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ADVANCES IN MARKETING, MANAGEMENT AND FINANCES

Proceedings of the 3rd International Conference on Management, Marketing and Finances

Houston, USA,
April 30-May 2, 2009

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Preface

This year the 3ʳᵈ WSEAS International Conference on Management, Marketing and Finances was held in Houston, USA. The Conference remains faithful to its original idea of providing a platform to discuss theoretical and applicative aspects of organisational behaviour, group dynamics, organisational design, business management, financial management, financial accounting, decision analysis 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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Keynote Lecture 1

Four Open Mathematical Problems Related to Computer Graphics and Geometric Modeling
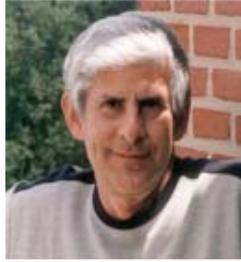
Professor Ron Goldman
Department of Computer Science
Rice University

Abstract: Four unsolved problems that originate from research in Computer Graphics and Geometric Modeling will be presented. The first problem involves understanding the notion oscillation for Bezier surfaces, the freeform polynomial surfaces most common in Computer Graphics and Geometric Modeling. The second problem concerns gnerating smooth (C2) surfaces via subdivision from triangular or quadrilateral meshes of arbitrary topology. The third problem is related to Bezier curves and univariate Bernstein polynomials, and concerns the combinatorics of symmetrizing multiaffine functions. The fourth and final problem pertains to fractals and asks if there is an algorithm to determine whether two arbitrary sets of contractive affine transformations generate the same fractal.

Brief Biography of the Speaker: Ron Goldman is a Professor of Computer Science at Rice University in Houston, Texas. Professor Goldman received his B.S. in Mathematics from the Massachusetts Institute of Technology in 1968 and his M.A. and Ph.D. in Mathematics from Johns Hopkins University in 1973. He is an associate editor of Computer Aided Geometric Design. In 2002, he published a book on Pyramid Algorithms: A Dynamic Programming Approach to Curves and Surfaces for Geometric Modeling. Dr. Goldman's current research interests lie in the mathematical representation, manipulation, and analysis of shape using computers. His work includes research in computer aided geometric design, solid modeling, computer graphics, and splines. He is particularly interested in algorithms for polynomial and piecewise polynomial curves and surfaces, and he is currently investigating applications of algebraic and differential geometry to geometric modeling. He has published over a hundred articles in journals, books, and conference proceedings on these and related topics. Before returning to academia, Dr. Goldman worked for ten years in industry solving problems in computer graphics, geometric modeling, and computer aided design. He served as a Mathematician at Manufacturing Data Systems Inc., where he helped to implement one of the first industrial solid modeling systems. Later he worked as a Senior Design Engineer at Ford Motor Company, enhancing the capabilities of their corporate graphics and computer aided design software. From Ford he moved on to Control Data Corporation, where he was a Principal Consultant for the development group devoted to computer aided design and manufacture. His responsibilities included data base design, algorithms, education, acquisitions, and research. Dr. Goldman left Control Data Corporation in 1987 to become an Associate Professor of Computer Science at the University of Waterloo in Ontario, Canada. He joined the faculty at Rice University in Houston, Texas as a Professor of Computer Science in July 1990.

Keynote Lecture 2

Cardiovascular Informatics: How to Stop a Heart Attack Before it Happens

Professor Ioannis A. Kakadiaris
Computational Biomedicine Lab Depts. of CS, ECE
Biomedical Engineering, University of Houston

Abstract: In this talk, first I will offer a short overview of the research activities of the Computational Biomedicine Laboratory, University of Houston. Then, I will present our research in the area of biomedical image computing for the mining of information from cardiovascular imaging data for the detection of persons with a high likelihood of developing a heart attack in the near future (vulnerable patients). Specifically, I'll present methods for detection and segmentation of anatomical structures, and shape and motion estimation of dynamic organs. The left ventricle in non-invasive cardiac MRI data is extracted using a novel multi-class, multi-feature fuzzy connectedness method and deformable models for shape and volume estimation. In non-invasive cardiac CT data, the thoracic fat is detected using a relaxed version of multi-class, multi-feature fuzzy connectedness method. Additionally, the calcified lesions in the coronary arteries are also identified and quantified using a novel hierarchical supervised learning framework from the CT data. In non-invasive contrast-enhanced CT, the coronary arteries are detected using our novel tubular shape detection method for motion estimation and possibly, for non-calcified lesion detection. In invasive IVUS imaging, our team has developed a unique IVUS acquisition protocol and novel signal/image analysis methods) for the detection (for the first time in?vivo) of 'vasa vasorum' (VV). The VV are micro-vessels that are commonly present to feed the walls of larger vessels; however, recent clinical evidence has uncovered their tendency to proliferate around areas of inflammation, including the inflammation associated with vulnerable plaques. In summary, our work is focused on developing novel computational tools to mine quantitative parameters from the imaging data for early detection of asymptomatic cardiovascular patient. The expected impact of our work stems from the fact that sudden heart attack remains the number one cause of death in the US, and unpredicted heart attacks account for the majority of the $280 billion burden of cardiovascular diseases.

Brief Biography of the Speaker: Prof. Ioannis A. Kakadiaris is an Eckhard Pfeiffer Professor of Computer Science, Electrical & Computer Engineering, and Biomedical Engineering at the University of Houston. He joined UH in August 1997 after a postdoctoral fellowship at the University of Pennsylvania. Ioannis earned his B.Sc. in physics at the University of Athens in Greece, his M.Sc. in computer science from Northeastern University and his Ph. D. at the University of Pennsylvania. He is the founder of the Computational Biomedicine Lab (www.cbl.uh.edu) and this year directs the Methodist-University of Houston-Weill Cornell Medical College Institute for Biomedical Imaging Sciences (IBIS) (ibis.uh.edu). His research interests include cardiovascular informatics, biomedical image analysis, biometrics, computer vision, and pattern recognition. Dr. Kakadiaris is the recipient of a number of awards, including the NSF Early Career Development Award, Schlumberger Technical Foundation Award, UH Computer Science Research Excellence Award, UH Enron Teaching Excellence Award, and the James Muller Vulnerable Plague Young Investigator Price. His research has been featured on Discovery Channel, National Public Radio, KPRC NBC News, KTRH ABC News, and KHOU CBS News.

Keynote Lecture 3

Compilation and Optimization for High Performance Computing

Professor Kleanthis Psarris
Department of Computer Science
The University of Texas at San Antonio
San Antonio, TX 78249
USA

Abstract: High end parallel and multi-core processors rely on compilers to perform the necessary optimizations and exploit concurrency in order to achieve higher performance. However, source code for high performance computers is extremely complex to analyze and optimize. In particular, program analysis techniques often do not take into account complex expressions during the data dependence analysis phase. Most data dependence tests are only able to analyze linear expressions, even though non-linear expressions occur very often in practice. Therefore, considerable amounts of potential parallelism remain unexploited. In this talk we propose new data dependence analysis techniques to handle such complex instances of the dependence problem and increase program parallelization. Our method is based on a set of polynomial time techniques that can prove or disprove dependences in source codes with non-linear and symbolic expressions, complex loop bounds, arrays with coupled subscripts, and if-statement constraints. In addition our algorithm can produce accurate and complete direction vector information, enabling the compiler to apply further transformations. To validate our method we performed an experimental evaluation and comparison against the I-Test, the Omega test and the Range test in the Perfect and SPEC benchmarks. The experimental results indicate that our dependence analysis tool is accurate, efficient and more effective in program parallelization than the other dependence tests. The improved parallelization results into higher speedups and better program execution performance in several benchmarks.

Brief Biography of the Speaker: Kleanthis Psarris is Professor and Chair of the Department of Computer Science at the University of Texas at San Antonio. His research interests are in the areas of Parallel and Distributed Systems, Compilers and Programming Languages. He received his B.S. degree in Mathematics from the National University of Athens, Greece in 1984. He received his M.S. degree in Computer Science in 1987, his M.Eng. degree in Electrical Engineering in 1989 and his Ph.D. degree in Computer Science in 1991, all from Stevens Institute of Technology in Hoboken, New Jersey. He has published extensively in top journals and conferences in the field and his research has been funded by the National Science Foundation and Department of Defense agencies. He is an Editor of the Parallel Computing journal. He has served on the Program Committees of several international conferences including the ACM International Conference on Supercomputing (ICS) in 1995, 2000, 2006 and 2008, the IEEE International Conference on High Performance Computing and Communications (HPCC) in 2008 and 2009, and the ACM Symposium on Applied Computing (SAC) in 2003, 2004, 2005 and 2006.

Keynote Lecture 4

If It's Fast It Must Be Newton's Method

Professor Richard Tapia
Computational & Applied Mathematics Department
Rice University
Houston, TX
USA

Abstract: Shifted inverse and Rayleigh quotient iteration are well-known algorithms for computing an eigenvector of a symmetric matrix. In this talk we demonstrate that each of these algorithms can be viewed as a standard form of Newton's method from the nonlinear programming literature. This provides an explanation for their good behavior despite the need to solve systems with nearly singular coefficient matrices. Our equivalence result also leads us naturally to a new proof that the convergence of the Rayleigh quotient iteration is q-cubic with rate constant at worst 1.

Brief Biography of the Speaker: Dr. Tapia is a mathematician and professor in the Department of Computational and Applied Mathematics at Rice University in Houston, Texas. He is internationally known for his research in the computational and mathematical sciences and is a national leader in education and outreach. His current Rice positions are University Professor, Maxfield Oshman Professor in Engineering, Associate Director of Graduate Studies, and Director of the Center for Excellence and Equity in Education. Among his many honors, he was the first Hispanic elected to the National Academy of Engineering. In 1996 President Clinton appointed him to the National Science Board. From 2001 to 2004 he chaired the National Research Council's Board on Higher Education and the Workforce. He has received the National Science Foundation's inaugural Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring; and the Lifetime Mentor Award from the American Association for the Advancement of Science. He was also named one of 20 most influential leaders in minority math education by the National Research Council. Currently, his NSF-supported programs, Alliances for Graduate Education in the Professoriate, and the Empowering Leadership Alliance have developed supportive communities of students and faculty members that ensure the success of underrepresented individuals in STEM fields at U.S. institutions of higher learning. Professor Tapia is recognized as a national leader in diversity and has delivered numerous invited addresses at national and international mathematics conferences, served on university diversity committees, and provided leadership at a national level.

Keynote Lecture 5

Geometric Analysis of SL(2,C) and Biologically-Mediated Computational Vision

Professor Jacek Turski
University of Houston-Downtown
Department of Computer and Mathematical Sciences
USA

Abstract: The group SL(2,C) of 2x2 complex matrices of determinant one occupies a truly remarkable place in mathematics and sciences. For example, it is inherently relevant to non-Euclidean geometries, modern complex analysis, and Einstein's special theory of relativity. In our work, SL(2,C) provides unified geometrical and numerical framework for computational vision, including visual neuroscience and machine vision systems.

The conformal camera, which models eyes imaging functions, produces image projective transformations generated by the linear-fractional mappings of the group SL(2,C). Thus, the camera's underlying geometry can be dually described as (1) one-dimensional complex projective geometry and (2) the conformal geometry imposed by the holomorphic complex structure of the Riemann sphere, also called Mobius, or inversive geometry. Although this geometry does not possess a distance, it provides a full set of descriptors for the Gestalt rules used in grouping fragmented contours into global shapes that primate visual system must solve when viewing natural images—one of the most difficult problems to model numerically. The unity of geometrical and numerical methods is established by the fact that the conformal camera has its own projective Fourier analysis, geometric Fourier analysis constructed on the group SL(2,C) in the framework of representation theory of semisimple Lie groups—a great achievement of the 20th century mathematics. Projective Fourier transform (PFT) provides image representation well adapted to both perspective transformations of retinal images and the retinotopy of the brain's visual and oculomotor pathways. Thus, PFT integrates the head, eyes, and visual cortex into one computational system. We use this binocular system to process visual information during fast scanning eye movements called saccades, employed to build up understanding of scenes despite the acuity limitations of foveate vision. We make about three saccades per second at the eyeball's maximum speed of 700 deg/sec. Visual sensitivity is markedly reduced, as we do not see moving retinal images. Despite these incisive eye movements, the fragmented pieces of visual information are integrated in the brain into a stable percept of the world. This visual constancy is maintained by neuronal receptive field shifts prior to saccade onset in various retinotopically organized cortical areas. These shifts give the brain access to visual information at the impending saccade target prior to the eyes' arrival. It integrates visual information across saccades and eliminates the need for starting visual information acquisition anew three times per second at each fixation. However this remapping is not perfect; around the time of saccades, the flashed probes are not perceived in veridical locations by humans in laboratory experiments, a phenomenon called perisaccadic mislocalization.

In our modeling of perisaccadic perception, we utilize basic properties of PFT. First, the PFT can be efficiently computed by a fast Fourier transform in logarithmic coordinates that approximate the retinotopy. Second, a simple translation in retinotopic (logarithmic) coordinates, modeled by the standard shift property of Fourier transform, remaps the presaccadic scene into a postsaccadic reference frame. This shift also accounts for the perisaccadic mislocalization.

This research program is guided by a strategy important in the contemporary neurocomputing research: linking known anatomical and physiological details with efficient computational modeling should be vital not only to emerging field of neural engineering but also to interpreting relevant neurophysiological data.

Brief Biography of the Speaker: Jacek Turski was awarded his Ph.D. from McGill University. After holding postdoctoral positions at the University of Manitoba and the University of Houston, he joined the University of Houston-Downtown where he is now a full professor in the Department of Computer and Mathematical Sciences. Five years ago Turski constructed projective Fourier analysis of the conformal camera in the framework of the representation theory of semisimple Lie groups. Based on this Fourier analysis, he is currently developing a physiologically realistic model of human and robotic vision systems. His research has been supported by the NSF grants. He was the recipient of the 2006 Scholarship/Creativity Award at UHD.

Plenary Lecture 1

Marketing Research about Attitudes, Difficulties and Interest of Academic Community about Institutional Repository

Professor Angela Repanovici
Transilvania University of Brasov,
ROMANIA

Abstract: The greatest obstacle to any change in the fundamental structure of scholarly communication lies in the inertia of the traditional publishing paradigm. And nowhere is that inertia more profound—and understandable, given the professional stakes—than amongst academic faculty. Unlike trade publishing, academic authors rarely receive direct compensation for the research articles they publish. Rather, they publish for professional recognition and career advancement, as well as to contribute to scholarship in their discipline. Accommodating these faculty needs and perceptions—and demonstrating the relevance of an institutional repository in achieving them—must be central to content policies and implementation plans.

The principal author benefits of online open access to their research pertain to enhanced professional visibility. This visibility and awareness is driven by both broader dissemination and increased use. No library can afford a subscription to every possible journal—regardless of publication quality—rendering much of the research literature inaccessible to many researchers.

Method: Using FEDORA, free and open software it is realised one small repository with scientific product of Fine Mechanics and Mecatronics Department of Transilvania University of Brasov. FEDORA, Open Source Technology, is used for: Storage (Repository technologies to ensure longevity and integrity for any kind of digital content), Semantics (Semantic technologies to contextualize and inter-relate digital content from many sources) and Services (Collaborative technologies to enable the creation of innovative, collaborative information spaces).

Marketing research: Identifying and understanding users. To populate a digital repository with useful materials, a professional development team needs to identify and sufficiently understand the needs of their service's primary users. After the small repository is created, people are expected to become users; however, new users will not necessarily recognize a service's value unless it is sufficiently publicised.

1. LexiURL link analysis

LexiURL is free software designed to retrieve link data from search engines, like Yahoo!, Google, or AltaVista and calculate summary statistics for lists of links or URLs. Its output is a series of standard reports that convey information about page URLs, sites and Web domains linking to a main site of interest. Although LexiURL is a flexible, generic program, many of its functions are useful for a digital repository link analysis.

2. ONLINE QUESTIONARY

The results of our user survey provided us with current information concerning the perceptions some users have of the repositories, what they want or need from them and how they approach them on the Web. Our survey was carried out on the Internet using a Web-based questionnaire. To obtain participants we compiled a set of relevant mailing lists on the Internet (e.g., mailing lists for health care professionals, lecturers, educators, researchers etc who would likely be interested in the repository's content) and sent out announcements regarding our questionnaire through the lists.

Analyses and Results:

Repository managers are focused on how to develop their repositories and they are intented on encouraging individuals to deposit, but over time they will have to focus more on understanding long-term user needs. A user-based focus will become especially important for managers of e-learning repositories because the expected value of e-learning objects will have great interest fro the lecturers and students in higher education.

Based on the survey information generated from non-users, repository managers should not assume that non-use of their resource is due to an ignorance of or lack of familiarity with digital resources. Potential users could be using other types of digital libraries and repositories; therefore, it is a good best management practice to try to find out more about what is attracting them to other repositories (online competitors possibly) and develop publicity programmes that will bring people up to date on what makes their resource especially valuable.

Conclusion:

Institutional repositories offer a strategic response both to the opportunities of the digital networked environment and to the systemic problems in the today's scholarly journal system. This response can be applied immediately, reaping both short-term and on-going benefits for universities and their faculty and advancing the transformation of scholarly communication over the long term.

Brief Biography of the Speaker:• From December 2003, by contest, Professor at the Fine Mechanics and Mechatronics Department , Mechanical Engineering Faculty and Department of Library Science, Letters Faculty
 • From 2001-2008 University Library Director
 • From 2006-2008, President of National Commision Library
 • From 2005, Coordinator of the area of specialisation Information Science and Communication within the Faculty of Letters, open and distance learning;
POST GRADUATE SPECIALISATION
1983-1988, University of Brasov, Faculty of Mechanics, specialization Fine Mechanics
1999 PhD in Technical Sciences
2003 Postgraduate training course - Quality Management
2006 Postgraduate training course - Communication and Information Sciences;
From 2006 PHd candidate in field of Economical Science, Marketing, cotutela Library Science
COMPETENCIES SKILLS
    • Information literacy
    • Information science
    • Typografic and digitization systems
    • Management of infodocumentary systems
    • Informatization systems
    SCIENTIFIC ACTIVITY:
 Books published in main publishing houses: 8
Articles published: 157
Patents: 1
RESEARCH ACTIVITY:
Director of 5 research national projects in engineering applied in library science
INITIATION and DEVELOPMENT OF INTERNATIONAL PROGRAMMES:
LEONARDO DA VINCI PROJECT 2005-2006: No. RO/2005/95006/EX;
LEONARDO DA VINCI PROJECT 2003-2004: No. RO/2003/PL 91017/EX
Organiser,editor of International Conference in Information Science, BIBLIO Brasov 2002-2007
PLENARY LECTURE:
The 4th WSEAS/IASME International Conference on EDUCATIONAL TECHNOLOGIES (EDUTE'08), Corfu Island, Crete, 26-28 October 2008, Plenary Lecture, Information Technology Implication in Student Behaviour for Information Literacy Skills
Internet Librarian International 2008, London, 16-18 October 2008, Conference Speaker, Marketing research in Internet resourses, User needs analyse
    MEMBERSHIP IN INTERNATIONAL ORGANISATIONS
 • Member AGIR (General Association of Engineers in Romania)
 • Member SRMTA (Romanian Ssociety of Theoretical and Applied Mechanics)
 • European Association for Health Information and Libraries (EAHIL)

Plenary Lecture 2

Towards Pervasive Business Intelligence: Advances in Location Intelligence

Professor Zeljko Panian
The Faculty of Economics and Business
University of Zagreb
Croatia

Abstract: In a long term, business intelligence (BI) tends to become multi-prone and pervasive. One of the emerging forms of BI is Location-based Intelligence or, simply, Location Intelligence (LI).

According to Webster's dictionary, intelligence is "the ability to learn or understand, or the ability to apply knowledge to manipulate one's environment". On other hand, more than 80% of all data maintained by businesses and organizations around the world has a location component. Spatial information, commonly known as "location", relates to involving, or having the nature of where. Although spatial is not constrained to a geographic location, most common business uses of spatial information deal with how spatial information is tied to a location on the Earth.

Combining the terms intelligence and location alludes to how you achieve an understanding of the spatial aspect of information and apply it to achieve a significant competitive advantage.

Using economics, demographics, physical geography and other data pertaining to location, location intelligence helps detect patterns, risks, and opportunities often difficult to see in basic types of analysis, e.g. spreadsheet analysis.

It will be discussed how LI can be used by businesses and enterprises to improve their performance and gain competitive advantage in some important areas of contemporary business, like marketing, retail, financial services, insurance, logistics, public sector and even e-commerce e-business, which are commonly considered to be geographically independent.

Brief Biography of the Speaker: Zeljko Panian is full professor of business informatics at The Faculty of Economics and Business, University of Zagreb, Croatia. He received his master degree in 1978 and Ph. D. in 1981 at the University of Zagreb. His scientific interests are primarily focused on Enterprise Information Systems, e-Business and Business Intelligence.

He wrote 32 books and more than 150 scientific and professional papers, and lectured as a visiting professor at the People's University of China at Beijing, Florida State University in Tellahassee (USA), University of Maribor (Slovenia) and University of Sarajevo and Mostar (Bosnia and Herzegovina), as well as nearly all universities in Croatia.

For several times, he delivered invited, keynote and plenary speeches at WSEAS and other international conferences and symposiums.

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