



UAlg

UNIVERSIDADE DO ALGARVE



CENTRO DE INVESTIGAÇÃO SOBRE
ESPAÇO E ORGANIZAÇÕES

ADVANCES in VISUALIZATION, IMAGING and SIMULATION

**3rd WSEAS International Conference on VISUALIZATION,
IMAGING and SIMULATION (VIS '10)**

**University of Algarve, Faro, Portugal
November 3-5, 2010**

ADVANCES in VISUALIZATION, IMAGING and SIMULATION

**3rd WSEAS International Conference on VISUALIZATION,
IMAGING and SIMULATION (VIS '10)**

**University of Algarve, Faro, Portugal
November 3-5, 2010**

Published by WSEAS Press

www.wseas.org

Copyright © 2010, by WSEAS Press

All the copyright of the present book belongs to the World Scientific and Engineering Academy and Society Press. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the Editor of World Scientific and Engineering Academy and Society Press.

All papers of the present volume were peer reviewed by two independent reviewers. Acceptance was granted when both reviewers' recommendations were positive.
See also: <http://www.worldses.org/review/index.html>

ISSN: 1792-6130

ISBN: 978-960-474-246-2



World Scientific and Engineering Academy and Society

ADVANCES in VISUALIZATION, IMAGING and SIMULATION

**3rd WSEAS International Conference on VISUALIZATION,
IMAGING and SIMULATION (VIS '10)**

**University of Algarve, Faro, Portugal
November 3-5, 2010**

Editors:

Nikos E. Mastorakis, Technical University of Sofia, BULGARIA and Hellenic Naval Academy, GREECE
Valeri Mladenov, Technical University of Sofia, BULGARIA

International Program Committee Members:

Joao Guerreiro, PORTUGAL
Teresa Noronha, PORTUGAL
Efigenio da Luz Rebelo, PORTUGAL
Luis Chicharo, PORTUGAL
Jon Bryan Burley, USA
Tomas Boski, PORTUGAL
Lea Orlovsky, ISRAEL
Jose Beltrao, PORTUGAL
Teresa Andresen, PORTUGAL
Luis Ribeiro, PORTUGAL
Rui Guerra, PORTUGAL
Inga Straupe, LATVIA
Dulce Antunes, PORTUGAL
Maria de Belem Martins, PORTUGAL
Maria Bostenaru, ROMANIA
Felipa Lopes dos Reis, PORTUGAL
Livia Madureira, PORTUGAL
Nuno Pinto, PORTUGAL
Carlos Guerrero, PORTUGAL
Claudine Metral, SWITZERLAND
Ioannis Tsalikidis, GREECE
C. Helmis, GREECE
F. Rigas, GREECE
N. Afgan, PORTUGAL
F. Akgun, TURKEY
Omar Badran, JORDAN
Y. Baudoin, BELGIUM
A. Bitoleanu, ROMANIA
L. Boch-Andersen, BELGIUM
P. Casero, SPAIN
E. Frey, GERMANY
M. Heiermann, GERMANY
A. E. Holdo, UK
D. De Keukeleere, BELGIUM
M. Versan Kok, TURKEY
G. Kolb, DENMARK
A. Kurbatskiy, RUSSIA
S. Linderoth, DENMARK
P. Lunghi, ITALY
C. Machens, GERMANY
A. Midilli, CANADA
J. Van Mierlo, BELGIUM
S. Ozdogan, TURKEY
M. Reijalt, ITALY
J. Rogut, POLAND
I. V. Singh, INDIA
E. Smole, AUSTRIA
R. Tamme, GERMANY
M. Teixeira, PORTUGAL
R. Vigotti, ITALY
G. Wolf, GERMANY
G. Wisniewski, POLAND
A. Van Zyl, BELGIUM
Z. A. Vale, PORTUGAL
A. F. Zobaa, EGYPT
Metin Demiralp, TURKEY
Valeri Mladenov, BULGARIA
Zoran Bojkovic, SERBIA
Leon Trilling, USA
D. Perkins, USA
Dionysios (Dion) D. Dionysiou, USA
Leonid Perlovsky, USA
Kent Davey, USA
David Landgrebe, USA
Steven H. Collicott, USA
Marco Ceccarelli, ITALY
John W. Lund, USA
Dimitris Bertsekas, USA
David Staelin, USA
A. Bers, MUSA
Leon Trilling, USA
Lotfi Zadeh, USA
Leon Chua, USA
Brian A. Barsky, USA
Leonid Kazovsky, USA
Rao Kamisetty, USA
Stamatios Kartalopoulos, USA

Preface

This year the 3rd WSEAS International Conference on VISUALIZATION, IMAGING and SIMULATION (VIS '10) was held at the University of Algarve, Faro, Portugal, November 3-5, 2010. The conference remains faithful to its original idea of providing a platform to discuss imaging sensors, color and texture analysis, motion and tracking, stereo vision, biometrics recognition, machine learning, image manipulation and compression, medical imaging, motion analysis, cognitive vision, face and gesture recognition, scientific and mathematical visualization, multiresolution techniques, signal segmentation, visual inspection, human computer interaction and communication, numerical grid generation, eigenvalue problems, optimization, systems and control, fluid mechanics, heuristic algorithms, cryptology, undersea systems 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

Table of Contents

Plenary Lecture 1: Distributed Simulation Environment Access	11
<i>Egils Ginters</i>	
Plenary Lecture 2: Some Relevant Aspects of Developing a Customized Remote Control System	12
<i>Mihaiela Iliescu</i>	
Improving the Accuracy of Visual Odometry from Point Features	13
<i>Aldo Cumani</i>	
BAS2, an In-House Developed Stand Alone GIS Application for the Estimation of Burned Area Statistics	18
<i>Ioannis Z. Gitas, Thomas Katagis, Anastasia Polychronaki, Marcel Mateescu</i>	
Fast Frame Decomposition and Sorting by Contour Tracing for Mobile Phone Comic Images	23
<i>Yusuke In, Takashi Oie, Masakazu Higuchi, Shuji Kawasaki, Atushi Koike, Hitomi Murakami</i>	
Some Relevant Aspects of Developing a Customized Remote Control System	29
<i>Iliescu M., Dumitrescu D., Velea G., Comanescu B.</i>	
Developing an Innovative System for Skates	35
<i>Iliescu M., Tiganu I., Boboc D., Ploscan C.</i>	
3D FEM Analysis of Cutting Processes	41
<i>Corina Constantin, Sorin Mihai Croitoru, George Constantin, Claudiu Florinel Bisu</i>	
A Visual Language Framework for Music Rendering Using L-System	47
<i>Lim Chen Kim, Abdullah Zawawi Talib</i>	
SSIM Image Quality Metric for Denoised Images	53
<i>Peter Ndajah, Hisakazu Kikuchi, Masahiro Yukawa, Hidenori Watanabe, Shogo Muramatsu</i>	
Agent and Mobile Technologies and Their Usage in Development of Learning Environment Supportive System	58
<i>Kaspars Osis, Janis Grundspenkis</i>	
Boundary-Based Depth Image Improvement	64
<i>Yang-Keun Ahn, Young-Choong Park, Kwang-Soon Choi, Kwang-Mo Jung, Ji-Man Hong</i>	
Measurement of Eye Reaction and Eyelid Movement	70
<i>Frantisek Racek, Teodor Balaz, Jan Komenda</i>	
3D Visualization Framework Based on MVC for In-Situ OLAP Knowledge/Information Interpretation	76
<i>Sung Gook Kim, Kyeong Deok Woo, Beom Seok Lee, Kyoung Il Kang, Cheolwhan Lee, Sung Kyun Lee, Sung Wook Baik</i>	

Shadow Image and Special Effects Implementation Techniques for Virtual Shadow Puppet Play	80
<i>Tan Kian Lam, Abdullah Zawawi Talib</i>	
Application of Enterprise Modeling Method for Continuing Education Design and Development	86
<i>Ginta Stale, Sarma Cakula</i>	
Robotics Tools for Constructing Stereo Systems Using off-the-Shelf Cameras	93
<i>Vitaliy Rybak, Ismael De J. Perez V.</i>	
Event-Based Semantic Visualization of Trajectory Data in Urban City with a Space-Time Cube	99
<i>Chen Zhong, Chamseddine Zaki, Vincent Tourre, Guillaume Moreau</i>	
Easy Communication Approach for Data Exchange in Distributed Simulation Environment	106
<i>Artis Silins, Egils Ginters, Dace Aizstrauta, Juris Binde</i>	
Performance Evaluation of Visual Cryptography Schemes with Intensity Transformations for Gray-Scale Images	111
<i>Masakazu Higuchi, Shuji Kawasaki, Jonah Gamba, Atsushi Koike, Hitomi Murakami, Aya Emori</i>	
Measurement of Ultrasound Attenuation for Normal and Pathological Mice Breast Tissue using 10MHz Ultrasound wave	118
<i>Maheza Irna Mohamad Salim, Mohammad Azizi Tumiran, Siti Nor Zawani Ahmmad, Ismail Ariffin, Abdul Hamid Ahmad, Bustanur Rosidi, Eko Supriyanto</i>	
Personalized Expressive Embodied Conversational Agent EVA	123
<i>Izidor Mlakar, Matej Rojc</i>	
A Study About Daylight Perception by the Human Eye	129
<i>Toadere Florin, Radu Arsinte, Nikos E. Mastorakis</i>	
Visualization Methods in Emergency Medical Services Readiness Evaluation	135
<i>Bruno Jezek, Jan Vanek, Karel Antos</i>	
Urban Environment Quality Indicators: Application to Solar Radiation and Morphological Analysis on Built Area	141
<i>Claudio Carneiro, Eugenio Morello, Gilles Desthieux, Francois Golay</i>	
Geographic Information System for Railway Management	149
<i>Hazem M. El-Bakry, Wael A. Awad</i>	
Authors Index	164

Plenary Lecture 1

Distributed Simulation Environment Access



Professor Egils Ginters

Sociotechnical Systems Engineering Institute
Vidzeme University of Applied Sciences
Cesu street 4, Valmiera, LV-4200
LATVIA
E-mail: egils.ginters@va.lv

Abstract: Nowadays the decision making becomes very difficult and risky process due to complexity of the sociotechnical systems, which are information capacious. Due to the reasons mentioned above topical are the requirements for situations forecasting before the decision making. For solving the problems mentioned above the varied simulation tools and environments are used. Unfortunately some serious problems still exist related with standards compatibility, formats harmonization, concepts consistency and access. Today does not possible to design highly functional distributed simulation models without the specific knowledge in programming, therefore common access to the models created before in different industries and environments are still limited for IT non-professionals. The aim of the report is to clarify the situation and to offer some ways how to solve the problems related with distributed simulation access.

Brief Biography of the Speaker: Director of Sociotechnical Systems Engineering Institute at the Vidzeme University of Applied Sciences. Full time professor at the Vidzeme University of Applied Sciences. He is member of Institute of Electrical and Electronics Engineers (IEEE). Prof. Egils Ginters is member of the Board of Association of Computer Technologies of Latvia and IT expert of Latvian Council of Sciences. He is an author of data processing systems designing methodology LISTechnology and more than 100 publications related with logistics information systems and simulation. Prof. Egils Ginters was participant of some EU funded projects: INCO Copernicus AMCAI 0312 (1994-1997), INCO Copernicus DAMAC-HP PL976012 (1998-2000), FP5 IST BALTPORTS-IT (2000-2003), FP6 IST e-LOGMAR-M No.511285 (2004-2006) and coordinator of Leonardo da Vinci LOGIS LV-PP-138.003 (2000-2002), LOGIS MOBILE LV/B/F/PP-172.001 (2004-2006) and SocSimNet LV/B/F/PP-172.000 (2004-2006).

Plenary Lecture 2

Some Relevant Aspects of Developing a Customized Remote Control System



Associate Professor Mihaiela Ilescu
"POLITEHNICA" University of Bucharest
Manufacturing Department
ROMANIA
E-mail: iomi@clicknet.ro

Abstract: Developing a customized product requires thorough analysis of the problems involved, so that performances and efficiency could be stated. This paper presents the way computer aided technologies, dealing with modeling, simulation (by SolidWorks and Autodesk Inventor) and rapid prototyping (by Ink Jet 3D printing), were applied and used so as to a check, to determine, to improve and correct the possible design errors of a remote control system's components.

Brief Biography of the Speaker: Has graduated in 1989, "POLITEHNICA" Institute of Bucharest, ROMANIA and in 1989 – 1991 worked as an engineer – in the Design Department of a Romanian peripheral equipment factory, FEPER

Since 1991 has been working, as a teacher in "POLITEHNICA" University of Bucharest, ROMANIA – Manufacturing Department, in 2004, being Associate professor. The Doctoral Thesis, in 2000 – was on Quality and Machinability of Thermal Sprayed Layers.

Teaches courses and works into the fields of: Applied Statistics for Engineers; Metal Forming; Manufacturing Technologies; Injection Moulding, being scientific researcher, in about 30 Research Projects and Grants. First-author or, co-author, of about 95 studies and papers - published to International/National Conferences, Sessions, Workshops, Platform Meetings etc; of 12 books on Statistics, Manufacturing Technology, Geometrical Precision Inspection. Member of some professional associations, as Plastics Industry Producers Association – ASPAPLAST, ROMANIA, Rapid Manufacturing Association – RAPIMAN; has some international awards as: Best Innovation Award - at Brussels INNOVA Fair, 2007, Golden Medal – in INVENTIKA –2008, Bucharest, Romania.

Has papers presented in WSEAS Conferences, in 2008, 2009 and, also published in WSEAS Journals. Was invited Plenary Speaker in WSEAS Conferences, like Venice – November, 2008 ; Cambridge – February, 2009; Baltimore – November 2010. Has performed organizing activities for WSEAS Conferences in Bucharest, in June and, specially, in November, 2008 – when was General Chairman.

Authors Index

Ahmad, A. H.	118	Stale, G.	86	Rojc, M.	123
Talib, A. Z.	47, 80	Moreau, G.	99	Tumiran, M. A.	118
Cumani, A.	13	El-Bakry, H. M.	149	Mastorakis, N. E.	129
Polychronaki, A.	18	Watanabe, H.	53	Ndajah, P.	53
Silins, A.	106	Kikuchi, H.	53	Ploscan, C.	35
Koike, A.	23, 111	Murakami, H.	23, 111	Radu, A.	129
Emori, A.	111	Iliescu, M.	29, 35	Cakula, S.	86
Lee, B. S.	76	Gitas, I. Z.	18	Muramatsu, S.	53
Boboc, D.	35	Perez, V. I. De J.	93	Kawasaki, S.	23, 111
Jezek, B.	135	Ariffin, I.	118	Ahmmad, S. N. Z.	118
Rosidi, B.	118	Mlakar, I.	123	Croituru, S. M.	41
Zaki, C.	99	Komenda, J.	70	Kim, S. G.	76
Zhong, C.	99	Vanek, J.	135	Lee, S. K.	76
Lee, C.	76	Grundspenkis, J.	58	Baik, S. W.	76
Carneiro, C.	141	Hong, J.-M.	64	Oie, T.	23
Bisu, C. F.	41	Gamba, J.	111	Lam, T. K.	80
Comanescu, B.	29	Binde, J.	106	Balaz, T.	70
Constantin, C.	41	Antos, K.	135	Katagis, T.	18
Aizstrauta, D.	106	Osis, K.	58	Tiganu, I.	35
Dumitrescu, D.	29	Jung, K.-M.	64	Toadere, F.	129
Ginters, E.	106	Choi, K.-S.	64	Velea, G.	29
Supriyanto, E.	118	Woo, K. D.	76	Tourre, V.	99
Morello, E.	141	Kang, K. I.	76	Rybak, V.	93
Golay, F.	141	Kim, L. C.	47	Awad, W. A.	149
Racek, F.	70	Salim, M. I. M.	118	Ahn, Y.-K.	64
Constantin, G.	41	Mateescu, M.	18	Park, Y.-C.	64
Desthieux, G.	141	Yukawa, M.	53	In, Y.	23
		Higuchi, M.	23, 111		