

# NEW FROM OXFORD

## Robot Control

The Task Function Approach

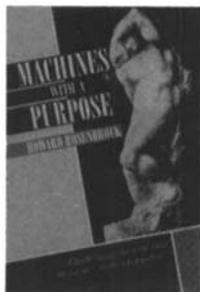
**CLAUDE SAMSON, MICHEL LE BORGNE, and  
BERNARD ESPIAU**

This book examines in depth some theoretical and applied problems in the control of rigid manipulators. Basic mathematical tools are established, and a way of properly expressing a user's goal in terms of robot tasks is given. Of particular interest is the automatic control of robot manipulators, hence particular attention is paid to the problems of stability and robustness.

*Oxford Engineering Science Series No. 22*

0 19 853805 7, 384 pp., illus., Clarendon Press, 1991

£50.00



## Machines with a Purpose HOWARD ROSENBRICK

This book shows how, by interpreting nature in terms of purpose rather than cause, man and nature become 'machines with a purpose'—armed with this view it is possible to reject the direction in which technology is taking us, towards environmental damage, without rejecting the technology itself, and its benefits.

0 19 856346 9, 234 pp., illus., October 1990

£25.00

## Brushless Servomotors

Fundamentals and Applications

**Edited by YASUHIKO DOTE and SAKAN KINOSHITA**

Rapid progress in the past three decades has made possible the use of brushless servomotors in motion control, providing high productivity and improved product quality. This book is a practical introduction for engineers and students who are not familiar with servomotors and motion control; the control methods described are useful for practising engineers who want to deepen their knowledge of motion control in manufacturing systems.

*Monographs in Electrical and Electronic Engineering No. 23*

0 19 859372 4, 280 pp., illus., November 1990

£40.00

## Kinematic Geometry of Mechanisms

**K. H. HUNT**

This paperback version of this classic text relates classical two- and three-dimensional geometry to mechanisms. The emphasis remains geometrical rather than analytical, setting down the principles and conditions with which mechanisms must comply. If anyone still holds that mechanism is an out-moded intuitive art then this book refutes such a view and reveals that kinematic geometry has much to offer today's engineer.

*Oxford Engineering Science Series No. 7*

0 19 856233 0, 484 pp., illus., paperback, Clarendon Press, June 1990

£25.00

**NEW IN PAPERBACK**

# OXFORD 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

<b>Reports and Surveys (Computer Integrated Manufacturing, Engineering Ceramics FMS Factory, Flexible Automation, Fuzzy Control Applications, Innovations in Automation, Non-Manufacturing Robot Applications, Robots Worldwide, Software Developments in CAD/CAM (A CAD/CAM Software System for Metal Plate Machining), Tactile Sensing Systems, B. H. Rudall (UK)</b>	<b>125</b>
<b>Time-Optimal Trajectories for Robot Manipulators, M. W. M. G. Dissanayake, C. J. Goh and N. Phan-Thien (Australia)</b>	<b>131</b>
<b>Automated Mobile Robots under the Influence of Random Disturbances, M.-O. Hongler (Switzerland)</b>	<b>139</b>
<b>A Distributed On-Line Trajectory Generator for Intelligent Sensory-Based Manipulators, A. M. S. Zalzal and A. S. Morris (UK)</b>	<b>145</b>
<b>Constrained Motion Control of Manipulation Robots—A Contribution, Dragan M. Stokić (Yugoslavia)</b>	<b>157</b>
<b>Learning Control for Autonomous Machines, R. Shoureshi, D. Swedes and R. Evans (USA)</b>	<b>165</b>
<b>Dextrous Telerobotics with Force Feedback—An Overview Part 1: Human Factors, Grigore Burdea and Jiachen Zhuang (USA)</b>	<b>171</b>
<b>Task-Driven Extraction of Object Contour by Human Haptics: Part 2, Susan J. Lederman, Robert L. Klatzky and J. D. Balakrishnan (Canada &amp; USA)</b>	<b>179</b>
<b>Assembly Strategies for Parts with a Plane of Symmetry, N. A. Aspragathos (Greece)</b>	<b>189</b>
<b>A New View of the Decoupling Problem for Industrial Robots, I. Troch (Austria)</b>	<b>197</b>
<b>Concepts of Augmented Image Space and Transformed Feature Space for Efficient Visual Servoing of an “Eye-in-Hand Robot”, Won Jang, Kyungjin Kim, Myungjin Chung and Zeungnam Bien (Korea)</b>	<b>203</b>
<b>A Variational Approach for Modeling Flexibility Effects in Manipulator Arms, Ali Meghdari (Iran)</b>	<b>213</b>
<b>Manufacturing of a Scara Type Direct-Drive Robot with Graphite Fiber Epoxy Composite Material, Dai Gil Lee, Ki Soo Kim and Yoon Keun Kwak (Korea)</b>	<b>219</b>
<b>An Efficient Computational Method of the Jacobian for Robot Manipulators, Chang-Jin Li, A. Hemami &amp; T S Sankar (Canada)</b>	<b>231</b>
<b>A Distributed PC-Based Control System for Education in Robotics, N. Kirćanski, Dj Leković, M. Borić, M. Vukobratović, M. Djurović, N. Djurović, T. Petrović, B. Karan and D. Urosević (Yugoslavia)</b>	<b>235</b>
<b>Conference News</b>	<b>247</b>
<b>Book Reviews</b>	<b>251</b>
<b>Announcements</b>	<b>257</b>

© CAMBRIDGE UNIVERSITY PRESS 1991

Cambridge University Press  
The Pitt Building, Trumpington Street, Cambridge CB2 1RP, UK  
40 West 20th Street, New York, NY 10011-4211, USA  
10 Stamford Road, Oakleigh, Melbourne 3166, Australia

Printed in Northern Ireland by The Universities Press (Belfast) Ltd.