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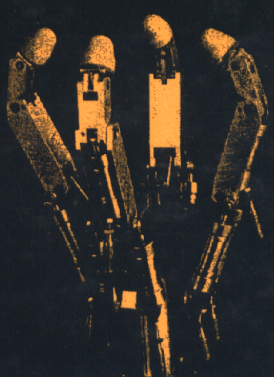
ROBOTIC AND MANUFACTURING SYSTEMS

Recent Results in Research, Development, and Applications

Volume 3



EDITORS:

Mohammad Jamshidi
François Pin

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VOLUME 3

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Cover Design: The cover of this volume incorporates Figure 3, "The TUM-Hydraulic Hand," of Friedrich Pfeiffer's paper entitled "Cooperating Fingers—A Special Form of Cooperating Robots," which begins on page 639.

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THIS VOLUME IS DEDICATED TO:

Professor Mohamed Mansour

for his pioneering works on continuous and discrete-time control systems and his dedicated services to the international control community

Mohamed Mansour was born in Damietta, Egypt, on August 30, 1928. He received the B.Sc. and M.Sc. degree in electrical engineering from the University of Alexandria, Egypt, in 1951 and 1953, respectively, and the Dr. Sc. Techn. degree in electrical engineering from ETH Zurich, Switzerland, in 1965. He was Assistant Professor in Electrical Engineering at Queen's University, Canada, from 1967-1968. He has been Professor and Head of the Department of Automatic Control at ETH Zürich since 1968, he was Dean of Electrical Engineering from 1976-1978 and Head of the Institute of Automatic Control and Industrial Electronics, ETH Zürich, during 1976-1978, 1980-1982, 1984-1986, and 1989-1990. He was Visiting Professor at IBM Research Lab., San Jose, California, from September to December 1974; at the University of Florida, Gainesville, from January to March 1975; at the University of Illinois, Urbana, from August to December 1981; at the University of California, Berkeley, from January to March 1983; at the Australian National University, from October to November 1989 and from February to March 1992; at the Tokyo Institute of Technology, from October to November 1992; at the University of Miami, from January to April 1994; at the Australian National University, from January to March 1995; at the Tokyo Institute of Technology, Nippon Steel Chair of Intelligent Control, from July to September 1995. He was President of the Swiss Society of Automatic Control from 1979-1985; Member of the Council and Treasurer of IFAC (International Federation of Automatic Control) from 1981-1993; President of the 4th IFAC/IFIP Conference on "Digital Computer Applications for Process Control" in 1974; Chairman of the International Program Committee of the IFAC Symposium on "Computer Aided Design of Control Systems" in 1979; Chairman of the International Program Committee of the 4th IFAC/IFORS Symposium on Large-Scale Systems "Theory and Applications" in 1986; Co-Chairman of the IOTA/IFAC Symposium on "Dynamics of Controlled Mechanical Systems" in 1988; Vice-Chairman of International Program Committee of the IFAC/IFORS/IMACS Symposium on Large Scale Systems "Theory and Applications" in 1989; Co-Chairman of the International Program Committee of the first IFAC Symposium on "Design Methods of Control Systems" in 1991; Chairman of the "International Workshop on Robust Control", Ascona, in 1992; Chairman of the International Program Committee of "Fundamentals of Sampled-Data Systems" in 1992; Chairman of the Meeting of Professors of Automatic Control in Western Europe "WEPAC '92" in 1992; Vice-Chairman of the IFAC Education Committee from 1978-1981; Member of the Senate of the Swiss Academy of Natural Sciences from 1979-1985; Member of the Scientific Committee of INTERKAMA from 1980-1989; Member of the Evaluation Committee of the Research Program "Control of Complex Systems" of the German Research Council from 1986-1989; Member of the Scientific Committee on Fuzzy Control of the Government of North Rhein Westfalia from 1991-present; Delegate of IFAC to the United Nations in Geneva from 1982-1990; Chairman of the Committee of "Awards and Nominations" of the IEEE Control Systems Society from 1989-1990; Chairman of the Committee for Eng. Sciences of Third World Academy of Sciences (TWAS) from 1991-present; Delegate of TWAS to the United Nations from 1991-present. His awards include Silver Medal of ETH Zurich, Switzerland 1965, Fellow IEEE 1985, Honorary Professor of the Gansu University of Technology, PR China 1986, Honorary Professor of the Guangxi University, PR China 1987, Associate Fellowship of the Third World Academy of Science 1989, IFAC Outstanding Service Award 1990, Gullemin-Cauer Award IEEE CAS Society 1992 IFAC Advisor Award 1993, Honorary Membership of the Swiss Society of Automatic Control 1994. His fields of interest are: control systems—especially stability theory and digital control- -stability of power systems, and digital filters, Main Research Results are Stability Criteria, Mansour-Matrix for Discrete Systems (Applications: Stability, Identification, Model Reduction, Lattice Filters for one & multidimensional Systems), and Strong Theorem for Robust Stability. His hobbies are Languages, Philosophy and Religions, Ping Pong, and Tennis.

TABLE OF CONTENTS

Specify, Validate and Implement Missions for Autonomous Vehicles
S. Abdou, M. Parent and B. Espiau 1

Walking Robots for Planetary Exploration Missions
A. Martin-Alvarez, J. Hillebrand, W. De Peuter, P. Putz,
A. Matthyssen, and J.F. de Weerd 7

Task Level Position Control of Robots, and Static Errors Compensation
M. Aicarde, G. Cannata, and G. Casalino 15

Distributed Task Processing by a Multiple Autonomous Robot System Using an Intelligent Data Carrier System
H. Asama, T. Fujii, H. Kaetsu, I. Endo, and T. Futjita 23

Neuromate: First Clinical Results and Future Developments
F. Badano, F. Danel, A. Benabid, and D. Hoffman 29

Principles and Applications of Analogical Gates in the Control of a Non-holonomic Autonomous Mobile Robot
E. Badreddin 37

Conceptual Design of an Aircraft Automated Coating Removal System
J.E. Baker, J.V. Draper, F.G. Pin, A.H. Primm, and S. Shekhar 43

The Fuzzy Horizons Obstacle Avoidance Method for Mobile Robots
M. Balzarotti and G. Ulivi 51

Optimal Range Sensor Positioning for 3-D Model Reconstruction
J.E. Banta and M.A. Abidi 57

Hybrid Force Position Control of Constrained Manipulators by Means of Unchattering VSC
G. Bartolini and A. Ferrara 63

State Feedback and Linearization for a Pneumatic Servosystem
G. Belforte and C. Ferraresi 71

Motion Planning of Industrial Robots with Technological Constraints
P. Pledel and Y. Bestaoui 77

Working-Out of a Documentation Authoring System inside a Manufacturing-Specific Software Engineering Framework
M. Le Bissonnais and F. Prunet 83

Generation of Optimized Collision Free Robot Move Statements Based on Genetic Algorithms
C. Blume 89

Obstacle Detection for the Ranger Telerobotic Flight Experiment
B. Bon and H. Seraji 95

The Effects of Computational Delays in Coordinated Multiple-arm Manipulation using Robust Internal Force-based Imedance Control
R.G. Bonitz and T.C. Hsia 103

Robust Internal Force-tracking Impedance Control for Coordinated Multi-arm Manipulation-Theory and Experiments
R.G. Bonitz and T.C. Hsia 111

The OmniMate: A Mobile Robot with Omnidirectional Motion, Internal Odometry Error Correction, and Recovery After Actuator Failure
J. Borenstein 119

Decentralized Piloting of Transport Systems by Autonomous Vehicles
N. Broissin, P. Pujo, J-C. Bertrand 125

On the Workspace Analysis of Spherical Platform Mechanisms
F. Bulca, J. Angeles, and P.J. Zsombor-Murray 131

Algorithms of Robust Global Stabilization of Flexible Manipulators
I.V. Burkov, A.A. Pervozvanski, and L.B. Freidovich 137

Low-level Stored Waste Inspection Using Mobile Robots
J.S. Byrd and R.O. Pettus 143

Contact Force Control in Bilateral Manipulation
A. Caiti, G. Cannata, G. Casalino, and S. Reto 149

Manufacturing Engineering Curricula at Drexel University
S. Carmi 155

A Study of Feasibility for a New Wrist
M. Ceccarelli 161

Robust Segmentation of 3D Laser Range Finder Data
L. Charbonnier, J.D. Tardos, and O. Strauss 167

Calibration of Scanning Laser Range Cameras
B.L. Chase, G.A. Armstrong, and M.A. Abidi 173

Applying Random Sampling and Histogram Analysis for Mobile Robot Localization
B-Y. Chee and S.Y.T. Lang 179

Neural Network Learning Control for Position and Force Regulation of Multi-Manupulator Systems
P.C.Y. Chen, J.K. Mills, and K.C. Smith 185

Operational Motions of a Manipulator Robot from a Singularity
C. Chevallereau 191

Ballistic Motions for a Quadrupled Robot
C. Chevallereau, F. Gosselin, B. Perrin, and A. Formalsky 197

Modelling Constrained Robotics Systems: A Differential-Algebraic Equations Approach
R. Costa-Castelló, R. Griñó, and L. Basañez 203

Virtual Collaborative Robotics
C.C. Crane, R. Pinheiro, P. Adsit, C. Will, D. Haddox, R. Dalton, and J.S. Tulenko 209

Implementation of a Package of Software for Communication Between a PC and a ABB Robot
M. Crisóstomo, C. Mendes, and A.T. de Almeida 215

Intelligent Control of Robotic Fish Processing
C.W. de Silva 223

Efficient Motion Planning for Cooperating Multi-arm Robotics
G. Dodds and B. McCarragher 229

Medical Robotics
T. Dohi 235

Platooning for Vehicles and Automatic Parking by Scheduling Robotic Actions
P. Daviet, S. Abdou, and M. Parent 241

Minimum Energy Torgue Tracking of Induction Motors with Parameter Uncertainty
L.C. de Souza Marques and S. I. Seleme, Jr. 247

Towards a Specification Method for an Automated System: The Third Phase of the Method
L. Jacquet, G. Doriry, and R. Soenen 253

Kinematic Analysis of Cuspidal Positioning Manipulators in the Presence of Obstacles
J. El Omri and P. Wenger 259

Gain Adaptation in Sliding Mode Control of Robotic Manipulators
M. Ertugrul, F. Keresteciogulu, and O. Kaynak 265

Formal Mission Specification in an Open Architecture
B. Espiau, K. Kapellos, E. Coste-Manière, and N. Turro 271

A Completely Wireless Development System for Mobile Robots
L. Feng, J. Borenstein, and D. Wehe 277

NC++, A New Paradigm in CNC-Technology
B. Ferroni, D. Baggi, M. Milan, and N. Pelloni 283

Hierarchical Petri Nets for Manufacturing Systems
P. Finotto and D. Crestani 293

Soft Control of an Effector Path for a Mobile Manipulator
C. Fischer, M. Buss, and G. Schmidt 299

Position, Orientation Detection and Control of Mobile Robots through Real Time Colour Processing
J. Forest, R. García-Campos, and J. Salvi 307

A Dynamic Resource Allocation System for Computer Integrated Manufacturing Systems
D. Gracanin, K.P. Valavanis, S.A. Smith, Jr., T. Williams, II, and A. Steward 313

Fault Handling in Flexible Machining Cells
P. Gullander, A. Adlemo, and S-A. Andréasson 319

Robot-Mountable Dosimeter: A Protection for Machines in Nuclear Plants Against Radiation Failure
A. Holmes-Siedle 327

Decision Making Software for Dual-Arm Operations in Nuclear Facility Decontamination and Dismantlement
R. Hooper, C. Kapoor, and D. Tesar 333

On the Workspace of Planar Three-Legged Platforms
M.L. Husty 339

Piezoelectric Force Sensors and Actuators: Modeling and Control
M. Indri and A. Tornambè 345

Cooperative Cleaning: An Experiment with Multiple Autonomous Robots
D. Jung and A. Zelinsky 351

Blanket Maintenance Development for ITER
S. Kakudate, K. Oka, M. Nakahira, K. Obara, K. Taguchi, S. Fukatsu, E. Tada, K. Shibanuma, K. Ioki, N. Matsuhira, A. Tesini, R. Hager, and R. Haange 357

Design of an Autonomous Underwater Robot: ODIN II
K. Kawaguchi, C. Ikehara, S.K. Choi, M.S. Fujita, W.C. Lee, and J. Yuh 363

A New Iterative Controller Refinement Technique for Amplitude Constrained Control Action
L. Keviczky and C.S. Bányász 369

A Mobile Robot Control, Avoiding Uncertain, High Energy Disturbances
S. Khanmohammadi, S. Moaddab, P. Jabbedare-Maralani 377

Autonomous Calibration of Robots Using Planar Points
W. Khalil, Ph. Lemoine, and M. Gauthier 383

Design of Teleoperated Robot System for Nozzle Dam Installation/Removal in Steam Generator
C-H. Kim, S-Y. Hwang, and S. Kim 389

Position Error Prediction Using Neural Networks for Remote Nuclear Fuel Cask Handling Device
K. Kim and J.S. Yoon 395

Design of an AGV-Based Material Handling System Satisfying Throughput Constraint
Y-S. Kim, G-H. Kim, and J.G. Lee 401

Design of a Robotic Gripper System for Automated Deformable Material Manipulation
R. Kolluru, K.P. Valavanis, T. Hebert, A. Steward, and M. Sonnier 407

A Local Path Generation Method using Obstacle Vectors and Via Points
Y.D. Kwon and J.S. Lee 415

Optimizing Drill Tapes for Printed Circuit Boards
O. Lahyani, E. Oertli, and H. Eberle 421

Cooperation Between a Visual Sensor and Omnidirectional Telemeter for Localization
D. Laurent, M. El Mustapha, and P. Claude 427

Cooperative Robot Problem Solving
M. Li 433

Rapid World Modelling for Robotics
C.Q. Little and C.W. Wilson 441

A Novel 2-DOF Robotic Positioning Device with Force/Torque Sensing
J. Liu and X. Zhao 447

The Hierarchical System of Mathematical Simulation of Technological Objects
V.A. Lounev 453

Methods of Artificial Intelligence for Computer-Aided Process Planning
V.A. Lounev 459

Underwater Navigation by Terrain Matching
L. Lucido, V. Rigaud, J. Opderbecke, R. Deriche, and Z. Zhang 465

Methods for Determining the Realiability of Robotic Systems for Use in Radiation Environments
K. Lauridsen, H.E. Kongsø, and P. Christensen 471

Distributing Real-Time Control Tasks Among Multi-Agent Robot Systems
T.C. Lueth, J. Hellqvist, and T. Laengle 477

Low-Cost Virtual Collaborative Environment Through Open System Technology
R. Lumia, M. Todacheeney, and S. Quintana 483

Divertor Remote Handling Test Facilities
D. Maisonnier, C. Damiani, and E. Martin 489

Vision-Based Control Law using 3-D Visual Features
P. Martinet, J. Gallice, and D. Khadraoui 497

First Results of a H_∞ Control Structure Applied to the Second Link of the Puma 560 Robot
F.P. Maselli, M. Innocenti, and E. Degoulange 503

Enhancing CIMOSA with Exception Handling
S. Messina and P. Pleinevaux 511

Generating Dimensionally Accurate 3-D CAD Models
S. Motavalli, J. Valenzuela, and B. Bidanda 519

Open Architecture Controller Activities in TEAM
H. K. McCue 525

Safe Guidance in Robotic Travel Aid—Danger Estimation at Intersection
H. Mori, K. Kaneko, and S. Kotani 531

Localizing Mobile Robots with a Single Camera in Structured Environments
A. J. Muñoz and J. Gonzalez 539

Knowledge Based Control of a Fruit Picking Robot
G. Muscato, G. Nunnari, and N. Abbate 545

VULCAIN: An Hardened Amplifier for DC Motor
M. Marceau 551

Path Planning Using Linear Parametric Curve Based on Geometry Mapping of Obstacles
I. Namgung and J-G. Kim 557

Minimum Time Search for a Class of Shortest Collision-Free Path Based on Linear Parametric Curve
I. Namgung and J-G. Kim 563

Simulation and Test of a Flight-Type Wall-Climbing Robot
A. Nishi and H. Miyagi 569

Manufacturing Integration for Naturally Varying Products
H.R. Nicholls and M.G. Taylor 577

Hybrid Auction-based Control System Results in Cooperative Manufacturing
S. Nahavandi 583

Intelligent Adhesive Tape Handling and Application System
S. Nahavandi 589

A Development of Autonomous Tractor for Agricultural Field—Positioning System and its Experiment
T. Nishizawa, A. Ohya, S. Yuta, and T. Takigawa 595

Opening Door Behavior of an Autonomous Mobile Manipulator by Combination of Action Primitives
K. Nagatani and S. Yuta 603

A Practical Method of Two Phase Switching Receding Horizon Control
H.A. Pafizban, M.J. McGarity, and N.W. Rees 611

Cyclic Genetic Algorithms for the Locomotion of Hexapod Robots
G.B. Parker and G.J.E. Rawlins 617

Improved Tri-aural Perception through Robot Motion
H. Peremans and P. Veelaert 623

Validation of Software Components for Intelligent Actuation and Measurement
J.F. Petin, D. Mery, H. Panetto, and B. Iung 631

Cooperating Fingers—A Special Form of Cooperating Robots
F. Pfeiffer 639

Adding Memory Processing Behaviors to the Fuzzy Behaviorist-Based Navigation of Mobile Robots
F.G. Pin and S.K. Bender 647

Path Planning for Autonomous Vehicles
C. Potter 653

Validation of Standard Interfaces for Machine Control
F. Proctor, J. Michaloski, W. Shackleford, and S. Szabo 659

Design of a Telerobotic Cleaning and Inspection Robotic System for Large Oil Storage Tanks
Y. Qin, J Rastegar, F. Khorrami, and H. Melkote 665

Enhancing the Fault Tolerance of a Robotic System Through Kinematic Redundancy
R.G. Roberts 671

Optimization of Production Systems Using Genetic Algorithms
D-I. U. Roßgoderer 677

Simulation and Control of a Pipe Crawling Robot
T. Roßmann and F. Pfeiffer 683

Flexible Automation of High-Speed Machining of Unstructured Leather Components
M. Saadat, C. Preece, and J.E.L. Simmons 691

Remote Handling in ITER
K. Shibanuma, T. Burgess, R. Haange, R. Hager, C. Holloway, N. Matsuhira, A. Tesini, E. Martin, J. Herndon, D. Maisonnier, and E. Tada 697

Automated High-Frequency Sealing in Measuring Instruments
R.-D. Schraft, J.C. Spingler, and J.F. Woessner 705

Force Control in Locomotion of Legged Vehicle and for Service Operations
A. Schneider, U. Schmucker, T. Ihme, E. Devjanin, and K. Savitsky 711

A Model of the Future Enterprise—Multifunctions Integrated Factory
L. Si and P. H. Osanna 717

Development of a K3A Robot for Deployment in Radioactive Environments
F.R. Sias, Jr. 723

Environment for Manufacturing Systems Configuration Management
A.V. Smirnov 729

Programmable Mechanisms for Low-Cost Robots
E.W. Smith, S. Nahavandi, and R.V. Ellis 735

An Innovative Approach to Robot-Assisted Preparation of the Femoral Cavity in Total Hip Replacement
P. Skittides, R. Marsh, S. Gratsias, W. Witvrouw, J. De Schutter, and J. Vandersloten 741

Sensing Under Uncertainty for Mobile Robots
T.M. Sobh, M. Dekhil, and A.A. Efros 747

A Very Fast Parallel Robot to be Applied to Dexterous Motion
M. Uchiyama, T. Miwa, and D.N. Nenchev 753

Cooperative Multiple Robots to be Applied to Industries
M. Uchiyama, T. Kitano, and Y. Tanno 759

Self-Adjusting Active Compliance Controller for Two Cooperating Robots Handling A Flexible Object
C. von Albrichsfeld 765

Path Generation for Kinematic Redundant Manipulators with Multi-Criteria by Weight-Tuning
D. Wang 771

Cooperation of Inertial and Visual Sensing for Underwate Vehicle Localization
S. Wasielewski, and M.J. Aldon 777

Head-Eye Coordination: A Closed-Form Solution
M. Xie 783

A Robust Controller Design Approach for Robot Manipulators
S.J. Xu, M. Darouach, and M. Zasadzinski 791

Fuzzy Abduction and its Application to Diagnosis of Thermal Storage System
K. Yamada and K. Kamimura 797

Indoor Environment Recognition for a Mobile Robot Using Ultrasonic Sensors—Measuring the Direction and Distance of Multiple Objects
T. Yata, A. Ohya, and S. Yuta 803

Genetic Algorithms for Advanced Robotics and Manufacturing Systems
A.M.S. Zalzala, N. Morad, and A.S. Rana 809

Dynamics of a Six-Degree-of-Freedom Parallel Manipulator with Revolute Legs
K.E. Zanganeh, R. Sinatra, and J. Angeles 817

IAM Model and Robotic Car Assembly
S.W. Zeng 823

Author Index 831

Subject Index 835