Contents of Volume 1

CONTENTS OF VOLUME 2

Analysis of forgetting Algorithms
J.E. PARKUM, N.K.P. POULSEN, J. HOLST

A Discrete-time Convergent Approximation of the Optimal Recursive Parameter Estimator
D.M. WIBERG, L.A. CAMPBELL

EXPERT SYSTEMS AND KNOWLEDGE BASED IDENTIFICATION

Generic Expert System for Identification of Industrial Processes
B. BERGEON, J.L. ERMINE, A. KHADDAD, M. MONSION

Diopran-expert - A Consulting/Expert Systems for Experimental Process Analysis
J. WERNSTEDT, P. OTTO, R. PUHLMANN, F. ROSS

A Process Simulator of Aluminum Cells for Expert System-based Supervision
L. TIKASZ, R.T. BUI, V. POTOCNIK, M. BARBER

FAILURE AND FAULT DETECTION

Detection of changes in the Eigenstructure of Dynamic Systems using Multiple Model Method
J. BOKOR, CS. BANYASZ, L. KEVICZKY

A Fuzzy Inference Approach to Failure Diagnosis of Adaptive Controlled Systems
K. KUMAMARU, S. SAGARA, A. NAKAI, T. SODERSTROM

V.A. LOTOTSKY, A.A. YARALOV, V.A. BURDELYOV, A.S. GRINBERG, R.I. MAIZUS

Fault Identification Filter Design via H∞-optimization Techniques
X. DING, P.M. FRANK

Optimal Segmentation of Linear Regression Parameters
F. GUSTAFSSON

Model Based Fault Diagnosis of the Main Drive of a Horizontal Milling Machine
P. WANKE
Calculation of the Identifiable Parameters for Robots Calibration
W. KHALIL, M. GAUTIER 687

Adaptive Nonlinear Compensation for a SCARA Robot with Flexible Joints
N. KATO, S. FUJII, Y. HAYAKAWA 693

Knowledge-based Models of Human and Robot Grasping
G.A. BEKEY, T. IBERALL, R. TOMOVIC, HUAN LIU 699

Identification for Modeling and Adaptive Control of Hydraulic Robot Manipulators
JIAN-JUN ZHOU, F. CONRAD 705

Modelling of the PUMA Robot for Control of Grinding Applications
H. DAI, A.K. SRIVASTAVA, M.A. ELBESTAWI, N.K. SINH 711

IDENTIFICATION TECHNIQUES

Estimating Time-delays via State-space Identification Methods
P.A.J. NAGY, L. LJUNG 717

On-line Identification of Time Delay and System Parameters of Continuous Systems Based
on Discrete-time Measurements
Z.Y. ZHAO, S. SAGARA, K. KUMAMARU 721

Identification of Systems using Periodic Excitation
T. HAGGLUND, K.J. ASTROM 727

The Adjusted Least Squares Method for Identification of Dynamical Systems
O.N. JEPSEN, H. RAKE 733

Some Aspects on the Accuracy of System Identification
H. SHIBATA, T. FUJINAKA, Y. FUKUDOME, N. FURUMOTO 737

Adaptive Root Estimation Algorithms
A. KANGAS, E. KARLSSON 743

A Novel Non-iterative MIMO State Space Model Identification Technique
M. VERHAEGEN 749

Data Reconciliation and Gross Error Detection in Static Multi-linear Systems
J.Y. KELLER, M. BOUTAYEB, M. DAROUACH 755

An Open-loop Solution to the Approximate Closed-loop Identification Problem
R.J.P. SCHRAMA 761

INDUSTRIAL PROCESSES

Dynamic Short Pipeline Model for Gas Mixing Stations
M. VAJTA, M.A. KASPERS, A. BAGCHI 767
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimation and Control of the Kappa Number in a Pulp Cooking Process</td>
<td>775</td>
</tr>
<tr>
<td>D. JURICIC</td>
<td></td>
</tr>
<tr>
<td><strong>BIO-MEDICAL SYSTEMS</strong></td>
<td></td>
</tr>
<tr>
<td>On-line Estimation of Kinetic Parameters for Medium Optimisation of Biotechnical Processes</td>
<td>781</td>
</tr>
<tr>
<td>ST.A. FREYER, T.v. KURTEN, C. WANDREY</td>
<td></td>
</tr>
<tr>
<td>Adaptive Control of Pharmacokinetic-based Drug Infusion with Measurement Delay</td>
<td>787</td>
</tr>
<tr>
<td>G.A. WILLIAMSON, J.L. LARSEN</td>
<td></td>
</tr>
<tr>
<td>Robust Input Design for Achieving in Minimum Time Tracer Steady State in Compartmental System</td>
<td>793</td>
</tr>
<tr>
<td>SK. THOMASETH, C. COBELLI</td>
<td></td>
</tr>
<tr>
<td>Kinetics of Bicarbonate in Humans: Identification and Validation of a Three-compartment Model</td>
<td>799</td>
</tr>
<tr>
<td>M.P. SACCOMANI, E. CAVEGGION, C. COBELLI, R. BONADONNA</td>
<td></td>
</tr>
<tr>
<td><strong>IDENTIFICATION FOR CONTROL</strong></td>
<td></td>
</tr>
<tr>
<td>Overbiased, Underbiased and Unbiased Estimation of Transfer Functions</td>
<td>805</td>
</tr>
<tr>
<td>B. DE MOOR, M. GEVERS, G. GOODWIN</td>
<td></td>
</tr>
<tr>
<td>Bias and Variance Distribution in Transfer Function Estimation</td>
<td>811</td>
</tr>
<tr>
<td>G.C. GOODWIN, M. GEVERS, D.Q. MAYNE</td>
<td></td>
</tr>
<tr>
<td>Model Quality and Optimal Identification for Control</td>
<td>817</td>
</tr>
<tr>
<td>P. LOHNBERG, B. FRANKE</td>
<td></td>
</tr>
<tr>
<td>Over-determined Estimation of Pulse Transfer Function Model by Least-squares Method</td>
<td>823</td>
</tr>
<tr>
<td>M. EGUCHI, K. WADA</td>
<td></td>
</tr>
<tr>
<td>Modelling Uncertainty Estimation to maintain Control Systems Stability</td>
<td>829</td>
</tr>
<tr>
<td>I. JAWORSKA, A. KURYLOWIC</td>
<td></td>
</tr>
<tr>
<td><strong>NONLINEAR SYSTEMS</strong></td>
<td></td>
</tr>
<tr>
<td>Identifiability of Scalar Linearly Parametrized Polynomial Systems</td>
<td>835</td>
</tr>
<tr>
<td>S. DASGUPTA, M. GEVERS, G. BASTIN, G. CAMPION, L. CHEN</td>
<td></td>
</tr>
<tr>
<td>Statistical Identification of Nonlinear Vehicle Vibrating Structures</td>
<td>841</td>
</tr>
<tr>
<td>P. MICHELBERGER, J. BOKOR, A. KERESZTES, P. VARLAKI</td>
<td></td>
</tr>
<tr>
<td>Identification of Nonlinear State-space Models by Deterministic Search</td>
<td>847</td>
</tr>
<tr>
<td>J.P. NORTON, S.M. VERES</td>
<td></td>
</tr>
<tr>
<td>Note on Bispectra of Bilinear Realizable Processes with Hermite Degree 2</td>
<td>853</td>
</tr>
<tr>
<td>G. TERDIK, L.MEAUX</td>
<td></td>
</tr>
<tr>
<td>Identification of Nonlinear Models between the Reflux Flow and the Top Temperature of a Distillation Column</td>
<td>859</td>
</tr>
<tr>
<td>R. HABER, R. ZIERFUSS</td>
<td></td>
</tr>
</tbody>
</table>
Structural Identifiability of Nonlinear Systems: Application to a Batch Reactor
M.J. CHAPPELL, K.R. GODFREY

PARAMETER ESTIMATION

Fuzzy Stochastic Processes and their Applications to Parameter Identification
T. FUKUDA, Y. SUNAHARA

Accuracy of some Robust Estimators Based upon Prefiltering of the Input/Output Data
R. HENRIKSEN

Optimal Approximation of Feasible Parameter Set in Estimation with Unknown but Bounded Noise
M. MILANESE, A. VICINO

Multiple Model Estimation with Inter-residual Distance Feedback
E.J. LUND, J.G. BALCHEN, B.A. FOSS

Parameter Bounds for Models with Bounded Errors in all Variables
V. CERONE

Development of Robust Adaptive Estimators for On-line Industrial Utilization Analysis of Available
Techniques and Presentation of New Solutions
D.F. GARCIA, H. LOPEZ, A.B. DIEZ

Stabilized Identification via GSVD Optimized Based on Bayesian Information Theoretic Criterion
and Minimum Mean Squares Error
A. SANO, H. OHMORI, M. KAMEGAI

POWER SYSTEMS

Adaptive Control of Ocean Thermal Energy Conversion (OTEC) System: Controller Design and
Countermeasure for Bursting Phenomena in System Identification
M. NAKAMURA

A Knowledge-base Power System Stabilizer
M.M.F. SAKR, A. BAHGAT, KH. ELMETWALLY

Nonlinear Dynamic Models for the Power Behaviour of Nuclear Power Plants
E. WELFONDER, P. KOCHER

RECURSIVE ESTIMATION

An Algorithm for Identification of Linear Systems with Varying Time-delay
M. BJORKLUND, M. NIHTILA, T. SODERSTROM

An On-line Identification Procedure for Linear Stochastic Systems
S. GOTO, K. UOSAKI

The Application of a New Fuzzy Model Identification Technique to a Human Tracking
Control Operator
J.J. KRUGER, I.S. SHAW
A Recursive Decentralized Parameter Estimator for a General Linear SISO-system
E. Weyer 953

ROBUST ESTIMATION

On the Dead-zone in System Identification
K. Forsman, L. Ljung 959

Parameter Bounding in ARMAX Models from Records with Bounded Errors in Variables
V. Ceroné 965

System Identification for H∞-robust Control Design
T. Van den Boom, M. Klopstra, A. Damen 971

SIGNAL PROCESSING

A Circular Lattice-smoothness Priors Multichannel Time Varying Autoregressive Model
W. Gersch, D. Stone 977

Small Sample MA Estimation with Durbin's Method
P.M.T. Broersen, H.E. Wensink 983

A Digital Frequency Shift Keyed Technique for System Identification
I.A. Henderson, J. McGhee 989

TELEMACH: A Functional Approach to Face Problem Solving in Knowledge-based Signal Processing Systems
A. Edelmayer, A. Soumelidis 995

A Real-time Procedure for High-resolution Multiple-tone Detection
M. Bertocco, C. Offelli, D. Petri 1001

Robust Signal Estimation Based on Influence Function
V.Z. Filipović 1007

SOCIAL ECONOMICAL SYSTEMS

On Characterizing Shocks to the United States Economy
L.W. Taylor, Jr., R. Smith-Taylor 1013

Identification of a Latent Heat Energy Storage Unit
A. Maslowski, W. Pacuk 1019

Estimation of Inventory Characteristics for the Control of Just-in-time Production
P. Kelle, H. Schneider 1025

SPECIAL COMPUTER ARCHITECTURES AND PARALLEL PROCESSING

Target Tracking using Transputers as Parallel Processors
D.P. Atherton, D.M.A. Hussain, E. Gul 1031
A Parallel Algorithm for Process Identification
S. LEONHARDT

Multivariable Adaptive Control by a Transputer Based Architecture
L. FORTUNA, A. GALLO, G. MUSCATO, G. NUNNARI

A Generalized SRIF Algorithm for Systolic Implementation
L. CHISCI, G. ZAPPA

On-line Estimation and Learning via Neural Network Systems Based on Digital Chandrasekhar Filter
M. SUGISAKA, S. SAGARA, S. UENO

PARAMETRIZATION AND STRUCTURE IDENTIFICATION

A Branch-and-bound Approach to the Identification Problem
M. HAEST, G. BASTIN, M. GEVERS, V. WERTZ

Recursive Model Order Determination for Single-input and Single-output Systems
YUE ZHOU, N.K. SINHA

Order Selection for ARX-models via Hankel Approximation of High Order Estimates
T. HOLZHUTER

Computer-aided Model Structure Selection
P.A.J. NAGY, L. LJUNG

Testing Global Identifiability for Arbitrary Model Parameterizations
L. LJUNG, T. GLAD

On Relaxed Delay Structure Conditions in Closed Loop Identifiability Problems
P.M.J. VAN DEN HOF, D.K. DE VRIES, P. SCHOEN

TRACKING AND TIME-VARYING SYSTEMS

Estimation of the Variability of Time-varying Systems
H. HJALMARSSON

A Recursive Modified Gram-Schmidt Identification with Directional Tracking of Parameters
J. KADLEC

Adaptive Identification for Abruptly Changing Systems
K. UOSAKI, M. YOTSUYA

Identification of Time-varying Systems with Abrupt Parameter Changes
M. NIEDZWIECKI

EXPERIMENT DESIGN

Global Identification and Optimal Input Design
J. RICHALET, S. ABU EL ATA-DOSS, A. COIC
A Priori Identifiability of Closed Loop Subsystems for Correlated Outer Signals
G. BRETHAUEER, F. HECKERT

Robustness to Outliers of Bounded-error Estimators, Consequences on Experiment Design
L. PRONZATO, E. WALTER

On the Design of Optimal Excitation Signals
E. VAN DEN EIJNDE, J. SCHOUKENS

DISTRIBUTED PARAMETER SYSTEM

Identification of Distributed Parameter Systems using Polynomial Identification Techniques
P.J. GAWTHROP, M.T. NIHTILA

Parameter Identification in Hyperbolic Systems with Boundary Noise
A. BAGCHI, P. TEN BRUMMELHUIS

Parameter Estimation for Distributed Parameter Models of Complex, Flexible Structures
L.W. TAYLOR, JR.

Methods of Identification of Lumped Input and Distributed Output Systems
G. HULKO, L. SAPAK, I. NAVRACIC, D. JANIKOVA, J. KOVALCIK

CONTROL ALGORITHMS

A Dead-time Compensating Three-term Controller
T. HAGGLUND

Robustness Properties of Smith Predictor Control
M. HABERMAYER

Simple Adaptive Digital Dead-time Compensators for Low-order SISO processes
S. GENDRON, A.P. HOLKO

COMPUTER SOFTWARE SESSION:
GENERAL PURPOSE TOOLS

INID - A Computer-software for Experimental Modeling
A. SCHUMANN

Interactive Graphics in CACSD Packages
D. MATKO, B. ZUPANCIC, M. SEGA

DIOPRAN - An Off-line Program System for Experimental System Analysis
R. PUHLMANN, D. TRIPLER, J. WERNSTEDT

EFPI - An Integrated Intelligent Environment for System and Signal Identification
A. NIEDERLINSKI, J. FIGWER, J. KASPRZYK

Identification and Control with CADACS-PC
U. KEUCHEL, CHR. SCHMID
COMPUTER SOFTWARE SESSION:
SPECIALIZED TOOLS

J. MOSCINSKI, A. NIEDERLINSKI

Identification and Auto-tuning: Training and Design with the PC-Tact Software
R.M.C. DE KEYSER

Identifying State-space Models with Mathwork's System Identification Toolbox
L. LJUNG

Implementing LQG Adaptive Control: A CAD Approach
M. KARNY, A. HALOUSKO

Frequency Domain System Identification Toolbox for MATLAB
I. KOLLAR, R. PINTELON, J. SCHOUKENS

Author Index

Keyword Index

CONTENTS OF VOLUME 1

PLENARY PAPERS

Connecting Identification and Robust Control: A New Challenge
M. GEVERS

Sequential Detection of Changes in Stochastic Processes
I.V. NIKIFOROV

Knowledge-based System Identification
H. MEIER ZU FARWIG, H. UNBEHAUEN

ADVANCES IN PHYSIOLOGICAL SYSTEM MODELLING AND IDENTIFICATION

Recent Developments on Modeling of Ligand-Receptor Binding from Data Obtained by Positron Emission Tomography
J. DELFORGE, A. SYROTA

State and Output Variables for Model Identification in Stable Isotope Tracer Studies
G. TOFFOLO, C. COBelli