Editors: Cornel Panait, Eugen Barsan, Aida Bulucea, Nikos Mastorakis, Charles Long

ADVANCED MANUFACTURING ENGINEERING, QUALITY and PRODUCTION SYSTEMS

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2nd International Conference on MANUFACTURING ENGINEERING, QUALITY and PRODUCTION SYSTEMS (MEQAPS '10)

Constantza Maritime University, Constantza, Romania, September 3-5, 2010

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Preface

This year the 2nd International Conference on MANUFACTURING ENGINEERING, QUALITY and PRODUCTION SYSTEMS (MEQAPS '10) was held at the Constantza Maritime University, Constantza, Romania, September 3-5, 2010. The conference remains faithful to its original idea of providing a platform to discuss manufacturing engineering, manufacturing systems, manufacturing systems and industrial engineering, production systems, production systems and production planning, quality, quality assurance, quality control, quality management, manufacturing systems and modelling, manufacturing engineering and quality, engineering statistics, integrated product engineering, engineering risk and decision analysis, computer-aided design, computer aided manufacturing, computer simulation methods, modelling and numeric methods in maritime industry, decision support systems and artificial intelligence methods in maritime transport, facilities design and logistics, information systems for the manufacturing, intelligent engineering systems, engineering management and leadership, managerial economics, systems thinking and analysis, optimization, assignment problem, transportation network design, statistical analysis, stochastics modelling etc. with participants from all over the world, both from academia and from industry.

Its success is reflected in the papers received, with participants coming from several countries, allowing a real multinational multicultural exchange of experiences and ideas.

The accepted papers of this conference are published in this Book that will be indexed by ISI. Please, check it: www.worldses.org/indexes as well as in the CD-ROM Proceedings. They will be also available in the E-Library of the WSEAS. The best papers will be also promoted in many Journals for further evaluation.

A Conference such as this can only succeed as a team effort, so the Editors want to thank the International Scientific Committee and the Reviewers for their excellent work in reviewing the papers as well as their invaluable input and advice.

The Editors

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Plenary Lecture 1

Monitoring of Distributed Parameter Systems based on Virtual Instrumentation and Sensor Networks

Professor Constantin Volosencu
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Abstract: This paper presents some technical solutions for monitoring of distributed parameter systems based on the new technologies of virtual instrumentation software architecture and intelligent ad-hoc wireless sensor networks. The virtual instrumentation allows the treatment of physical variables communicating with instruments as programs from a PC. The sensor networks may be placed in the areas of distributed parameter systems and they may be seen as distributed measuring sensors for the physical variables of distributed parameter systems, in space. Some applications, for the most usual distributed parameter systems as: the heat transfer in space, motion of vehicles, atmosphere pressure and noise accoustic intensity are illustrated with examples of virtual instruments, build using LabView. The developed technical solutions allow the implementation of the multivariable estimation techniques in fault detection and diagnosis in distributed parameter systems.

Brief Biography of the Speaker:
Constantin Volosencu is a professor at "Politehnica" University of Timisoara, Romania, Faculty of Automatics and Computers, Department of Automatics and Applied Informatics.
He graduated "Traian Vuia" Polytechnic Institute of Timisoara, Romania, in 1981, as an engineer in automatics and computers. He has a doctorate in automatics at "Politehnica" University of Timisoara, Romania.
Prof. Constantin Volosencu has researches in the field of linear control systems, fuzzy control, neural networks, control of electrical drives, system identification, sensor networks and distributed parameter systems.
Author of 10 books, over 130 scientific papers published in journals and conference proceedings and 27 patents. Manager of over 30 international and national research projects.
From 1982 to 1991 he worked as a research and design engineer at "Electrotimis" Enterprises Timisoara, Romania in the field of electrical drives. He developed electrical equipments for machine tools, spooling machines, high power ultrasonic installations and other.
Member of the Editorial Review Board for computer science, computer engineering, BCIS and MIS at Scientific Journals International SJI, member in the Authors Advisory Board at Journal of Biochemical Technology, member of the editorial board of Journal of Computer Science and Information Technology JCSIT.
Member in scientific committees and chair at international conferences.
Member of the following professional associations: S.R.A.I.T. and S.I.E.A.R Romania, IEEE Control System Society and Computational Intelligence Society, ACM.
In the frame of WSEAS prof. Constantin Volosencu is author of 18 papers published at WSEAS conferences and 8 papers published in WSEAS transactions. He was plenary speaker at the following WSEAS conferences: 9th Int. Conf. on Automatics & Information (ICAI'08), Bucharest, Romania, 2008, 8th Int. Conf. On Simulation, Modeling and Optimization (SMO '08), Santander, Spain, 2008, 8th Int. Conf. on Signal Processing, Robotics and Automation (ISPRA '09), Cambridge, U.K., 2009, 10th Int. Conf. on Automation & Information (ICAI'09), Prague, Czech Rep., 2009, 11th Int. Conf. on Automatic Control, Modeling and Simulation (ACMOS '09), Istanbul, Turkey, 2009, 9th Int. Conf. on Simulation, Modeling and Optimization, (SMO'09), Budapest Tech, Hungary, 2009, 1st Int. Conf. on Manufacturing Engineering, Quality and Production Systems, (MEQAPS'09), Brasov, 2009.

Plenary Lecture 2

The Brake Water under Current Action. A Distortional Simulation Approach

Professor Dumitru Dinu
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Abstract: In many cases, it is very difficult to represent the phenomena in one scale. For long conduit (pipe-lines, gas transport tubes, long brake water) we use a great scale for length. If we use the same scale for diameter or breadth, it results a very thin line. That's why it is necessary to use a different scale for diameter or breadth in our case, a small one. By applying the similitude criterions, we obtain other scales for physical magnitudes. Are there near the real values? What are the differences between the two approaches: one scale and two scales?
In the paper we propose to use the FLUENT program to make a comparison between the results of application normal similitude and distortional similitude in the experiments regarding current action on the brake water. First, we established the model law, taking into account the physical magnitudes which influence the analyzed phenomena. After, we calculated the scales of these physical magnitudes for normal similitude (one geometrical scale) and distortional similitude (two geometrical scales). Using FLUENT we determined the values of the forces acting on the brake water, putting the pressure parameters and the dimensions of the conduit according to the two cases of similitude. Finally, we compare the "experimental" results with theoretical results, calculated by application of scale of physical magnitudes.

Brief Biography of the Speaker:
Professor Dumitru DINU was born in Constantza in 1948. He graduated University of Galatzi and obtained the degree of Diplomat Engineer, Naval Architect. He is doctor in Fluid Mechanics.
Courses in France on Marine Technology, Deep Diving Systems; Courses in Romania on Marine Pollution, Marine Engineering; IMO Courses, etc;
Recognition as Supervisor of doctoral theses since 2001.
He worked as researcher in Romanian Marine Research Institute (1972-1986) and Chief of Marine Technology Laboratories (1986 – 1990).
Between 1993 and 2004 Professor Dinu was Rector of Constantza Maritime University.
Key qualifications: Fluid Mechanics, Marine Technologies, Marine Pollution, Maritime Education and Training.
International Position: Member CIESM (Conseil International pour Exploitation Scientifique de la Mer Mediteranee), Member of IMLA Committee (International Maritime Lecturers Association), Romania and IMLA representative at IMO Assembly, Chairman in various conferences on MET (Maritime Education and Training).
Scientific activities: 9 books on underwater technologies, hydrodynamics, marine pollution; over 50 papers published on marine technologies, marine pollution, maritime education and training; certificates for inventions and innovations; research contract leader.

Plenary Lecture 3

The Systems Personalization with Hardware and Software Methods

Dr. Mihaela Hnatiuc
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Abstract: The personalized systems are used in monitor and supervise processes. Using the data stored for the daily behavior, the system is design for certain pattern. If there is the possibility of abnormally activity, meaning the collected data are not in normal limits, system warns that there is an abnormally conducted process.
An abnormal condition can become normal if they occur repeatedly every day. The system adapts during learning of the state using the acquired data.
This paper wants to present a series of adaptive systems and their methods for diagnosis and monitoring performance.

Brief Biography of the Speaker:
Mrs. Mihaela Hnatiuc is a lecturer at Constanta Maritime University, Romania, Faculty of Naval Electromechanically, Department of Electronics.
She graduated "Gh. Asachi" Technical University of Iasi, Faculty of Telecommunications and Electronics, Romania, in 1995. Mrs. Hnatiuc has master degree and PhD. in electronics at "Gh. Asachi" Technical University of Iasi, Romania. The Master field is Artificial Intelligence and Bioengineering.
Mrs. Hnatiuc, has research competences in microcontrollers, intelligent sensors, fuzzy system and neural network.
Author of 2 books and 25 papers published in journals, conferences and book chapter and 1 patent in France, member of 5 researches projects, manager of 2 international grants and the member organizer of 7 conferences.
Member in scientific committees and chairman at national and international conferences.
From 2001 to 2007 Mrs. Hnatiuc worked as researcher and designer engineering in Iasi, Romania and since then lecturer at Constanta Maritime University, Romania. She has developed the intelligent system for the elders and disabilities person, and tested the different classification algorithms for the signature person identification.

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