RECENT ADVANCES in DATA NETWORKS, COMMUNICATIONS, COMPUTERS

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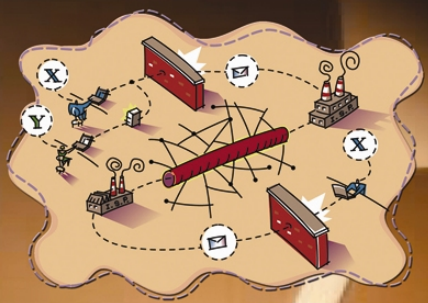
Proceedings of the 7th WSEAS International Conference
on DATA NETWORKS, COMMUNICATIONS, COMPUTERS (DNCOCO '08)

Recent Advances in Computer Engineering A Series of Reference Books and Textbooks



Bucharest, Romania, November 7-9, 2008

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Preface

This book contains the proceedings of the 7th WSEAS International Conference on DATA NETWORKS, COMMUNICATIONS, COMPUTERS (DNCOCO '08) which was held in Bucharest, Romania, November 7-9, 2008. This conference aims to disseminate the latest research and applications in Network Architecture, Modelling and Simulation of Networks, Protocols and applications, Security Aspects, Wireless communications, Communications Switching and Routing and other relevant topics and applications.

The friendliness and openness of the WSEAS conferences, adds to their ability to grow by constantly attracting young researchers. The WSEAS Conferences attract a large number of well-established and leading researchers in various areas of Science and Engineering as you can see from **http://www.wseas.org/reports**. Your feedback encourages the society to go ahead as you can see in **http://www.worldses.org/feedback.htm**

The contents of this Book are also published in the CD-ROM Proceedings of the Conference. Both will be sent to the WSEAS collaborating indices after the conference: **www.worldses.org/indexes**

In addition, papers of this book are permanently available to all the scientific community via the WSEAS E-Library.

Expanded and enhanced versions of papers published in this conference proceedings are also going to be considered for possible publication in one of the WSEAS journals that participate in the major International Scientific Indices (Elsevier, Scopus, EI, ACM, Compendex, INSPEC, CSA .... see: www.worldses.org/indexes) these papers must be of high-quality (break-through work) and a new round of a very strict review will follow. (No additional fee will be required for the publication of the extended version in a journal). WSEAS has also collaboration with several other international publishers and all these excellent papers of this volume could be further improved, could be extended and could be enhanced for possible additional evaluation in one of the editions of these international publishers.

Finally, we cordially thank all the people of WSEAS for their efforts to maintain the high scientific level of conferences, proceedings and journals.

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Plenary Lecture I

New Trends in Efficient Production and Distribution of Electrical Energy

Professor Mihai O. Popescu
Vice-Rector of the Politehnica University of Bucharest,
ROMANIA

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Abstract: Electrical energy is absolutely necessary for an advanced society. In this context use of classical combustibles (coal, petroleum, nuclear) is limited, e.g. by sources exhaustion. Some other undesired phenomena are commented and the solution – use of renewable energies is discussed. At the European level strategic objectives are presented for each case, even the cost target for 2015. In the same time distribution of electrical energy is subject to modernization with intensive promotion of information technologies. Some new ideas are presented, related with numerical treatment of information in new systems with multiple and distributed sources.

Brief Biography of the Speaker: Professor Mihai O. Popescu (SM of IEEE) is graduated in Electrical Engineering in 1970, at the University Politehnica of Bucharest. His main activity topics are: transient phenomena in electrical network, switchgear, electrotechnologies, quality and reliability. He is author of more than 20 didactical manuals, more than 80 referred articles and 40 research contracts. Actually he is Vice-Rector of University Politehnica of Bucharest and member of National Quality Assessment Agency in Higher Education.

Plenary Lecture II

Adaptive Wireless Access Solutions in Transport Systems Management Environment

Professor Tomas Zelinka
Czech Technical University in Prague,
Technical Cybernetics
CZECH REPUBLIC

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Abstract: This paper presents new attitude to adaptive control of the multi-path and multi-technology technology wireless access communications solutions. Presented approach is response on transport processes management requirements to provide complex seamless communication services in the selection of different modes coverage and guaranteed quality. Such solutions are related to communications of the vehicle to infrastructure as well as vehicle to vehicle. Such communications networking must include inter-vehicle communication interconnect, as well. CALM based system represent relevant data routing/switching with vertical RM OSI compatible communications architecture, however, with horizontal hierarchical management structure. Genuine decision processes in defined communications CALM routing/switching structures are, however, in literature discusses quite rarely. Decision processes measurable i.e. precisely enumerated system requirements are qualified by the performance indicators.

Based on application analysis performance indicators are demarcated into the acceptable tolerance ranges. In this paper we propose decision processes based on Bayes statistics as "classical" alternative to e.g. concept of Policy-based Management (PBM) traditionally and widely applied within the IP based networks. In proposed alternative measured data are processed by Kalman filters to separate reasonable part of noise and to predict individual parameters behavior in its near future. Than self-trained classification algorithm processes filtered measured data which are combined with deterministic parameters like the services economy, company policy etc. Training data block represent parameters vectors time line extended by correct decisions, i.e. appurtenance to appropriate class.

Even though these tools are designed specifically for the multi-path communications system, such principles are open for future penetration into whole telematic system adaptive management.

Brief Biography of the Speaker:

The Czech Technical University in Prague in "Technical Cybernetics", PhD in experimental (geo-) physics at the Czech Academy of Sciences, Prof. (assoc.) in Informatics at Faculty of Transport Sciences of the CTU in Prague.

2005 - Czech Technical University in Prague

- Lectures: telecommunications sciences, legal issues of telecommunications regulation, new technology trends, telecommunications in ITS, business management, strategy planning, …

- R&D: new telecommunications trends and solutions within Intelligent Transport Systems,

1993 – 2005 Communications business

- Development of new products, Strategy planning, Business development e.g.of alternative global voice and data communications in the Czech Republic and other countries of the CEE region – namely in Global One (Sprint Int., France Telecom, Deutsche Telekom)

1976 – 1994 Academy of Sciences

- Experimental laboratory and observatory methods in Geophysics - studies of the variations and drift of the Earth magnetic field, Data communication solutions within international and national observatory system,

- Computer modeling of magnetic material structures with on-line experimental identification – studies done on the artificial samples with well defined magnetic particles structure. Laboratory measurement of the magnetic properties of rocks,

1972 – 1976 Industrial R&D

- Automatic control systems for the technological processes - Computer Numerical Control (CNC),

- Data communications and computer based control within technological processes,

Plenary Lecture III

Triple Selection Diversity over Exponentially Correlated Nakagami-m Fading Channels Desired Signal and Cochannel Interference

Professor Dragana Krstic
Department of Telecommunications
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Aleksandra Medvedeva 14, 18000 Nis
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Abstract: In this paper system performances of selection combining over correlated Nakagami-m channels are analyzed. Selection diversity based on the signal to interference ratio (SIR) is a very efficient technique that reduces fading and cochannel interference influence. Fading between the diversity branches and between interferers is correlated and Nakagami-m distributed with exponential correlation model. Very useful closed-form expressions for the output SIR's probability density function (PDF), cumulative distribution function (CDF), and outage probability are obtained, which is main contribution of this paper.

Brief Biography of the Speaker: Dragana S. Krstić was born in Pirot, Serbia. She received the BSc, MSc and PhD degrees in electrical engineering from Faculty of Electronic Engineering, Department of Telecommunications, University of Niš, Serbia, in 1990, 1998 and 2006, respectively. Her field of interest includes telecommunications theory, optical communication systems, wireless communication systems, etc. She works at the Faculty of Electronic Engineering in Niš since 1990. She participated in more Projects which are supported by Serbian Ministry of Science. She has written or co-authored almost 90 papers, published to International/National Conferences and Journals.

WSEAS Activities:

Papers in WSEAS Conferences: Cambridge, UK, February 2008; Crete, July 2008; Bucharest, November 2008, and WSEAS Journal: WSEAS TRANSACTIONS on COMMUNICATIONS