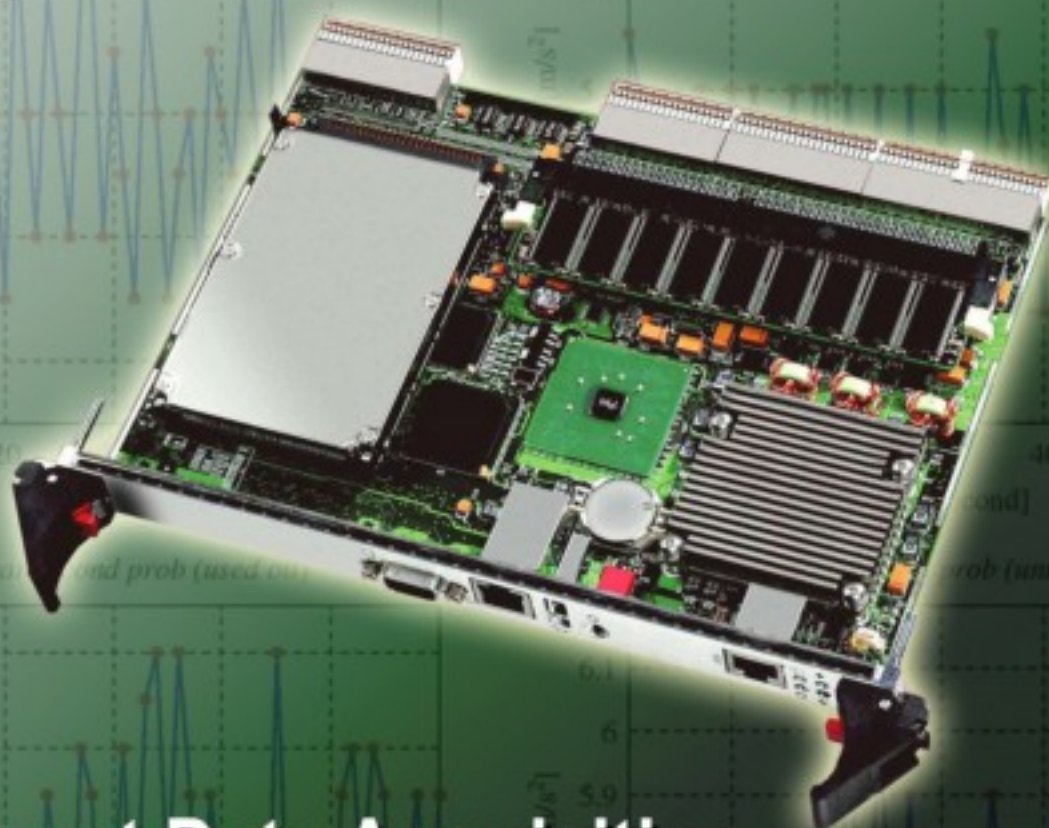


ISSN 1726-5479

SENSORS & TRANSDUCERS

11

vol. 16
Special
/12



**Intelligent Data Acquisition
and Information Process Technologies
and Their Applications**

International Frequency Sensor Association Publishing



Guest Editors: Gongfa Li, Tinggui Chen and Hegen Xiong

Editors for Western Europe

Meijer, Gerard C.M., Delft University of Technology, The Netherlands
Ferrari, Vittorio, Università di Brescia, Italy

Editors for North America

Datskos, Panos G., Oak Ridge National Laboratory, USA
Fabien, J. Josse, Marquette University, USA
Katz, Evgeny, Clarkson University, USA

Editor South America

Costa-Felix, Rodrigo, Inmetro, Brazil

Editor for Eastern Europe

Sachenko, Anatoly, Ternopil State Economic University, Ukraine

Editor for Asia

Ohyama, Shinji, Tokyo Institute of Technology, Japan

Editor for Africa

Maki K.Habib, American University in Cairo, Egypt

Editor for Asia-Pacific

Mukhopadhyay, Subhas, Massey University, New Zealand

Editorial Advisory Board

- Abdul Rahim, Ruzairi**, Universiti Teknologi, Malaysia
Ahmad, Mohd Noor, Northern University of Engineering, Malaysia
Annamalai, Karthigeyan, National Institute of Advanced Industrial Science and Technology, Japan
Arcega, Francisco, University of Zaragoza, Spain
Arguel, Philippe, CNRS, France
Ahn, Jae-Pyoung, Korea Institute of Science and Technology, Korea
Arndt, Michael, Robert Bosch GmbH, Germany
Ascoli, Giorgio, George Mason University, USA
Atalay, Selcuk, Inonu University, Turkey
Atghiaee, Ahmad, University of Tehran, Iran
Augutis, Vygtantas, Kaunas University of Technology, Lithuania
Avachit, Patil Lalchand, North Maharashtra University, India
Ayesh, Aladdin, De Montfort University, UK
Azamimi, Azian binti Abdullah, Universiti Malaysia Perlis, Malaysia
Bahreyni, Behraad, University of Manitoba, Canada
Baliga, Shankar, B., General Motors Transnational, USA
Baoxian, Ye, Zhengzhou University, China
Barford, Lee, Agilent Laboratories, USA
Barlingay, Ravindra, RF Arrays Systems, India
Basu, Sukumar, Jadavpur University, India
Beck, Stephen, University of Sheffield, UK
Ben Bouzid, Sihem, Institut National de Recherche Scientifique, Tunisia
Benachiba, Chellali, Université de Bechar, Algeria
Binnie, T. David, Napier University, UK
Bischoff, Gerlinde, Inst. Analytical Chemistry, Germany
Bodas, Dhananjay, IMTEK, Germany
Borges Carval, Nuno, Universidade de Aveiro, Portugal
Bouchikhi, Benachir, University Moulay Ismail, Morocco
Bousbia-Salah, Mounir, University of Annaba, Algeria
Bouvet, Marcel, CNRS – UPMC, France
Brudzewski, Kazimierz, Warsaw University of Technology, Poland
Cai, Chenxin, Nanjing Normal University, China
Cai, Qingyun, Hunan University, China
Calvo-Gallego, Jaime, Universidad de Salamanca, Spain
Campanella, Luigi, University La Sapienza, Italy
Carvalho, Vitor, Minho University, Portugal
Cecelja, Franjo, Brunel University, London, UK
Cerda Belmonte, Judith, Imperial College London, UK
Chakrabarty, Chandan Kumar, Universiti Tenaga Nasional, Malaysia
Chakravorty, Dipankar, Association for the Cultivation of Science, India
Changhai, Ru, Harbin Engineering University, China
Chaudhari, Gajanan, Shri Shivaji Science College, India
Chavali, Murthy, N.I. Center for Higher Education, (N.I. University), India
Chen, Jiming, Zhejiang University, China
Chen, Rongshun, National Tsing Hua University, Taiwan
Cheng, Kuo-Sheng, National Cheng Kung University, Taiwan
Chiang, Jeffrey (Cheng-Ta), Industrial Technol. Research Institute, Taiwan
Chiriac, Horia, National Institute of Research and Development, Romania
Chowdhuri, Arijit, University of Delhi, India
Chung, Wen-Yaw, Chung Yuan Christian University, Taiwan
Corres, Jesus, Universidad Publica de Navarra, Spain
Cortes, Camilo A., Universidad Nacional de Colombia, Colombia
Courtois, Christian, Université de Valenciennes, France
Cusano, Andrea, University of Sannio, Italy
D'Amico, Arnaldo, Università di Tor Vergata, Italy
De Stefano, Luca, Institute for Microelectronics and Microsystem, Italy
Deshmukh, Kiran, Shri Shivaji Mahavidyalaya, Barshi, India
Dickert, Franz L., Vienna University, Austria
Dieguez, Angel, University of Barcelona, Spain
Dighavkar, C. G., M.G. Vidyamandir's L. V.H. College, India
Dimitropoulos, Panos, University of Thessaly, Greece
Ding, Jianning, Jiangsu Polytechnic University, China
Djordjevic, Alexandar, City University of Hong Kong, Hong Kong
Donato, Nicola, University of Messina, Italy
Donato, Patricio, Universidad de Mar del Plata, Argentina
Dong, Feng, Tianjin University, China
Driljaca, Predrag, Intersema Sensoric SA, Switzerland
Dubey, Venketesh, Bournemouth University, UK
Enderle, Stefan, Univ. of Ulm and KTB Mechatronics GmbH, Germany
Erdem, Gursan K. Arzum, Ege University, Turkey
Erkmen, Aydan M., Middle East Technical University, Turkey
Estelle, Patrice, Insa Rennes, France
Estrada, Horacio, University of North Carolina, USA
Faiz, Adil, INSA Lyon, France
Fericean, Sorin, Balluff GmbH, Germany
Fernandes, Joana M., University of Porto, Portugal
Francioso, Luca, CNR-IMM Institute for Microelectronics and Microsystems, Italy
Francis, Laurent, University Catholique de Louvain, Belgium
Fu, Weiling, South-Western Hospital, Chongqing, China
Gaura, Elena, Coventry University, UK
Geng, Yanfeng, China University of Petroleum, China
Gole, James, Georgia Institute of Technology, USA
Gong, Hao, National University of Singapore, Singapore
Gonzalez de la Rosa, Juan Jose, University of Cadiz, Spain
Grael, Annette, Goteborg University, Sweden
Graff, Mason, The University of Texas at Arlington, USA
Guan, Shan, Eastman Kodak, USA
Guillet, Bruno, University of Caen, France
Guo, Zhen, New Jersey Institute of Technology, USA
Gupta, Narendra Kumar, Napier University, UK
Hadjiloucas, Sillas, The University of Reading, UK
Haider, Mohammad R., Sonoma State University, USA
Hashsham, Syed, Michigan State University, USA
Hasni, Abdelhafid, Bechar University, Algeria
Hernandez, Alvaro, University of Alcala, Spain
Hernandez, Wilmar, Universidad Politecnica de Madrid, Spain
Homentcovschi, Dorel, SUNY Binghamton, USA
Horstman, Tom, U.S. Automation Group, LLC, USA
Hsiai, Tzung (John), University of Southern California, USA
Huang, Jeng-Sheng, Chung Yuan Christian University, Taiwan
Huang, Star, National Tsing Hua University, Taiwan
Huang, Wei, PSG Design Center, USA
Hui, David, University of New Orleans, USA
Jaffrezic-Renault, Nicole, Ecole Centrale de Lyon, France
James, Daniel, Griffith University, Australia
Janting, Jakob, DELTA Danish Electronics, Denmark
Jiang, Liudi, University of Southampton, UK
Jiang, Wei, University of Virginia, USA
Jiao, Zheng, Shanghai University, China
John, Joachim, IMEC, Belgium
Kalach, Andrew, Voronezh Institute of Ministry of Interior, Russia
Kang, Moonho, Sunmoon University, Korea South
Kaniusas, Eugenijus, Vienna University of Technology, Austria
Katake, Anup, Texas A&M University, USA
Kausel, Wilfried, University of Music, Vienna, Austria
Kavasoglu, Nese, Mugla University, Turkey
Ke, Cathy, Tyndall National Institute, Ireland
Khelfaoui, Rachid, Université de Bechar, Algeria
Khan, Asif, Aligarh Muslim University, Aligarh, India
Kim, Min Young, Kyungpook National University, Korea South
Ko, Sang Choon, Electronics. and Telecom. Research Inst., Korea South
Kotulski, Malgorzata, Wroclaw University of Technology, Poland
Kockar, Hakan, Balikesir University, Turkey
Kong, Ing, RMIT University, Australia
Kratz, Henrik, Uppsala University, Sweden

Krishnamoorthy, Ganesh, University of Texas at Austin, USA
Kumar, Arun, University of Delaware, Newark, USA
Kumar, Subodh, National Physical Laboratory, India
Kung, Chih-Hsien, Chang-Jung Christian University, Taiwan
Lacnjevac, Caslav, University of Belgrade, Serbia
Lay-Ekuakille, Aime, University of Lecce, Italy
Lee, Jang Myung, Pusan National University, Korea South
Lee, Jun Su, Amkor Technology, Inc. South Korea
Lei, Hua, National Starch and Chemical Company, USA
Li, Fengyuan (Thomas), Purdue University, USA
Li, Genxi, Nanjing University, China
Li, Hui, Shanghai Jiaotong University, China
Li, Sihua, Agiltron, Inc., USA
Li, Xian-Fang, Central South University, China
Li, Yuefa, Wayne State University, USA
Liang, Yuanchang, University of Washington, USA
Liawruangrath, Saisunee, Chiang Mai University, Thailand
Liew, Kim Meow, City University of Hong Kong, Hong Kong
Lin, Hermann, National Kaohsiung University, Taiwan
Lin, Paul, Cleveland State University, USA
Linderholm, Pontus, EPFL - Microsystems Laboratory, Switzerland
Liu, Aihua, University of Oklahoma, USA
Liu Changgeng, Louisiana State University, USA
Liu, Cheng-Hsien, National Tsing Hua University, Taiwan
Liu, Songqin, Southeast University, China
Lodeiro, Carlos, University of Vigo, Spain
Lorenzo, Maria Encarnacio, Universidad Autonoma de Madrid, Spain
Lukaszewicz, Jerzy Pawel, Nicholas Copernicus University, Poland
Ma, Zhanfang, Northeast Normal University, China
Majstorovic, Vidosav, University of Belgrade, Serbia
Malyshev, V.V., National Research Centre 'Kurchatov Institute', Russia
Marquez, Alfredo, Centro de Investigacion en Materiales Avanzados, Mexico
Matay, Ladislav, Slovak Academy of Sciences, Slovakia
Mathur, Prafull, National Physical Laboratory, India
Maurya, D.K., Institute of Materials Research and Engineering, Singapore
Mekid, Samir, University of Manchester, UK
Melnyk, Ivan, Photon Control Inc., Canada
Mendes, Paulo, University of Minho, Portugal
Mennell, Julie, Northumbria University, UK
Mi, Bin, Boston Scientific Corporation, USA
Minas, Graca, University of Minho, Portugal
Mishra, Vivekanand, National Institute of Technology, India
Moghavvemi, Mahmoud, University of Malaya, Malaysia
Mohammadi, Mohammad-Reza, University of Cambridge, UK
Molina Flores, Esteban, Benemérita Universidad Autónoma de Puebla, Mexico
Moradi, Majid, University of Kerman, Iran
Morello, Rosario, University "Mediterranea" of Reggio Calabria, Italy
Mounir, Ben Ali, University of Sousse, Tunisia
Mrad, Nezhil, Defence R&D, Canada
Mulla, Imtiaz Sirajuddin, National Chemical Laboratory, Pune, India
Nabok, Aleksey, Sheffield Hallam University, UK
Neelamegam, Periasamy, Sastra Deemed University, India
Neshkova, Milka, Bulgarian Academy of Sciences, Bulgaria
Oberhammer, Joachim, Royal Institute of Technology, Sweden
Ould Lahoucine, Cherif, University of Guelma, Algeria
Pamidighanta, Sayanu, Bharat Electronics Limited (BEL), India
Pan, Jisheng, Institute of Materials Research & Engineering, Singapore
Park, Joon-Shik, Korea Electronics Technology Institute, Korea South
Passaro, Vittorio M. N., Politecnico di Bari, Italy
Penza, Michele, ENEA C.R., Italy
Pereira, Jose Miguel, Instituto Politecnico de Seteбал, Portugal
Petsev, Dimiter, University of New Mexico, USA
Pogacnik, Lea, University of Ljubljana, Slovenia
Post, Michael, National Research Council, Canada
Prance, Robert, University of Sussex, UK
Prasad, Ambika, Gulbarga University, India
Prateepasen, Asa, Kingmoungut's University of Technology, Thailand
Pugno, Nicola M., Politecnico di Torino, Italy
Pullini, Daniele, Centro Ricerche FIAT, Italy
Pumera, Martin, National Institute for Materials Science, Japan
Radhakrishnan, S., National Chemical Laboratory, Pune, India
Rajanna, K., Indian Institute of Science, India
Ramadan, Qasem, Institute of Microelectronics, Singapore
Rao, Basuthkar, Tata Inst. of Fundamental Research, India
Raoof, Kosai, Joseph Fourier University of Grenoble, France
Rastogi Shiva, K., University of Idaho, USA
Reig, Candid, University of Valencia, Spain
Restivo, Maria Teresa, University of Porto, Portugal
Robert, Michel, University Henri Poincare, France
Rezazadeh, Ghader, Urmia University, Iran
Royo, Santiago, Universitat Politecnica de Catalunya, Spain
Rodriguez, Angel, Universidad Politecnica de Cataluna, Spain
Rothberg, Steve, Loughborough University, UK
Sadana, Ajit, University of Mississippi, USA
Sadeghian Marnani, Hamed, TU Delft, The Netherlands
Sapozhnikova, Ksenia, D.I.Mendeleyev Institute for Metrology, Russia
Sandacci, Serghei, Sensor Technology Ltd., UK
Saxena, Vibha, Bhabha Atomic Research Centre, Mumbai, India
Schneider, John K., Ultra-Scan Corporation, USA
Sengupta, Deepak, Advance Bio-Photonics, India
Seif, Selemeni, Alabama A & M University, USA
Seifter, Achim, Los Alamos National Laboratory, USA
Shah, Kriyang, La Trobe University, Australia
Sankarraj, Anand, Detector Electronics Corp., USA
Silva Girao, Pedro, Technical University of Lisbon, Portugal
Singh, V. R., National Physical Laboratory, India
Slomovitz, Daniel, UTE, Uruguay
Smith, Martin, Open University, UK
Soleimanpour, Amir Masoud, University of Toledo, USA
Soleymannpour, Ahmad, University of Toledo, USA
Somani, Prakash R., Centre for Materials for Electronics Technol., India
Sridharan, M., Sastra University, India
Srinivas, Talabattula, Indian Institute of Science, Bangalore, India
Srivastava, Arvind K., NanoSonix Inc., USA
Stefan-van Staden, Raluca-Ioana, University of Pretoria, South Africa
Stefanescu, Dan Mihai, Romanian Measurement Society, Romania
Sumriddetchka, Sarun, National Electronics and Comp. Technol. Center, Thailand
Sun, Chengliang, Polytechnic University, Hong-Kong
Sun, Dongming, Jilin University, China
Sun, Junhua, Beijing University of Aeronautics and Astronautics, China
Sun, Zhiqiang, Central South University, China
Suri, C. Raman, Institute of Microbial Technology, India
Sysoev, Victor, Saratov State Technical University, Russia
Szewczyk, Roman, Industr. Research Inst. for Automation and Measurement, Poland
Tan, Ooi Kiang, Nanyang Technological University, Singapore
Tang, Dianping, Southwest University, China
Tang, Jaw-Luen, National Chung Cheng University, Taiwan
Teker, Kasif, Frostburg State University, USA
Thirunavukkarasu, I., Manipal University Karnataka, India
Thumbavanam Pad, Kartik, Carnegie Mellon University, USA
Tian, Gui Yun, University of Newcastle, UK
Tsiantos, Vassilios, Technological Educational Institute of Kaval, Greece
Tsigara, Anna, National Hellenic Research Foundation, Greece
Twomey, Karen, University College Cork, Ireland
Valente, Antonio, University, Vila Real, - U.T.A.D., Portugal
Vanga, Raghav Rao, Summit Technology Services, Inc., USA
Vaseashta, Ashok, Marshall University, USA
Vazquez, Carmen, Carlos III University in Madrid, Spain
Vieira, Manuela, Instituto Superior de Engenharia de Lisboa, Portugal
Vigna, Benedetto, STMicroelectronics, Italy
Vrba, Radimir, Brno University of Technology, Czech Republic
Wandelt, Barbara, Technical University of Lodz, Poland
Wang, Jiangping, Xi'an Shiyong University, China
Wang, Kedong, Beihang University, China
Wang, Liang, Pacific Northwest National Laboratory, USA
Wang, Mi, University of Leeds, UK
Wang, Shinn-Fwu, Ching Yun University, Taiwan
Wang, Wei-Chih, University of Washington, USA
Wang, Wensheng, University of Pennsylvania, USA
Watson, Steven, Center for NanoSpace Technologies Inc., USA
Weiping, Yan, Dalian University of Technology, China
Wells, Stephen, Southern Company Services, USA
Wolkenberg, Andrzej, Institute of Electron Technology, Poland
Woods, R. Clive, Louisiana State University, USA
Wu, DerHo, National Pingtung Univ. of Science and Technology, Taiwan
Wu, Zhaoyang, Hunan University, China
Xiu Tao, Ge, Chuzhou University, China
Xu, Lisheng, The Chinese University of Hong Kong, Hong Kong
Xu, Sen, Drexel University, USA
Xu, Tao, University of California, Irvine, USA
Yang, Dongfang, National Research Council, Canada
Yang, Shuang-Hua, Loughborough University, UK
Yang, Wuqiang, The University of Manchester, UK
Yang, Xiaoling, University of Georgia, Athens, GA, USA
Yaping Dan, Harvard University, USA
Ymeti, Aurel, University of Twente, Netherland
Yong Zhao, Northeastern University, China
Yu, Haihu, Wuhan University of Technology, China
Yuan, Yong, Massey University, New Zealand
Yufera Garcia, Alberto, Seville University, Spain
Zakaria, Zulkarnay, University Malaysia Perlis, Malaysia
Zagnoni, Michele, University of Southampton, UK
Zamani, Cyrus, Universitat de Barcelona, Spain
Zeni, Luigi, Second University of Naples, Italy
Zhang, Minglong, Shanghai University, China
Zhang, Quintao, University of California at Berkeley, USA
Zhang, Weiping, Shanghai Jiao Tong University, China
Zhang, Wenming, Shanghai Jiao Tong University, China
Zhang, Xueji, World Precision Instruments, Inc., USA
Zhong, Haoxiang, Henan Normal University, China
Zhu, Qing, Fujifilm Dimatix, Inc., USA
Zorzano, Luis, Universidad de La Rioja, Spain
Zourob, Mohammed, University of Cambridge, UK

Contents

Volume 16
Special Issue
November 2012

www.sensorsportal.com

ISSN 1726-5479

Research Articles

Foreword

Gongfa Li, Tinggui Chen, Hegen Xiong..... 1

Research of a Novel Attitude Regulating System of Autonomous Underwater Glider

Rong Liu, Jie Yu 1

Study on the Vibration of the 1700 Four Rollers Rolling Mill

Zehao Wu, Gongfa Li, Po Gao, Yuan He, Dawei Tan..... 11

The Design of Wireless Sensor Application System Based on Internet of Things

Zhang Ye, Zhang Feng, You Fei 18

Design and Simulation of the Air Compressor Control System

Yuan He, Gongfa Li, Po Gao, Zehao WU and Cunyuan Li..... 27

Precise Time Synchronization Technology for Distributed Automated Test System

Yan Xu, Ming Li, and Jiangtao Dong..... 35

FEM-based Simulation of Stress Distribution in U71Mn Heavy Rail during Quenching

Siqiang Xu, Jianyi Kong, Gongfa Li, Jintang Yang, Hegen Xiong and Guozhang Jiang 43

LTS: An Improved Self-Adaptive Data Replication Strategy for File Sharing in Grid

Liang Hu, Jia Zhao, Xiaodong Fu, Lin Lin, XJianfeng Chu 52

Influence of Expansion Joint of Bottom Lining in Ladle Composite Construction Body on Thermal Stress

Guozhang Jiang, Gongfa Li, Jianyi Kong, Liangxi Xie and Siqiang Xu..... 61

Numerical Simulation of the Gap Flow Field for CEDMMG Compound Machining Engineering Ceramics

Renjie Ji, Yonghong Liu, Chao Zheng, Fei Wang, Yanzhen Zhang, Yang Shen, Baoping Cai..... 68

Coke Oven Heating Model of Fuzzy Intelligent Control System

Guozhang Jiang, Gongfa Li, Jianyi Kong and Liangxi Xie 75

Three-Dimensional Model and Test Analysis of the 60t Converter

Po Gao, Gongfa Li, Zehao Wu, Yuan He, Ke Zhang 84

A Multi-pipe and Multi-address Switching Wireless Network for Distributed Seismic Data Acquisition System

Li Huailiang, Tuo Xianguo, Zhu Lili..... 92

Remote Monitoring and Diagnosis System of Rolling Mill Transmission System

Gongfa Li, Yuesheng Gu, Zehao Wu, Han Xiao, Guozhang Jiang, Jianyi Kong, Liangxi Xie and Siqiang Xu 101

Study on Frequency Division Technique of Photoelectric Encoder <i>Shi-xiong Zhang</i>	108
Job-shop Scheduling Problem Based on Particle Swarm Optimization Algorithm <i>Ying Sun and Hegen Xiong</i>	116
Wireless Sensor Network Data Fusion Algorithm Based on Neural Network in the Area of Agriculture <i>Yi Zhou, Gelian Song, Maohua Wang</i>	128
Optimal Design of Gear Based on Quantum Genetic Algorithm <i>Ying Sun and He-gen Xiong</i>	137
Independent Axiom-based Robust Design for Nonlinear System <i>Xianfu Cheng</i>	144
Development of a New Kind of Multihole Cylindrical Electrode Used for Electrical Discharge Milling <i>Fei Wang, Yonghong liu, Renjie Ji, Yanzhen Zhang, Zemin Tang, Xiangzhen Han</i>	152
Energy Efficiency Evaluation of Iron and Steel Enterprise <i>Guozhang Jiang, Gongfa Li, Jianyi Kong and Liangxi Xie</i>	161
Classification Model of Traffic Emergency Response to Urban Emergency <i>Yaqin He, Jie Li</i>	169
Modeling the Machining Parameters in End Electric Discharge Milling of Silicon Carbide Ceramic <i>Renjie Ji, Yonghong Liu, Yanzhen Zhang, Fei Wang, Chao Zheng, Yang Shen</i>	179
Testability Analysis of Inertial Measure Unit Based on Multi-signal Model <i>Xing He, Hongli Wang, Jinghui Lu</i>	188
Vibration Model of Pipe Conveying Fluid Considered Fluid Structure Interaction <i>Gongfa Li, Yuesheng Gu, Zehao Wu, Han Xiao, Jianyi Kong, Guozhang Jiang, Liangxi Xie, Li Hu and Siqiang Xu</i>	197
Optimization SVM Algorithm and it's Application in Agricultural Science and Technology Project Classification <i>Hui Feng Yan, Wei Feng Wang, Qin Mao, Ming Liang Zhou</i>	203
Accuracy of Experimental Platform of Controlled Five-bar Linkages <i>Li Pan</i>	210
Analysis on Sliding Velocity of Cycloid Gear Pair during Meshing <i>Shuyan. Wang, Guizhong Tian, Xujun Jiang</i>	218
Intelligent Diagnosis of Coke Oven Heating Production <i>Gongfa Li, Yuesheng Gu, Jianyi Kong, Guozhang Jiang and Liangxi Xie</i>	226
Adaptive Fuzzy Control of Aircraft ABS Based on Runway Identification <i>Hua-wei Wu, Te-fang Chen, Wei-ming Huang</i>	233
The Total Factor Productivity Growth of the Municipal Water Industry in China <i>Wang Fen</i>	243
Research on Attainable Moment Subset of Singular Over-actuated System <i>Shi Jingping, Qu Xiaobo</i>	252
Finite Element Analysis of Vane Seals <i>Guozhang Jiang, Li Zhao, Jianyi Kong, Gongfa Li, Liangxi Xie</i>	261
	269

Application of Multi-factor Fuzzy Comprehensive Evaluation in Stability of Surrounding Rock of Underground Engineering

Jinglong Li, Jiachun Li, Shuchen Li.....

Jackknife Control on Tractor Semi-trailer during High Speed Curve Driving

Shuwen Zhou and Siqi Zhang 277

Simulation and Experiment Research on Deforming Force of Slab Cold Roll-beating

Mingshun Yang, Yan Li, Jianming Zheng, Qilong Yuan..... 285

Research on Organizational Culture and Resources Integration Model Based on MICK-4FI

Yan Zhan, Jiansha Lu and Shiyun Li..... 295

Authors are encouraged to submit article in MS Word (doc) and Acrobat (pdf) formats by e-mail: editor@sensorsportal.com
Please visit journal's webpage with preparation instructions: <http://www.sensorsportal.com/HTML/DIGEST/Submission.htm>

International Frequency Sensor Association (IFSA).



International Frequency Sensor Association Publishing Call for Books Proposals

Sensors, MEMS, Measuring instrumentation, etc.



Benefits and rewards of being an IFSA author:

1

Royalties

Today IFSA offers most high royalty in the world: you will receive 50 % of each book sold in comparison with 8-11 % from other publishers, and get payment on monthly basis compared with other publishers' yearly basis.

2

Quick Publication

IFSA recognizes the value to our customers of timely information, so we produce your book quickly: 2 months publishing schedule compared with other publishers' 5-18-month schedule.

3

The Best Targeted Marketing and Promotion

As a leading online publisher in sensors related fields, IFSA and its Sensors Web Portal has a great expertise and experience to market and promote your book worldwide. An extensive marketing plan will be developed for each new book, including intensive promotions in IFSA's media: journal, magazine, newsletter and online bookstore at Sensors Web Portal.

4

Published Format: printable pdf (Acrobat).

When you publish with IFSA your book will never go out of print and can be delivered to customers in a few minutes.

You are invited kindly to share in the benefits of being an IFSA author and to submit your book proposal or/and a sample chapter for review by e-mail to editor@sensorsportal.com. These proposals may include technical references, application engineering handbooks, monographs, guides and textbooks. Also edited survey books, state-of-the art or state-of-the-technology, are of interest to us. For more detail please visit: http://www.sensorsportal.com/HTML/IFSA_Publishing.htm



The Fourth International Conference on Sensor Device Technologies and Applications

SENSORDEVICES 2013

25 - 31 August 2013 - Barcelona, Spain

Tracks: Sensor devices - Ultrasonic and Piezosensors - Photonics - Infrared - Gas Sensors - Geosensors - Sensor device technologies - Sensors signal conditioning and interfacing circuits - Medical devices and sensors applications - Sensors domain-oriented devices, technologies, and applications - Sensor-based localization and tracking technologies - Sensors and Transducers for Non-Destructive Testing

Deadline for papers: 30 March 2013

<http://www.iaria.org/conferences2013/SENSORDEVICES13.html>



The Seventh International Conference on Sensor Technologies and Applications

Deadline for papers:
30 March 2013

SENSORCOMM 2013

25 - 31 August 2013 - Barcelona, Spain

Tracks: Architectures, protocols and algorithms of sensor networks - Energy, management and control of sensor networks - Resource allocation, services, QoS and fault tolerance in sensor networks - Performance, simulation and modelling of sensor networks - Security and monitoring of sensor networks - Sensor circuits and sensor devices - Radio issues in wireless sensor networks - Software, applications and programming of sensor networks - Data allocation and information in sensor networks - Deployments and implementations of sensor networks - Under water sensors and systems - Energy optimization in wireless sensor networks

<http://www.iaria.org/conferences2013/SENSORCOMM13.html>



The Sixth International Conference on Advances in Circuits, Electronics and Micro-electronics

CENICS 2013

25 - 31 August 2013 - Barcelona, Spain

Deadline for papers: 30 March 2013

Tracks: Semiconductors and applications - Design, models and languages - Signal processing circuits - Arithmetic computational circuits - Microelectronics - Electronics technologies - Special circuits - Consumer electronics - Application-oriented electronics

<http://www.iaria.org/conferences2013/CENICS13.html>

Optimization SVM Algorithm and it's Application in Agricultural Science and Technology Project Classification

^{1,3} Hui Feng Yan, ³ Wei Feng Wang, ² Qin Mao, ³ Ming Liang Zhou

¹The key lab of Opto Electronics Technology and System,
Ministry of Education, Chong Qing University, 400065, China
Tel.:+86-13983499782

²Qiannan Normal College for Nationalities department of computer, Duyun, 558000, China

³College of Mobile Telecommunications Chong Qing University of Posts and Telecom, China
¹ E-mail: 4423360@qq.com

Received: 11 September 2012 /Accepted: 11 October 2012 /Published: 20 November 2012

Abstract: To describe Optimization SVM algorithm, Author applies it to the classification of agricultural science and technology project, algorithm depends on of the limitations which the experience of selected parameters, presents a particle swarm optimization (PSO) pattern search algorithm to search for optimal parameters, and applied it to the project of agricultural science and technology classification. Experimental results show that algorithm is an efficient method of SVM parameter optimization, the author puts algorithm into agricultural science and technology in the process of classification shows that algorithm is not only high efficiency, and the optimal parameters is to achieve a higher accuracy rate. *Copyright © 2012 IFSA.*

Keywords: SVM, Particle swarm optimization, Kernel parameter selection.

1. Introduction

Support vector machine is Vapnik et al' achievements. Which is according to statistical learning theory of structure risk minimization principle, in order to solve the small sample learning problems, and is to provide a unified framework [1]. In addition, the support vector machine is a convex quadratic programming which is to ensure that the extremum as a global optimal solution. In recent year, support vector machine SVM has have a successful application such as in text classification, biological information, remote sensing image analysis, fault recognition and prediction, time series prediction and other fields [2, 3]. Support vector machine (SVM) the core of is the kernel function, and the parameter of

kernel function selection decision support vector machine classification performance, so it is very important to select the parameters. Previous SVM parameter selection is based on experience or Meng Cai, with considerable limitations. In order to overcome this shortcoming, Chapella is proposed based on the gradient descent method for selecting the parameters of support vector machines [4], Qi Liang ant colony's algorithm is proposed based on support vector machine SVM parameter selection method [5], Wang Xing ling and the car was put forward which is based on the grid for bin parameter optimization method [6], these methods in the corresponding experimental literature in proved that the method is effective, but these algorithms the limitation still exists big, easy to fall into local minimum, a large amount of calculation, low efficiency defects. Agriculture is the foundation of national economy, agricultural foundation is beneficial to the people's livelihood, agricultural is related to national security and the people's livelihood. To solve the 3 farming's problem is very importance and necessity. innovation and transformation is the driving force in agricultural science and technology to integrated, the linkage development of agricultural science and technology service, accelerate industrialization process, stimulative farmer is added continuously close, agricultural science and technology project investment is to solve "3 farming's problem" core. On the project of agricultural science and technology to classify (i.e., to determine which items to rise to promote action), can for future agricultural science and technology project investment play a very good reference. In the domestic few intelligent algorithms in agricultural science and technology project classification of the application report, so the research which is in this area is very urgent.

In view of this, Author presents a particle swarm pattern search algorithm to optimize the parameters, the algorithm combines the particle swarm optimization algorithm and pattern search advantages, making the algorithm in efficiency and performance than particle swarm optimization algorithm and pattern search algorithm has been greatly improved, for selecting the parameters of support vector machines provide a effective method. At the same time experiment results show that the optimized SVM algorithm, and it is in project of agricultural science and technology in the process of classification is not only high efficiency, and search for the optimal parameters is to achieve accuracy rate.

2. SVM Algorithm and its Parameters on the Performance of Support Vector Machine Effect

Vapnik et al presented another design best practice in the years of research which is based on statistical learning theory on linear classifier. It's principle is linearly separable, and then extended to the linearly non-separable case. Even extends to the use of nonlinear function, this classifier known is the support vector machine (Support Vector Machine, SVM). SVM main idea can be summed up in two points: (1) it is for linearly separable situation carries on the analysis, the linear indivisible, by using the nonlinear mapping based on the low dimensional input space linearly non-separable samples into a high dimensional feature space so that the linear separability, which makes the high dimensional feature space. Using a linear algorithm for the nonlinear feature of sample linear analysis possible; (2) it is based on Structural Risk Minimization Theory which is to construct the optimal segmentation hyper plane, making the learning for global optimization in the whole sample space, and the expected risk to a probability satisfies certain upper bound.

The SVM method is through a nonlinear mapping P , the sample space mapped to a High dimension, even to infinite dimensional feature space (Hilbert space), so that in the original sample space nonlinearly separable problem is transformed into the feature space of a linearly separable problem. Simply say, is ascending and is ascending dimension. The sample to high dimension space do mapping, this will normally increase in computational complexity, even will cause the "dimension disaster", and people seldom inquire this. But as a classification, regression problems, probably in the low dimensional sample space can not be linear processing sample, in the high dimension feature space can be realized through a linear hyper plane linear partition (or regression). General ascending dimension will bring

computational complexity, the SVM method to resolve this problem: the application of nuclear function expansion theorem, it need not know the nonlinear mapping of the explicit expression; because it is in the high dimensional feature space in the establishment of linear learning machine, so with the linear model, not only almost do not increase the computational complexity, and to some extent to avoid "dimension disaster" all thanks On the kernel function expansion and the theory of computation.

In most cases, the Guess kernel function classification has a well effect [7]. The Guess kernel function has two parameters that is c and σ , Choose a different c and σ Performance of different classifiers can be constructed c is to control the degree of punishment of the error sample, when c is a smaller value indicated that the wrong sample punishment degree is low, the classification hyper plane is simple and the experience larger error; if c value tends to infinity, then all constraint conditions must be met, then the mean of all training samples to correct classification, which will lead to the classification hyper plane, large amounts of calculation of complex, time-consuming. So c is the choice of value should be combined with specific applications, to meet the classification accuracy at the same time, as far as possible, take a small value, and make the decision function.

While σ is actually altered implicitly change the mapping function, thereby changing the sample data subspace distribution complexity but also determines the linear classification can reach the minimum error [8]. σ value is too small, in all test samples into support vector, produce" over fitting phenomena; if σ has high value, support vector machine SVM classification performance will decrease significantly, the test sample classification ability is almost zero, all the samples were convicted of a class. If σ value is appropriate, the number of support vectors was decreased, and the classifier on the test samples of classified capabilities will be greatly enhanced.

3. PSOSVM Parameter Optimization

3.1. PSO Algorithm

In the PSO algorithm, each member of the group was called the particles, each particle flight in a multi-dimensional search space, and constantly according to the particle's own experience, particle neighbor experience or whole groups experience and update their location and speed, in order to find the optimal solution of the problem. The corresponding iterative formula is:

$$v_i^l = w \times v_i + c_1 \times rand_1^l \times (pBest - p_i^l) + c_2 \times rand_2^l \times (gBest - p_i^l), \quad (1)$$

$$p_i^l = p_i^d + v_i^l \quad (2)$$

Among them, w is the relatively large inertia weight. A relatively large w , it has global search ability, relatively small w will lead to a rapid convergence. C_1 and C_2 are the learning factors $rand_1^l$, and $rand_2^l$ are the random number, which is in $[0, 1]$; p is the current position of the particles, said the parameters of support vector machine, c and σ current value. $v \in [v_{\max}, v_{\min}]$ is the particle velocity. Decide the next generation c and σ updates the direction and size. In order to improve the convergence speed of the algorithm, using contraction factor χ rate of evolution equations (type (3)):

$$v_i^l = \chi \left\{ w \times v_i + c_1 \times rd_1^l \times (pBest - p_i^l) + c_2 \times rd_2^l \times (gBest - p_i^l) \right\}, \quad (3)$$

3.2. Pattern Search Algorithm

The Pattern search algorithm was called as the Hooke-Jeeves method, the algorithm has two main mobile process: one is the detection of moving, another is a mode of mobile. The detection of moving along the axis direction; mode mobile is along the adjacent two detection points on the move. Two processes can also be understood as: one is to determine the beneficial search direction; the two is to accelerate the process, is also in the beneficial direction to accelerate the search.

PSO algorithm is a pattern search algorithm has a wide range of global search ability; search from the group sets out, with implicit parallelism; search using the evaluation function value inspiration; fast convergence, parameter adjustment is simple; scalable, easily combined with other algorithms etc [9]. But in the late algorithm, local search ability, feedback information utilization.

Pattern search has the advantages of the pattern search method objective function need not be differentiable, is a direct method, and the iterative is relatively simple, especially the strong local search ability. Pattern search method is better than that of PSO algorithm has the learning precision, but the existence of more iterative times, large amount of calculation, easy to make the object function to fall into local minimum point and global search capacity.

Author combined two algorithms, put forward a kind of efficient and accurate parameter method - PSO pattern search algorithm.

3.3. PSO Pattern Search Algorithm

From the overall point of view, PSO algorithm is a feasible and robustness optimization algorithm [9]. From the local convergence angle consideration, pattern search algorithm is locally convergent and sensitive to initial values, so the PSO algorithm using pattern search can make PSO from falling into local minimum point defects, and improving the convergence speed and the precision. PSO pattern search algorithm is the core idea: first the PSO algorithm is global search, find a better parameter, by using pattern search in the better parameters near the local search, if the search results did not meet the precision requirement, then perform global search, until you find the optimal parameters.

PSO pattern search algorithm steps are as follows: the first step, the initialization population size, the particle velocity V_i and position P_i ; the second step, To calculate the particle fitness function, the classification error (formula 4) is as the particles of the fitness evaluation function. Classification error formula:

$$1 - \frac{1}{n} \sum_{i=1}^n \left| \frac{T_i}{T_i + F_i} \right|, \quad (4)$$

where T_i is the correct classification of samples; F_i is the wrong number of samples.

The third step, recording minimum fitness function value according to the formula (1) and the formula (3) update the positions and velocities of all particles; the fourth step, the three steps in the decree $P_g = P_g^k \in (c, \sigma)$ as the initial value of pattern search, and given the unit vector $e^j (j=1, \dots, n)$. The initial step length $\sigma^0 = (\sigma_1^0, \sigma_2^0, \dots, \sigma_n^0)^T > 0$, acceleration coefficient $\gamma > 0$, coefficient of contraction $\theta \in (0, 1)$ and precision $\varepsilon > 0$, Set $k = 0$, $y = P_g^k$, $j = 1$; The fifth step, from y set out., in order to parallel to the unit vector $e^j (j=1, \dots, n)$ axial detection mobile:

(1) if $f(y + \sigma_j^k e^j) < f(y)$, order $y = y + \sigma_j^k e^j$, Otherwise turn to (2);

(2) if $f(y - \sigma_j^k e^j) \geq f(y)$, order $y = y - \sigma_j^k e^j$, Otherwise order $y = y$.

The sixth step, order $P_g^{k+1} = y$, if $f(P_g^{k+1}) < f(P_g^k)$, Deal with P_g^{k+1} along the direction of the acceleration $p^k = P_g^{k+1} - P_g^k$ model of mobile, order $y = P_g^{k+1} + \gamma p^k$, $\sigma^{k+1} = \sigma^k$, $k = k + 1$, turn the fifth step, or the seventh step; the seventh step, if $|\sigma^k| \leq \varepsilon$, then stop the iteration, and then output results. Otherwise $P_g^{k+1} \neq P_g^k$, order $y = P_g^{k+1}$, $\sigma^{k+1} = \sigma^k$, $k = k + 1$, turn to fifth step; when $P_g^{k+1} = P_g^k$, Make $y = P_g^{k+1}$, $\sigma^{k+1} = \theta \sigma^k$, $k = k + 1$, turn fifth step; If the maximum number of iterations $|\sigma^k| > \varepsilon$, turn to the second step.

4. Optimized SVM Algorithm is Application in Agricultural Science and Technology

We take the city of Chong-Qing agricultural science and technology project data as a set of experimental data, including the comprehensive income and non profit project. Because the datasets and classification nothing or little relation to the property, it must be removed, while retaining close attributes associated with categories. Attribute selection process not only reveals the differences caused by the classification of the important factors, but also reduces the dimension of the input data, reduced to solve the problem of the scale, improve the accurate rate. Using principal component analysis after dimension reduction of attributes are: project progress, project funds in place, the use of project funds, technology innovation, promotion, intellectual property rights, the economic benefits of project.

Author chooses Guess kernel function $K(x, x') = \exp(-\|x - x'\|^2 / \sigma^2)$ as the kernel function support vector classifier, kernel function σ is width coefficient. Initialization setting corresponding parameter range is: $\sigma \in [0, 2]$, $c \in [1, 1000]$.

In the experiment, using PSO algorithm, pattern search algorithm and PSO pattern search algorithm for optimizing parameters and establish classification model to classify detection. Three algorithms of the learning time and accuracy were shown in Table 1 and 2.

Table 1. Study time of three algorithms (min).

PSO	Pattern search algorithm	PSO pattern search algorithm
24.55	24.14	19.68

Table 2. The detection accuracy rate of three kinds of algorithm (%).

PSO	Pattern search algorithm	PSO pattern search algorithm
94.22	95.88	99.01

From Table 1 and Table 2 shows, the PSO algorithm training time has less training time than the pattern search algorithm, but the PSO algorithm learning accuracy without pattern search algorithms. While PSO pattern search algorithm on the training time and the accuracy is better than PSO algorithm and pattern search algorithm, it reason is in the parameter optimization process, the PSO algorithm at each iteration is all particle position and velocity of the update, the algorithm increases, the search speed rein

in, especially when the particle size is relatively large, its search speed will be slower. While the pattern search algorithm has the strong local search ability and convergence speed. PSO pattern search algorithm takes into account the groups history best position, enhancing the local search ability of the algorithm, in each iteration of the process, use a pattern search algorithm to optimize and upgrade, the better P_g Lead the population to better search, improve search efficiency, thus to ensure that the PSO algorithm rapid convergence under the premise of not affecting P_g strong global search ability. In short, PSO pattern search algorithm PSO algorithm and pattern search algorithm combines the advantages, avoid the disadvantages, so PSO pattern search algorithm is a high performance.

The use of PSO pattern search algorithm is to find optimal parameters, the optimal parameters are taken around in other parameters are accurate, under the combination of different parameters correspond to the accuracy are shown in Fig. 1, in which the coordinates of the value.

As can be seen from the graph, the optimal parameter combination near parameter combinations while also reached higher classification accuracy rate, but did not mean make use of PSO pattern search to find the optimal parameters can achieve high classification accuracy rate. On one hand, parameters of the classifier performance influence; the other hand, using the PSO pattern search algorithm on the optimal parameters is an effective method.

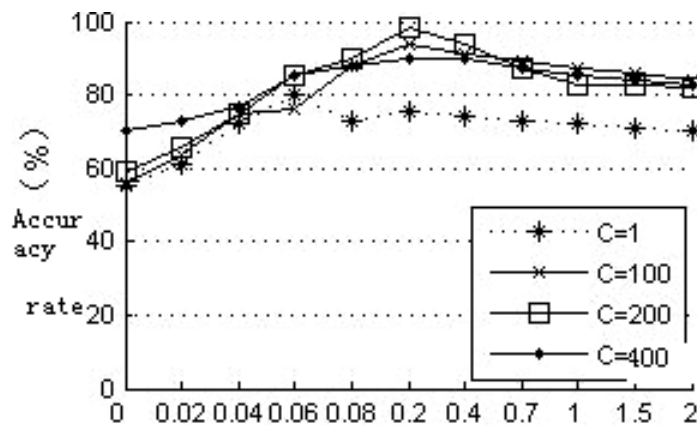


Fig. 1. c and σ Under different combinations of accurate rate curve.

5. Conclusion

PSO pattern search algorithm is combined the advantages the PSO algorithm and pattern search algorithm, Our algorithm has high global and local search ability, to overcome the PSO algorithm as poor local search ability and pattern search algorithm is easy to fall into local optimal, making PSO pattern search algorithm more perfect. The PSO pattern search algorithm is applied to the parameter optimization of support vector machine in Chongqing Province agricultural science and technology data modeling and classification, not only to avoid relying on the experience of selecting the parameters, but also shorten the training time of SVM, but also improve the accuracy rate. So PSO pattern search algorithm is an efficient, accurate parameter optimization method.

References

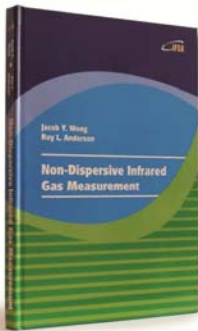
- [1]. Bai Peng, Zhang Xi bin, Zhang Bin, et al. The theory of support vector machine and its applications, Xi'an: Xi'an Electronic and Science University Press, 2008.
- [2]. Deng Naiyang, Tian Yingjie, Support vector machine -- theory, algorithm and development, Science Press, Beijing, 2009.

- [3]. Li Gang, Wang Yu, Zhang Sheng, et al, Support vector machine in the computer signal classification using, *Computer Application*, 6, 2006, pp.26-29.
- [4]. Chapelle O., Vapnik V., et al, Choosing multiple parameters for support vector machines, *Machine Learning*, 46, 2002, pp.131-159.
- [5]. Qi Liang., Ant colony algorithm based on support vector machine SVM parameter selection method, 4, 1, 2008. 4, 2008, pp1-5.
- [6]. Wang Xing Ling, J., Support vector machines based on the kernel parameters, *Journal of Ocean University of China*, 5, 2005, pp.35-38.
- [7]. Zhang Xiaoyun, Liu Yuncai, Gauss nuclear performance analysis of support vector machines, *Computer Engineering*, 8, 2003, pp.29-33.
- [8]. Kuo-Ping Wu , Sheng-De Wang, Choosing the kernel parameters for support vector machines by the inter-cluster distance in the feature space, *Pattern Recognition*, 42, 5, 2009, pp.710-717.
- [9]. Wang Jia, Xu Yuhong, Based on momentum particle swarm hybrid nuclear SVM parameter optimization method, *Computer Application*, 2, 2011, pp.31-34.

2012 Copyright ©, International Frequency Sensor Association (IFSA). All rights reserved.
(<http://www.sensorsportal.com>)

**International Frequency Sensor Association (IFSA) Publishing**

NEW BOOK



Jacob Y. Wong, Roy L. Anderson

Non-Dispersive Infrared Gas Measurement

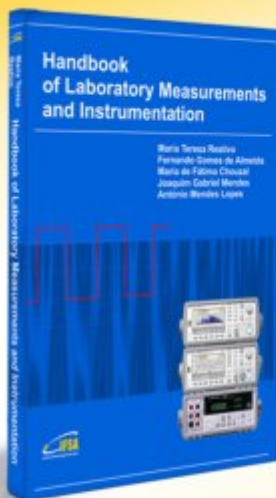
Written by experts in the field, the *Non-Dispersive Infrared Gas Measurement* begins with a brief survey of various gas measurement techniques and continues with fundamental aspects and cutting-edge progress in NDIR gas sensors in their historical development.

- It addresses various fields, including:
- Interactive and non-interactive gas sensors
- Non-dispersive infrared gas sensors' components
- Single- and Double beam designs
- Historical background and today's of NDIR gas measurements

Providing sufficient background information and details, the book *Non-Dispersive Infrared Gas Measurement* is an excellent resource for advanced level undergraduate and graduate students as well as researchers, instrumentation engineers, applied physicists, chemists, material scientists in gas, chemical, biological, and medical sensors to have a comprehensive understanding of the development of non-dispersive infrared gas sensors and the trends for the future investigation.

Formats: printable pdf (Acrobat) and print (hardcover), 120 pages
ISBN: 978-84-615-9732-1,
e-ISBN: 978-84-615-9512-9

http://sensorsportal.com/HTML/BOOKSTORE/NDIR_Gas_Measurement.htm



Handbook of Laboratory Measurements and Instrumentation

Maria Teresa Restivo
Fernando Gomes de Almeida
Maria de Fátima Chouzal
Joaquim Gabriel Mendes
António Mendes Lopes

The Handbook of Laboratory Measurements and Instrumentation presents experimental and laboratory activities with an approach as close as possible to reality, even offering remote access to experiments, providing to the reader an excellent tool for learning laboratory techniques and methodologies. Book includes dozens videos, animations and simulations following each of chapters. It makes the title very valued and different from existing books on measurements and instrumentation.



International Frequency Sensor Association Publishing

Order online:

http://www.sensorsportal.com/HTML/BOOKSTORE/Handbook_of_Measurements.htm



International Frequency Sensor Association (IFSA) Publishing

Digital Sensors and Sensor Systems: Practical Design

Sergey Y. Yurish



The goal of this book is to help the practitioners achieve the best metrological and technical performances of digital sensors and sensor systems at low cost, and significantly to reduce time-to-market. It should be also useful for students, lectures and professors to provide a solid background of the novel concepts and design approach.

Book features include:

- Each of chapter can be used independently and contains its own detailed list of references
- Easy-to-repeat experiments
- Practical orientation
- Dozens examples of various complete sensors and sensor systems for physical and chemical, electrical and non-electrical values
- Detailed description of technology driven and coming alternative to the ADC a frequency (time)-to-digital conversion

Formats: printable pdf (Acrobat)
and print (hardcover), 419 pages

ISBN: 978-84-616-0652-8,
e-ISBN: 978-84-615-6957-1

Digital Sensors and Sensor Systems: Practical Design will greatly benefit undergraduate and at PhD students, engineers, scientists and researchers in both industry and academia. It is especially suited as a reference guide for practitioners, working for Original Equipment Manufacturers (OEM) electronics market (electronics/hardware), sensor industry, and using commercial-off-the-shelf components

http://sensorsportal.com/HTML/BOOKSTORE/Digital_Sensors.htm

Guide for Contributors

Aims and Scope

Sensors & Transducers Journal (ISSN 1726-5479) provides an advanced forum for the science and technology of physical, chemical sensors and biosensors. It publishes state-of-the-art reviews, regular research and application specific papers, short notes, letters to Editor and sensors related books reviews as well as academic, practical and commercial information of interest to its readership. Because of it is a peer reviewed international journal, papers rapidly published in *Sensors & Transducers Journal* will receive a very high publicity. The journal is published monthly as twelve issues per year by International Frequency Sensor Association (IFSA). In addition, some special sponsored and conference issues published annually. *Sensors & Transducers Journal* is indexed and abstracted very quickly by Chemical Abstracts, IndexCopernicus Journals Master List, Open J-Gate, Google Scholar, etc. Since 2011 the journal is covered and indexed (including a Scopus, Embase, Engineering Village and Reaxys) in Elsevier products.

Topics Covered

Contributions are invited on all aspects of research, development and application of the science and technology of sensors, transducers and sensor instrumentations. Topics include, but are not restricted to:

- Physical, chemical and biosensors;
- Digital, frequency, period, duty-cycle, time interval, PWM, pulse number output sensors and transducers;
- Theory, principles, effects, design, standardization and modeling;
- Smart sensors and systems;
- Sensor instrumentation;
- Virtual instruments;
- Sensors interfaces, buses and networks;
- Signal processing;
- Frequency (period, duty-cycle)-to-digital converters, ADC;
- Technologies and materials;
- Nanosensors;
- Microsystems;
- Applications.

Submission of papers

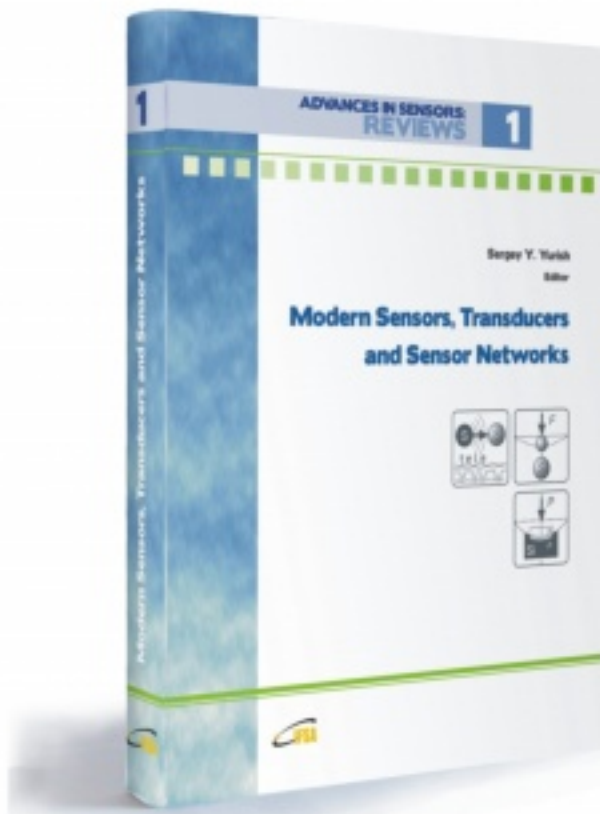
Articles should be written in English. Authors are invited to submit by e-mail editor@sensorsportal.com 8-14 pages article (including abstract, illustrations (color or grayscale), photos and references) in both: MS Word (doc) and Acrobat (pdf) formats. Detailed preparation instructions, paper example and template of manuscript are available from the journal's webpage: <http://www.sensorsportal.com/HTML/DIGEST/Submission.htm> Authors must follow the instructions strictly when submitting their manuscripts.

Advertising Information

Advertising orders and enquires may be sent to sales@sensorsportal.com Please download also our media kit: http://www.sensorsportal.com/DOWNLOADS/Media_Kit_2012.pdf

**ADVANCES IN SENSORS:
REVIEWS****1****Sergey Y. Yurish**
Editor

Modern Sensors, Transducers and Sensor Networks



Modern Sensors, Transducers and Sensor Networks is the first book from the Advances in Sensors: Reviews book Series contains dozen collected sensor related state-of-the-art reviews written by 31 internationally recognized experts from academia and industry.

Built upon the series Advances in Sensors: Reviews - a premier sensor review source, the *Modern Sensors, Transducers and Sensor Networks* presents an overview of highlights in the field. Coverage includes current developments in sensing nanomaterials, technologies, MEMS sensor design, synthesis, modeling and applications of sensors, transducers and wireless sensor networks, signal detection and advanced signal processing, as well as new sensing principles and methods of measurements.

Modern Sensors, Transducers and Sensor Networks is intended for anyone who wants to cover a comprehensive range of topics in the field of sensors paradigms and developments. It provides guidance for technology solution developers from academia, research institutions, and industry, providing them with a broader perspective of sensor science and industry.

Order online:

http://sensorsportal.com/HTML/BOOKSTORE/Advance_in_Sensors.htm



www.sensorsportal.com