COMPUTER-AIDED DESIGN,
ENGINEERING, AND MANUFACTURING
SYSTEMS TECHNIQUES AND APPLICATIONS

VOLUME
VII

ARTIFICIAL INTELLIGENCE AND ROBOTICS IN MANUFACTURING

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ARTIFICIAL INTELLIGENCE AND ROBOTICS IN MANUFACTURING

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Preface

A strong trend today is toward the fullest feasible integration of all elements of manufacturing, including maintenance, reliability, supportability, the competitive environment, and other areas. This trend toward total integration is called concurrent engineering. Because of the central role information processing technology plays in this, the computer has also been identified and treated as a central and most essential issue. These are the issues that are at the core of the contents of this volume.

This set of volumes consists of seven distinctly titled and well-integrated volumes on the broadly significant subject of computer-aided design, engineering, and manufacturing: systems techniqes and applications. It is appropriate to mention that each of the seven volumes can be utilized individually. In any event, the great breadth of the field certainly suggests the requirement for seven distinctly titled and well-integrated volumes for an adequately comprehensive treatment. The seven volume titles are:

1. Systems Techniques and Computational Methods
2. Computer-Integrated Manufacturing
3. Operational Methods in Computer-Aided Design
4. Optimization Methods for Manufacturing
5. The Design of Manufacturing Systems
6. Manufacturing Systems Processes
7. Artificial Intelligence and Robotics in Manufacturing

The contributions to this volume clearly reveal the effectiveness and significance of the techniques available and with further development, the essential role they will play in the future. I hope that practitioners, research workers, students, computer scientists, and others on the international scene will find this set of volumes to be a unique and significant referance source for years to come.

Cornelius T. Leondes
Editor

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Editor

Cornelius T. Leondes, B.S., M.S., Ph.D. Emeritus Professor, School of Engineering and Applied Science, University of California, Los Angeles has served as a member or consultant on numerous national technical and scientific advisory boards. He has served as a consultant for numerous Fortune 500 companies and international corporations. He has published over 200 technical journal articles and has edited and/or co-authored over 120 books. Dr. Leondes is a Guggenheim Fellow, Fulbright Research Scholar, and Fellow of IEEE as well as the recipient of the IEEE Baker Prize Award and the Barry Carlton Award of the IEEE.

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