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

NEW ASPECTS OF APPLIED INFORMATICS AND COMMUNICATIONS

Rhodes, Greece, August 20-22, 2008

Proceedings of the 8th WSEAS International Conference on
APPLIED INFORMATICS and COMMUNICATIONS (AIC'08)

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Preface

This book contains the proceedings of the 8th WSEAS International Conference on APPLIED INFORMATICS and COMMUNICATIONS (AIC'08) which was held in Rhodes, Greece, August 20-22, 2008. This conference aims to disseminate the latest research and applications in System architecture, Performance analysis and prediction, Algorithms and data structures, Programming languages, Data Bases, Operating systems, Safety/security in digital systems, Simulation Tools, Microwave Theory and techniques, Numerical Methods for Electromagnetics, Computer Networks 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

Managing Trust in Services Oriented Architectures

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Abstract: Trust management is turning out as one of essential issues for supporting users in contemporary services oriented architectures. Some of approaches address trust by actually focusing on related issues, typically security, while the rest of approaches do address trust in its core. However, there are still quite some open issues that need to be resolved.

This lecture will present main methodologies in this area, their strong and weak points, current trends, and the latest discoveries that are essential for computerized trust management, which should be threated through a socio-cognitive perspective.

Brief Biography of the Speaker:

- PhD in the field of communications security, received in 1995 from University of Ljubljana, Slovenia / EU.
- Assoc. Prof., courses on e-business at Faculty of Computer and Information Sciences, University of Ljubljana, courses on computer communications and IS security at the University of Primorska.
- 15 years involved in computer communications, IT and IS, computer communications, security, e-business.
- Author of sci. monograph Managing IS Security and Privacy, published by renowned publisher Springer in 2006.
- Invited speaker at PKI Invitational Workshop, organized by US Security Information Program Management Office, NIST and MITRE Corp., September 1995, Washington D.C.
- Involved in EU projects (also as a national coordinator) COST 225, COST 330, COST 263, NetLINK CEE.
- Establishement of the first IP connection and its manageme- nt in 1991. One of the key persons that contributed to esta- blishement of the Slovene Academic Research Network ARNES.
- Project leader for user security policy for internet banking services of the biggest Slovene bank NLB, project leader for IS implementation for the Slovene National Gallery, consultant for security architecture of a nation wide project of smart-card based health care information infrastructure (the first nation-wide implemented project of that kind in the world).
- 100+ items in bibliography (including journals with SCI JCR impact factor / WoS).
- 30 published communications (scientific conferences like IEEE, IFIP, Internet Society, US National Information Systems Security Conference...).
- Contributor to 3 scientific books, published by Springer Verlag, John Willey and Idea Group Publishers Inc., author of 2 university textbooks.
- Inventor of a crypto-protocol for hash functions based authentication and key exchange (patent granted in 2005).
- Editorial board member of the International Journal of Computers and Applications, ACTA Press, 2004 - 2005.

- Member of program committees of IASTED Software Engineering 05, 06 and 07, Complex Systems in e-Business / CSeB 04 & 05, Workshop on Applications of Wireless Communications - WAWC04 (scientific conferences).
- Regular reviewer for high ranking scientific journals pub- lished by Elsevier, IEEE, etc.
- Member of IEEE, IASTED Technical Committee on Parallel and Distributing Computing and Systems, and System Dynamics Se- curity SIG.

Plenary Lecture II

Fundamentals of Fuzzy Preference Modeling

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Co Author

Prof. J. FODOR

Abstract: In this lecture we give a survey of some classical as well as most recent models of preferences based on pairwise comparison of alternatives. The underlying framework is fuzzy logic in which preferences can be expressed in a gradual way. Fuzzy preference structures, as a generalization of Boolean (2-valued) preference structures, are studied. A fuzzy preference structure is a triplet of fuzzy relations expressing strict preference, indifference and incomparability in terms of truth degrees. An important issue is the decomposition of a fuzzy preference relation into such a structure. An appropriate approach requires some effort and axiomatic consideration, because the straightforward formalism of the Boolean case gives undesirable results.

We point out the essential role of the logical connectives behind fuzzy preferences through their axiomatic constructions and characterizations. This requires an extensive introduction to connectives in fuzzy logic as well.

Brief Biography of the Speaker: Imre J. Rudas graduated from Banki Donat Polytechnic, Budapest in 1971, received the Master Degree in Mathematics from the Eotvos Lorand University, Budapest, the Ph.D. in Robotics from the Hungarian Academy of Sciences in 1987, while the Doctor of Science degree from the Hungarian Academy of Sciences. He received his first Doctor Honoris Causa degree from the Technical University of Kosice, Slovakia and his second Honorary Doctorate from University Polytechnica Timisoara, Romania.

He is active as a full university professor and Head of Department of Intelligent Engineering Systems. He serves as the Rector of Budapest Tech from August 1, 2003 for a period of four years.

He is a Fellow of IEEE, Senior Administrative Committee member of IEEE Industrial Electronics Society, member of Board of Governors of IEEE SMC Society, Chairman of the Hungarian Chapters of IEEE Computational Intelligence and IEEE Systems, Man and Cybernetics Societies.

He is the President of the Hungarian Fuzzy Association and Steering Committee Member of the Hungarian Robotics Association and the John von Neumann Computer Society.

He serves as an associate editor of some scientific journals, including IEEE Transactions on Industrial Electronics, member of editorial board of Journal of Advanced Computational Intelligence, member of various national and international scientific committees. He is the founder of the IEEE International Conference Series on Intelligent Engineering Systems and IEEE International Conference on Computational Cybernetics, and some regional

symposia. He has served as General Chairman and Program Chairman of numerous scientific international conferences.

His present areas of research activity are: Computational Cybernetics, Robotics with special emphasis on Robot Control, Soft Computing, Computed Aided Process Planning, Fuzzy Control and Fuzzy Sets. He has published one book, more than 400 papers in books, various scientific journals and international conference proceedings.

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