ROBOTICA

INTERNATIONAL JOURNAL OF INFORMATION, EDUCATION & RESEARCH IN ROBOTICS & ARTIFICIAL INTELLIGENCE

EDITOR Dr J. Rose

VOLUME 1 1983

CAMBRIDGE UNIVERSITY PRESS

CAMBRIDGE

LONDON NEW YORK NEW ROCHELLE

MELBOURNE SYDNEY

Published by the Press Syndicate of the University of Cambridge The Pitt Building, Trumpington Street, Cambridge CB2 1RP 32 East 57th Street, New York, N.Y. 10022 10 Stamford Road, Oakleigh, Melbourne 3166, Australia

© Cambridge University Press 1983

Printed in Northern Ireland by The Universities Press (Belfast) Ltd, Belfast BT6 9HF

CONTENTS

Part 1 January 1983

Editorials	1
Reports and Surveys, B. H. Rudall (U.K.)	5
Articles	
Coming robot new era (a viewpoint), I. Kato (Japan)	9
R & D in human aspects of robotic technology, J. E. Taylor (U.S.A.)	15
English as a command language for robot control (HIROB), P. Bock (U.S.A.)	19
Expedient range enhanced 3-D robot colour vision, R. A. Jarvis (Australia)	25
A curvilinear snake arm robot with gripper-axis fibre-optic image processor feedback, W. K. Taylor, D. Lavie and I. I. Esat (U.K.)	33
Robot planning with fuzzy sets, R. R. Yager (U.S.A.)	41
Book Reviews	51
Conference Report	57
Announcements	59

Part 2 April 1983

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

Part 3 July 1983

Editorials	119
Reports and Surveys, B.H. Rudall (U.K.)	121
Testing the efficiency and motion economy of two-finger robotic grippers, H. Steven Schafer and Eric M. Malstrom (U.S.A.)	127
Application of a robot in a working cell, J.F. Hockham and B.M. O'Connor (U.K.)	139
Precision robotics—within our grasp?—A viewpoint, L.E. Schnurr (U.K.)	147
Sequential learning of automata from input-output behaviour, P. Luneau, M. Richetin and C. Cayla (France)	151
Robots – from concept to commissioning (Company profile), Duncan Barrie Lowe (U.K.)	161
Conference Reports	166
Book Reviews	169
Special Feature	173
Announcements	178

Part 4 October 1983

Reports and Surveys, B.H. Rudall (U.K.)	183
Japan's robotics research for the next generation, Yoji Umetani and Kanji Yonemoto (Japan)	189
Teaching a miniature robotic manipulator to play chess, John D. Hoffman and Eric M. Malstrom (U.S.A.)	197
A new method for calculating the Jacobian for a robot manipulator, Jadran Lenarčič (Yugoslavia)	205
Vibration due to motion discontinuities in hydraulically actuated robots, J. Rees Jones (U.K.)	211
Representation and tactile sensing of 3-D objects by a gripper finger, Gen-ichiro Kinoshita (Japan)	217
Robot vision implementation by high-speed image processor TOSPIX: Battery inspection, Yoshinori Kuno, Hideo Numagami, Minoru Ishikawa, Hiroshi Hoshino, Yasushi Nakamura and Masatsuga Kidode	
(Japan)	223
Minimum distances for robot task simulation, W. Edward Red (U.S.A.)	231
Corrugated PVDF bimorphs as tactile sensors and micro-actuators—A research note, Alan F. Davis and Gale E. Nevill, Jr. (U.S.A.)	239
Book Reviews	241
Conference Reports	245
Announcements	247

https://doi.org/10.1017/S0263574700002071 Published online by 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.



.

CONTENTS

Reports and Surveys, B.H. Rudall (U.K.)	183
Japan's robotics research for the next generation, Yoji Umetani and Kanji Yonemoto (Japan)	189
Teaching a miniature robotic manipulator to play chess, John D. Hoffman and Eric M. Malstrom (U.S.A.)	197
A new method for calculating the Jacobian for a robot manipulator, Jadran Lenarčič (Yugoslavia)	205
Vibration due to motion discontinuities in hydraulically actuated robots, J. Rees Jones (U.K.)	211
Representation and tactile sensing of 3-D objects by a gripper finger, Gen-ichiro Kinoshita (Japan)	217
Robot vision implementation by high-speed image processor TOSPIX: Battery inspection, Yoshinori Kuno, Hideo Numagami, Minoru Ishikawa, Hiroshi Hoshino, Yasushi Nakamura and Masatsuga Kidode	
(Japan)	223
Minimum distances for robot task simulation, W. Edward Red (U.S.A.)	231
Corrugated PVDF bimorphs as tactile sensors and micro-actuators—A research note, Alan F. Davis and Gale E. Nevill, Jr. (U.S.A.)	239
Book Reviews	241
Conference Reports	245
Announcements	247

.

.

© CAMBRIDGE UNIVERSITY PRESS 1983

Cambridge University Press The Pitt Building, Trumpington Street, Cambridge CB2 1RP 32 East 57th Street, New York, NY 10022 10 Stamford Road, Oakleigh, Melbourne 3166, Australia Printed in Northern Ireland by The Universities Press (Belfast) Ltd.