europe):

Great Britain . . . £50.00  
Outside Great Britain . . . (U.S.)\$120.00

For Advertising Rates and Back Issues enquire at Thales Publications (W.O.) Ltd,  
as above.

**A PRESTIGE PUBLICATION, INDISPENSABLE TO  
YOUR ORGANISATION AND TO YOU**

# OECD

## KNOWLEDGE YOU NEED WHEN YOU NEED IT

Policymakers and people in all the industrialised countries are puzzling over a pivotal question: Is the "microchip revolution" destroying more jobs than it is creating?

In **MICRO-ELECTRONICS, ROBOTICS AND JOBS** a group of experts looks fairly and squarely at the issues that challenge society. Among them:

- How much of the decline in demand for labour is the social cost of new technology?
- Which groups of workers are affected most by technological change?
- How profitable are industrial robots — and what changes in working methods and attitudes do they force upon human workers?
- How many and what kinds of new jobs does robotics create — and where?

Detailed, thorough and provocative, this new report from the OECD is rooted in facts and figures.

Yes! Please rush me my copy of **MICRO-ELECTRONICS, ROBOTICS AND JOBS** (ISBN 92-64-12384-9): 265pp, limp covers. *French francs* 125.00, £ 12.50, U.S. \$ 25.

- And send me a free copy OECD CATALOGUE of PUBLICATIONS
- I attach my cheque  
(I attach my business card)

NAME \_\_\_\_\_

Street address \_\_\_\_\_

City \_\_\_\_\_

Postal code \_\_\_\_\_

Country \_\_\_\_\_

OECD Sales Agent in the  
**UNITED KINGDOM**  
H.M. Stationery Office,  
P.O.B. 276, LONDON SW8 5DT  
Tel. (01) 622-3316

(Dept Ro)

# OECD

ORGANISATION FOR ECONOMIC  
COOPERATION AND DEVELOPMENT  
2, rue André-Pascal - 75775 PARIS CEDEX 16

# Fundamentals in Computer Vision

Edited by **O. D. FAUGERAS**

Papers by fifteen acknowledged experts which examine the theoretical concepts underpinning Computer Vision, introduce the necessary analytical tools for Vision System design and address practical implementation issues related to hardware and software. The book results from the advanced course jointly sponsored in 1982 by the EEC Commission and the *Institut National de Recherche en Informatique et en Automatique*.

**Contents:** Preprocessing; Feature Extraction; Segmentation; Shape; Control and Knowledge Representation; Hardware and Software.

**Contributors:** J. F. Abratic; J. Arvidsson; O. D. Faugeras; G. H. Granlund; R. M. Haralick; T. C. Henderson; H. Knutsson; B. Kruse; S. W. Krusemark; M. Kunt; J. C. Latombe; S. Levaldi; A. Lux; A. Rosenfeld; R. Wilson.

*Crest Advanced Courses*

0 521 25099 4

£20.00 net/\$39.50

**CAMBRIDGE UNIVERSITY PRESS**

## Notes for Contributors

**1.** Manuscripts should preferably be written in English, but papers in French and German will also be accepted. All manuscripts will be referred to acknowledged experts in the subject. Only those receiving favourable recommendations from the referees will be accepted for publication. Manuscripts may be sent to any Board member, any Deputy Editor or the Editor.

**2.** Typescripts should be double spaced, on one side of good grade paper, allowing a reasonable left-hand margin. An original and two copies should be submitted with the author's full postal address, position and affiliations.

**3.** A short abstract of about 80 words should precede the main text. *List of symbols:* A typewritten list of any special symbols should be submitted with the manuscript. The list should not define the symbols mathematically, but should serve to identify them typographically. The list will not appear in print, but is essential to help the typesetter and to avoid costly correction in proof.

**4.** One copy of photographs, prints or transparencies of good quality and unmarked should be submitted. Where lines or lettering are to appear on the photograph, an additional print should be supplied appropriately marked. Each should have, lightly written on the back, the author's name, the figure number and an indication of which is the top of the picture.

**5.** One copy of each line diagram should be submitted at approximately twice final size and unlettered. Diagrams must be drawn in indian ink on plain white or transparent paper. A second copy should be supplied with lettering included. The author's name and the figure number should be written on this copy. Figures should be numbered consecutively, with arabic numerals, have descriptive captions, and be mentioned in the text. The correct position for each figure should be indicated in the margin of the manuscript.

**6.** Tables should be typewritten on separate sheets. Avoid, where possible, very wide tables. Number tables

consecutively with roman numerals. Each should have a brief heading. Exceptionally lengthy tables may be summarized for publication with a note that copies of details can be obtained from the authors.

**7. Equations:** Wherever possible, mathematical equations should be typewritten, with subscripts and superscripts clearly indicated. The printer will set all mathematical symbols in italics unless otherwise indicated; symbols or letters to be set in roman (upright) type should be encircled in pencil, while bold letters should be shown by a wavy underline.

**8. References:** In the text, references are indicated by superior arabic numbers (without brackets), and should be confined to publish work that is directly pertinent. References should be listed at the end of the paper in numerical order. Authors' initials should precede their names; cited article titles should be quoted in full, enclosed in quotation marks; and abbreviations of journal names should follow the style of *Chemical Abstracts* or *Physical Abstracts*, and be underlined for italics: P.W. Anderson, "More is different" *Science* **177**, 393 (1972) C.V. Negoita, *Fuzzy Systems* (Abacus Press, Tunbridge Wells, UK, 1980)

Citations such as 'personal communication', 'unpublished work', etc., are not acceptable as numbered references but can be included in parenthesis in the text. Do not use summaries as references.

**9. Proofs:** Page proofs will be sent to authors for correction, for return within 48 hours by airmail. Correction to proofs should be restricted to printers' errors only. Authors are entitled to 25 offprints of their article free of charge. Additional offprints may be purchased if they are ordered on the form sent with the proofs.

**10.** Manuscripts, whether accepted or rejected, will not be returned to the authors.

**11.** Submission of an article will be taken to imply that it has not been previously published and that it is not on offer to any other publisher.

# ROBOTICA

Volume 1 Part 2

April 1983

## CONTENTS

<b>Editorials</b>	<b>61</b>
<b>Reports and Surveys, B.H. Rundall (U.K.)</b>	<b>67</b>
<b>Co-operation of robots in gripping tasks: the exchange problem, René Zapata, Pierre Dauchez, and Philippe Coiffet (France)</b>	<b>73</b>
<b>Energy consumption of three-link manipulators as a function of geometric features and trajectory parameters, A. Klein (Hungary)</b>	<b>79</b>
<b>Planning in a Continuous Domain – An Introduction, Richard M. Salter (U.S.A.)</b>	<b>85</b>
<b>A new elastic structure for a compliant robot wrist, Štefan Havlík (Czechoslovakia)</b>	<b>95</b>
<b>Employment in the age of robots, D.A. Bell (U.K.)</b>	<b>103</b>
<b>Conference Reports</b>	<b>105</b>
<b>Book Reviews</b>	<b>109</b>
<b>Announcements</b>	<b>114</b>

© CAMBRIDGE UNIVERSITY PRESS 1983

Cambridge University Press  
The Pitt Building, Trumpington Street, Cambridge CB2 1RP  
32 East 57th Street, New York, NY 10022