

**JOURNAL OF INFORMATION SYSTEMS &
OPERATIONS MANAGEMENT**

**Vol. 8 No. 2
December 2014**



**EDITURA UNIVERSITARĂ
București**

Foreword

Welcome to the Journal of Information Systems & Operations Management (ISSN 1843-4711; IDB indexation: ProQuest, REPEC, QBE, EBSCO, COPERNICUS). This journal is an open access journal published two times a year by the Romanian-American University.

The published articles focus on IT&C and belong to national and international researchers, professors who want to share their results of research, to share ideas, to speak about their expertise and Ph.D. students who want to improve their knowledge, to present their emerging doctoral research.

Being a challenging and a favorable medium for scientific discussions, all the issues of the journal contain articles dealing with current issues from *computer science, economics, management, IT&C*, etc. Furthermore, JISOM encourages the cross-disciplinary research of national and international researchers and welcomes the contributions which give a special “touch and flavor” to the mentioned fields. Each article undergoes a double-blind review from an internationally and nationally recognized pool of reviewers.

JISOM thanks all the authors who contributed to this journal by submitting their work to be published, and also thanks to all reviewers who helped and spared their valuable time in reviewing and evaluating the manuscripts.

Last but not least, JISOM aims at being one of the distinguished journals in the mentioned fields.

Looking forward to receiving your contributions,

Best Wishes

Virgil Chichernea, Ph.D.

Editor-in-Chief

JOURNAL OF INFORMATION SYSTEMS & OPERATIONS MANAGEMENT

GENERAL MANAGER

Professor Ovidiu Folcut

EDITOR IN CHIEF

Professor Virgil Chichernea

EDITORIAL BOARD

Academician Gheorghe Păun	Romanian Academy
Academician Mircea Stelian Petrescu	Romanian Academy
Professor Eduard Radaceanu	Romanian Technical Academy
Professor Ronald Carrier	James Madison University, U.S.A.
Professor Pauline Cushman	James Madison University, U.S.A.
Professor Ramon Mata-Toledo	James Madison University, U.S.A.
Professor Allan Berg	University of Dallas, U.S.A.
Professor Kent Zimmerman	James Madison University, U.S.A.
Professor Traian Muntean	Universite de la Mediterranee, Aix – Marseille II , FRANCE
Associate. Professor Susan Kruc	James Madison University, U.S.A.
Associate Professor Mihaela Paun	Louisiana Tech University, U.S.A.
Professor Cornelia Botezatu	Romanian-American University
Professor Ion Ivan	Academy of Economic Studies
Professor Radu Șerban	Academy of Economic Studies
Professor Ion Smeureanu	Academy of Economic Studies
Professor Floarea Năstase	Academy of Economic Studies
Professor Sergiu Iliescu	University “Politehnica” Bucharest
Professor Victor Patriciu	National Technical Defence University, Romania
Professor Lucia Rusu	University “Babes-Bolyai” Cluj Napoca
Associate Professor Sanda Micula	University “Babes-Bolyai” Cluj Napoca
Professor Ion Bucur	University “Politehnica” Bucharest
Associate Professor Costin Boianuiu	University “Politehnica” Bucharest
Associate Professor Irina Fagarasanu	University “Politehnica” Bucharest
Associate Professor Viorel Marinescu	The Technical University of Civil Engineering Bucharest
Associate Professor George Carutasu	Romanian-American University
Associate Professor Cristina Coculescu	Romanian-American University
Associate Professor Daniela Crisan	Romanian-American University
Lecturer Alexandru Tabusca	Romanian-American University
Senior Staff Text Processing:	
Lecturer Gabriel Eugen Garais	Romanian-American University
Assistant lecturer Mariana Coancă	Romanian-American University
Assistant lecturer Dragos-Paul Pop	Romanian-American University

JISOM journal details 2014

No.	Item	Value
1	Category 2010 (by CNCSIS)	B+
2	CNCSIS Code	844
3	Complete title / IDB title	JOURNAL OF INFORMATION SYSTEMS & OPERATIONS MANAGEMENT
4	ISSN (print and/or electronic)	1843-4711
5	Frequency	SEMESTRIAL
6	Journal website (direct link to journal section)	http://JISOM.RAU.RO
7	IDB indexation (direct link to journal section / search interface)	ProQuest EBSCO REPEC http://ideas.repec.org/s/rau/jisomg.html COPERNICUS http://journals.indexcopernicus.com/karta.php?action=masterlist&id=5147 QBE

Contact

First name and last name	Virgil CHICHERNEA, PhD Professor
Phone	+4-0729-140815 +4-021-2029513
E-mail	chichernea.virgil@profesor.rau.ro vchichernea@gmail.com

ISSN: 1843-4711

The Proceedings of Journal ISOM Vol. 8 No. 2

CONTENTS

Editorial

<i>Rezarta Shkurti (Perri)</i> <i>Enita Muça</i>	<i>AN ANALYSIS OF CLOUD COMPUTING AND ITS ROLE IN ACCOUNTING INDUSTRY IN ALBANIA</i>	219
<i>Adela Bara</i> <i>Ion Lungu</i> <i>Simona Vasilica Oprea</i> <i>George Carutasu</i> <i>Cornelia Paulina Botezatu</i> <i>Cezar Botezatu</i>	<i>DESIGN WORKFLOW FOR CLOUD SERVICE INFORMATION SYSTEM FOR INTEGRATION AND KNOWLEDGE MANAGEMENT BASED IN RENEWABLE ENERGY</i>	230
<i>Virgil Chichernea</i>	<i>THE USE OF DECISION SUPPORT SYSTEMS (DSS) IN SMART CITY PLANNING AND MANAGEMENT</i>	238
<i>Emil Calofir</i> <i>Radu Ionut Dan</i> <i>Vlad Lionte</i> <i>Ion Bucur</i>	<i>IMAGE RECONSTRUCTION AFTER A SUCCESSION OF 2:1 DOWNSAMPLING – UPSAMPLING</i>	252
<i>Elena Moise</i> <i>Cristina Coculescu</i> <i>George Căruțașu</i>	<i>EDUCATION THROUGH SIMULATED ENTERPRISE</i>	262
<i>Sanda Micula</i>	<i>NONLINEAR EQUATIONS IN MATLAB</i>	272
<i>Silvia Elena Cristache</i> <i>Mihaela Gruiescu</i> <i>Daniela Șerban</i>	<i>STOCHASTIC MODELING OF ROMANIAN PRE- UNIVERSITY SYSTEM VARIABLES</i>	287
<i>Stănică Justina Lavinia</i> <i>Crișan Daniela Alexandra</i>	<i>LEARNING OBJECT ARCHITECTURE FOR DYNAMIC DEVELOPMENT OF MATHEMATICAL CONTENT</i>	297
<i>Alexandru Tăbușcă</i>	<i>AUGMENTED REALITY – NEED, OPPORTUNITY OR FASHION</i>	307
<i>Florin Manaila</i> <i>Costin-Anton Boiangiu</i> <i>Ion Bucur</i>	<i>SUPER RESOLUTION FROM MULTIPLE LOW RESOLUTION IMAGES</i>	316
<i>Sion Beatrice</i> <i>Cezar Mihălcescu</i> <i>Alexandra Mărginean</i>	<i>THE PREDICTION OF ECONOMIC EVOLUTION THROUGH REGRESSION AND EXTRAPOLATION</i>	323
<i>Andreea Bejgu</i> <i>Irina Mocanu</i>	<i>FACIAL EMOTION RECOGNITION USING KINECT</i>	333

<i>Costin-Anton Boiangiu Mihai Simion Vlad Lionte Zaharescu Mihai</i>	<i>VOTING BASED IMAGE BINARIZATION</i>	343
<i>Alexandru Pîrjan Dana-Mihaela Petroșanu</i>	<i>IMPROVING PARALLEL PROGRAMMING IN THE COMPUTE UNIFIED DEVICE ARCHITECTURE USING THE UNIFIED MEMORY FEATURE</i>	352
<i>Gabriel Eugen Garais</i>	<i>STATE OF THE ART HTML CODING MEETING SEARCH ENGINE OPTIMIZATION STANDARDS</i>	374
<i>Iordache Ana Maria Mihaela</i>	<i>CLOUDING COMPUTER AND MICROSOFT OFFICE 365</i>	383
<i>Bianca Steliana Pîra (Beșa)</i>	<i>PREPARING THE EURO CHANGEOVER – ROMANIA’S CASE</i>	392
<i>Dragos-Paul Pop</i>	<i>ONLINE TOOL FOR SOFT SKILLS EVALUATION AND EMPLOYEE MANAGEMENT</i>	410
<i>Diana Apostol Cristina Bălăceanu Elena Ilie</i>	<i>THE NEW ECONOMY, PREMISE OF SUSTAINABLE DEVELOPMENT</i>	420
<i>Ionela-Cătălina Zamfir Ana-Maria Mihaela Iordache</i>	<i>A CREDIT SCORE MODEL ON ROMANIAN REAL ESTATE MARKET USING SAS</i>	428
<i>Ștefan Cristian Gherghina</i>	<i>DESIGNING THE PRODUCTION RULES FOR AN EXPERT SYSTEM TOWARDS VALUATION LIQUIDITY AND SOLVENCY RISK</i>	438
<i>Dan Smedescu</i>	<i>E-LEARNING AND ITS IMPACT ON THE ACADEMIC CULTURAL ENVIRONMENT</i>	447
<i>Alexandru Blanda</i>	<i>FACIAL RECOGNITION BASED ON THE LOCAL BINARY PATTERNS MECHANISM</i>	456
<i>Andrei Danescu</i>	<i>DETECTING A PATTERN IN A VIDEO STREAM AFTER DENOISING AND COLOR FADING PREPROCESSING</i>	465
<i>Alin-Cristian Joița Floarea Năstase</i>	<i>SEEDING PHASE SOFTWARE ARCHITECTURE MODEL FOR VIRTUAL BUSINESS INCUBATORS</i>	474
<i>Alexandra Ghecenco</i>	<i>PRINCIPLES OF IMAGE DEBLURRING</i>	488
<i>Irina Bocarov Mihai Zaharescu</i>	<i>PERCEPTUAL SYSTEMS APPROACH TO MEASURING IMAGE RESEMBLANCE</i>	498
<i>Gogâltan Nicoleta Maria</i>	<i>ANALYSIS OF THE EMPLOYMENT GROWTH AT REGIONAL LEVEL USING EIEWS SOFTWARE</i>	509

AN ANALYSIS OF CLOUD COMPUTING AND ITS ROLE IN ACCOUNTING INDUSTRY IN ALBANIA

Rezarta Shkurti (Perri)¹
Enita Muça²

ABSTRACT

Recent advances in information technology have significantly changed the accounting industry and financial reporting practices. The Internet, which is probably the most important factor in an ever changing organization, is playing a vital role in internal environment of the practicing accounting and auditing firms which tend to support the development of technological innovations in terms of collecting, storing, processing and reporting information. These firms tend to employ models which are simultaneously cost efficient and operational efficient. Cloud computing as a technology based entirely on the internet and which facilitates the management and delivery of computing services through the network seems to be the ideal response that meets these needs. Through this paper we will highlight the effects of this technology in accounting information systems and financial performance having in focus companies that operate in Albania. We find that even though the level of information about cloud computing is considerable, the sources of information are not as much from business background but rather from academic sources and individual studies. We also find that the greatest benefits of cloud computing technology are perceived to be cost savings both in hardware and software, while information security and reliability are mentioned as its biggest drawbacks.

Keywords: Cloud Computing, information technology, accounting information system

JEL Classification Code: M41

¹ PhD Prof. Asoc. University of Tirana, Department of Accounting, Rruga e Elbasanit, Tirana, Albania, Email: rezartaperri@feut.edu.al; rezartaperri@gmail.com

² Master of Science in Accounting and Auditing, Union Bank, Blvd “Zogu I”, Tirana, Albania, Email: enitamuca@yahoo.com

DESIGN WORKFLOW FOR CLOUD SERVICE INFORMATION SYSTEM FOR INTEGRATION AND KNOWLEDGE MANAGEMENT BASED IN RENEWABLE ENERGY

Associate Professor Adela Bara,
Professor Ion Lungu
Phd Simona Vasilica Oprea
Associate Professor George Carutasu¹
Professor Cornelia Paulina Botezatu²
Associate Professor Cezar Botezatu

ABSTRACT:

The article presents the state of the art in decision support systems in energy field and further, the future work plan for design development of cloud service information system for integration and knowledge management based in renewable energy. The research is part of SIPAMER project, financed by NASR agency.

Keywords: renewable energy, decision support systems, data mining, business intelligence

THE USE OF DECISION SUPPORT SYSTEMS (DSS) IN SMART CITY PLANNING AND MANAGEMENT

Virgil Chichernea³

ABSTRACT

The components of a Decision Support System (DSS) offer the strategic, tactical and operational decision makers the required tools to plan and complete the set of projects necessary for the development of a Smart City and/or Smart Home. The rapid evolution of Information and Communication Technologies (ICT), Cloud Computing Services, the Internet-of-Things, Everything-as-a-Service (XaaS), as well as the development of new mathematical models, artificial intelligence and data storage capabilities, position DSS at a unique advantage as a continuously improving tool in the process of planning and completing complex projects. This paper presents the concepts of decisions, decision modeling and decision making, decision support systems, collaborative systems etc. and how these concepts can be useful in the context of a Smart City development project.

Keywords: Decision Support Systems, Information Society, ICT platform, Internet-of-Thing (IoT) , Everything-as-a Service (XaaS), Smart City, Web-based DSS.

¹ The Bucharest University of Economic Study, Bucharest – Romania, E-mail carutasu.george@profesor.rau.ro

² Romanian-American University, Bucharest – Romania, E-mail botezatu.cornelia.paulina@profesor.rau.ro

³ Professor, PhD, Romanian-American University, Computer Science for Business Management, vchichernea@gmail.com

IMAGE RECONSTRUCTION AFTER A SUCCESSION OF 2:1 DOWNSAMPLING – UPSAMPLING

Emil Calofir⁴
Radu Ionut Dan⁵
Vlad Lionte⁶
Ion Bucur⁷

ABSTRACT

Video streaming had a long way to walk from its first days in the 90's until nowadays. In the year 2012 people were watching over 4 billion video clips every day on YouTube, according to Reuters. The transmission of video information towards unstable networks becomes a problem and new methods are created in order to prevent this kind of situations. In this work is presented such a method, which confers to some user with no stable internet connection a nice and continuous streaming experience.

Keywords: video streaming, network, compression

EDUCATION THROUGH SIMULATED ENTERPRISE

Elena Moise
Cristina Coculescu⁸
George Căruțașu

ABSTRACT

Current economic context, characterized by the expansion and intensification of globalization and profound generate major changes in all areas of activity, both at micro and macroeconomic and social level. The rapid pace of these changes significantly affect the evolution of the labor market, acting as a result of interactions between vector competence and skills supply and labor demand. To ensure equilibrium in the labor market, the educational system must continuously adapt theoretical and practical methods to form appropriate human resources specializations, well prepared in terms of professional and managerial skills. In this regard, the simulated enterprise is an interactive method suitable for teaching and deepen knowledge and developing entrepreneurship. In a virtual environment, simulated enterprise enables modeling all activities and processes that can take place in a real organization, providing a bridge between theory and practice. In this paper we present some of the results of the approach taken to develop the methodology for

⁴ Engineer , emil.calofir@aut.pub.ro, "Politehnica" University of Bucharest, 060042 Bucharest, Romania

⁵ Engineer , radu.dan0210@aut.pub.ro, "Politehnica" University of Bucharest, 060042 Bucharest, Romania

⁶ Engineer , vlad.lionte@cti.pub.ro, "Politehnica" University of Bucharest, 060042 Bucharest, Romania

⁷ Associate Professor PhD Eng., ion.bucur@cs.pub.ro , "Politehnica" University of Bucharest, 060042 Bucharest, Romania

⁸ Ph.D. Associate Professor Romanian-American University, Bucharest – Romania, E-mail cristina.coculescu@yahoo.com

establishing and running a business providing interactive simulation as a method of learning.

Keyword: education, skills, abilities, simulated enterprise

JEL code: A2, C7, D1, D2

NONLINEAR EQUATIONS IN MATLAB

Sanda Micula⁹

ABSTRACT

In this paper, we explore numerical methods for solving nonlinear equations using MATLAB. We present the most widely used iterative methods for nonlinear equations and MATLAB features for finding numerical solutions. The paper concludes with numerical examples.

AMS Subject Classification: 12E12, 39B12, 65D17, 65H04, 65K05, 65H04.

Keywords: Numerical Analysis, nonlinear equations, Newton's method, numerical approximations, polynomial equations, MATLAB.

STOCHASTIC MODELING OF ROMANIAN PRE-UNIVERSITY SYSTEM VARIABLES

Silvia Elena Cristache¹⁰

Mihaela Gruiescu¹¹

Daniela Șerban¹²

ABSTRACT:

This study is based on analyzes of comparative statistical correlations in education based on secondary data provided by the Romanian Statistical Year book characterizing the Romanian pre-university education system. The originality of this work lies in combining research methods and statistical techniques used for time series for characterizing macroeconomic variables of the education system as school population, number of teachers

⁹ Department of Mathematics and Computer Science, Babeș-Bolyai University, Cluj-Napoca, smicula@math.ubbcluj.ro

¹⁰ Silvia Elena Cristache Professor of Statistics at the University of Economic Studies in Bucharest, E-mail: csilvia2005@yahoo.com

¹¹ Mihaela Gruiescu is Associate Professor of Statistics at the Romanian American University in Bucharest, E-mail: mgruiescu@yahoo.com

¹² Daniela Șerban Professor of Statistics at the University of Economic Studies in Bucharest, E-mail: danielaserban2002@yahoo.com.

in secondary education, the number of graduates, the degree of inclusion in education, and GDP allocated to education.

The objective of this paper is to present the general frame work of the Romanian pre-university education system in order to identify the general features and areas where steps can be taken to improve the quality and increase efficiency. The Romanian educational system is seen in its correlation with the labor market inducing the need to reorient and reconvert graduates according to the needs of the labour market.

Keywords: correlation and regression method, pre-university education system, factorial analyses, macro-economic indicators, primary cycle, secondary cycle, vocational school.

LEARNING OBJECT ARCHITECTURE FOR DYNAMIC DEVELOPMENT OF MATHEMATICAL CONTENT

*Stănică Justina Lavinia¹³
Crișan Daniela Alexandra¹⁴*

ABSTRACT:

Learning objects are elements of a new architecture, which provides the educational content in a dynamic manner. The current paper wanted to highlight the advantages of implementing this technology in educational software development. This idea led to the development of an original training system for mathematics, which gives teachers an effective tool that lets them create and customize lessons by easily configuring and assembling reusable objects. The advantages of using such a system can be summarized as follows: the reduction of development efforts for creating the educational content; the ability to quickly change the training materials; the ability to create multiple versions of resources; the ease of searching and retrieving learning resources; the significant increase of reusing the learning content.

Keywords: e-Learning, learning object, learning environment, learning architecture

AUGMENTED REALITY – NEED, OPPORTUNITY OR FASHION

Alexandru Tăbușcă¹⁵

ABSTRACT

This article is focused on the Augmented Reality realities, from the point of view of a software developer in 2014. The first introductory part of the paper aims to familiarize the reader with the Augmented Reality applications today, from code development, programming languages and choices, history and relations to QR codes, up to the different

¹³ Lecturer, Romanian-American University, Bucharest, email:lavinia.stanica@gmail.com

¹⁴ Associate Professor, Romanian-American University, Bucharest, email:dacrisan@yahoo.com

¹⁵ Lecturer, PhD, School of Computer Science for Business Management – Romanian-American University; e-mail: alextabusca@rau.ro

implementation options available today. The main practical, scientific, result presented within the article is a new application developed for upgrading a previous AR solution presented in 2013. This new application makes a step forward from the 2D user-oriented presentation previously used, to a virtual 3D presentation of the AR content.

**Keywords: AR, 3D, augmented reality, canvas, web services, QR, html5
SUPER RESOLUTION FROM MULTIPLE LOW RESOLUTION IMAGES**

*Florin Manaila¹⁶
Costin-Anton Boiangiu¹⁷
Ion Bucur¹⁸*

ABSTRACT

Although the technology of optical instruments is constantly advancing, the capture of high resolution images is limited by both the shortcomings of the imaging devices and the law of physics (uncertainty principle applied onto photons or the wave-like theory of light). The current paper presents an algorithm for processing a set of images sharing the same subject with the purpose of extracting a higher resolution output image of the subject, using partial information from every one of the low resolutions samples in the input set.

Keywords: super resolution, SR from LR, imaging devices, resolution enhancement, image alignment.

THE PREDICTION OF ECONOMIC EVOLUTION THROUGH REGRESSION AND EXTRAPOLATION

*Lecturer Sion Beatrice, Ph.D
Professor Cezar Mihălcescu, Phd
Assistant Alexandra Mărginean, Ph.D¹⁹*

ABSTRACT

Predictive methods aim at the anticipation of future decisions based on the already existing information, in order to envisage certain scenarios.

Regression is a method of statistical analysis through which, once certain values are assigned to a dependant variable y and to one or more independent variables x_j ($j=1, \dots, m$), a simple expression of the function that expresses the connection between them is sought.

¹⁶ Engineer, florin.manaila@cti.pub.ro, "Politehnica" University of Bucharest, 060042 Bucharest, Romania

¹⁷ Associate Professor PhD Eng., costin.boiangiu@cs.pub.ro, "Politehnica" University of Bucharest, 060042 Bucharest, Romania

¹⁸ Associate Professor PhD Eng., ion.bucur@cs.pub.ro, "Politehnica" University of Bucharest, 060042 Bucharest, Romania

¹⁹ School of Domestic and International Economy of Tourism, Romanian-American University, beatrice_sion@yahoo.com, cezar_mihalcescu@hotmail.com, marginean.alexandra.roxana@profesor.rau.ro

**Key words: prediction, linear regression, square regression, cubic regression
FACIAL EMOTION RECOGNITION USING KINECT**

Andreea Bejgu²⁰

Irina Mocanu²¹

ABSTRACT

This paper aims to investigate different methods for recognition of human emotion based on facial expression. The facial emotions may be used to perform association with various elements from the environment to reflect the user's status. User interactions are achieved using a Kinect sensor. RGB images provided by Kinect are processed and significant face features are computed and represented as Action Units (AUs). These AUs are used for emotion recognition using different machine learning algorithms: Multi Layer Perceptron, RBF Networks (normalized Gaussian radial basis function network), J48 Tree (Class for generating a pruned or unpruned C4.5 decision tree), NNge Rule (Nearest-neighbor-like algorithm using non-nested generalized exemplars), Simple Logistic (linear logistic regression models), SMO (John Platt's sequential minimal optimization algorithm for training a support vector classifier) and Naïve Bayes. The application is tested using 5 users for 7 emotions: neutral, angry, sadness, joy, disgust, fear and surprise. We obtained an average accuracy of 62.5%. The best accuracy was obtained in case NNge and J48 methods. Also these methods have a good initialization time (approximately 2s).

VOTING BASED IMAGE BINARIZATION

Costin-Anton Boiangiu²²

Mihai Simion²³

Vlad Lionte²⁴

Zaharescu Mihai²⁵

ABSTRACT

In the literature there are a wide variety of algorithms for image binarization, the difference between them being the method that identifies the pixel threshold value. They can be split into two classes: algorithms that use a single threshold for the entire image (and tend to identify a few large objects) and algorithms that do the processing in localities (and tend to identify many small items). This paper aims at defining a method for image thresholding based on the results of several different algorithms. Knowing in advance the behavior of specific algorithms on different kinds of images, we can vote between their results. The end

20 Master Student, University POLITEHNICA of Bucharest, Splaiul Independentei No. 313, Bucharest 060042, Romania; anda_9_1@yahoo.com

21 Associate Professor, University POLITEHNICA of Bucharest, Splaiul Independentei No. 313, Bucharest 060042, Romania, irina.mocanu@cs.pub.ro

22 Associate Professor PhD Eng., costin.boiangiu@cs.pub.ro, "Politehnica" University of Bucharest, 060042 Bucharest, Romania

23 Engineer, mihai.simion@cti.pub.ro, "Politehnica" University of Bucharest, 060042 Bucharest, Romania

24 Engineer, vlad.lionte@cti.pub.ro, "Politehnica" University of Bucharest, 060042 Bucharest, Romania

25 Engineer, mihai.zaharescu@cs.pub.ro, "Politehnica" University of Bucharest, 060042 Bucharest, Romania

result of the proposed method is a mosaic of more binarization algorithms, hopefully better than any individual image.

**Keywords: binarization, voting, black and white conversion, image interpretation
IMPROVING PARALLEL PROGRAMMING IN THE COMPUTE UNIFIED
DEVICE ARCHITECTURE USING THE UNIFIED MEMORY FEATURE**

Alexandru Pîrjan²⁶
Dana-Mihaela Petroşanu²⁷

ABSTRACT

One of the most important improvements within the Compute Unified Device Architecture (CUDA) 6.5 version, launched in August 2014, is the support for Unified Memory, a feature that simplifies the memory management, by providing a unified pool of managed memory, shared between the Central Processing Unit (CPU) and the Graphic Processing Unit (GPU). The system automatically migrates data allocated in the Unified Memory between the host memory and the device memory. In this paper, we analyze this new CUDA feature, its advantages and limitations, by developing two versions of an application that computes the scalar product: one using the Unified Memory concept and the other one using the classical approach based on the `cudaMalloc` instruction (for memory allocation) and `cudaMemcpy` (for transferring the data between the host and the device).

Keywords: CUDA, parallel programming, Unified Memory, Graphics Processing Unit, Central Processing Unit.

STATE OF THE ART HTML CODING MEETING SEARCH ENGINE OPTIMIZATION STANDARDS

Gabriel Eugen Garais²⁸

ABSTRACT

Today's standards of web coding have come to a point in which web semantics must be of great interest in developing webpages. Relevance of content through web semantics is a must in implementing Search Engine Optimization rules. Content that is included in a web page must be part of a category that treats the subject from many point of views and has also extended versions so that the web page gets a high rank of authority for the written and presented subject on the Internet.

Keywords: SEO, HTML, Tags, shared vocabularies, RSS

²⁶ PhD, Faculty of Computer Science for Business Management, Romanian-American University, 1B, Expozitiei Blvd., district 1, code 012101, Bucharest, Romania, E-mail: alex@pirjan.com

²⁷ PhD, Department of Mathematics-Informatics I, University Politehnica of Bucharest, 313, Splaiul Independentei, district 6, code 060042, Bucharest, Romania, E-mail: danap@mathem.pub.ro

²⁸ Lecturer PhD, Romanian-American University, Bucharest, garais.gabriel.eugen@profesor.rau.ro

CLOUNDING COMPUTER AND MICROSOFT OFFICE 365

Iordache Ana Maria Mihaela²⁹

ABSTRACT

In the article it is presented a short description of the term of cloud computing, the main characteristics and the architecture of such technology (deployment models and services types). In the end there it is presented the Microsoft Office 365: the main features, advantages and disadvantages, a short description of the plans offered (personal plan and enterprise plans).

Keywords: clouding computing, Office 365, SaaS, software

PREPARING THE EURO CHANGEOVER – ROMANIA’S CASE

Bianca Steliana Pîra (Beșu)³⁰

ABSTRACT

This paper analyses the effects on inflation after adopting the euro currency. The research aims to help Romania better understand and prepare for the consequences of the changeover. There are a large number of studies carried out to measure the effect of euro transition on price changes (for the euro area member states). After looking over some papers, we shall analyze the main issues Romania has to handle when adopting the euro. For this study, most of the data used is available on the Eurostat Database. As our paper will show, the changeover is expected to bring significant price increases in a number of sectors. Most exposed are those dedicated to recreational activities. However, the impact on aggregate HICP should to be relatively low.

Keywords: Euro changeover, Inflation perceptions, EMU countries, Eurozone, HICP

ONLINE TOOL FOR SOFT SKILLS EVALUATION AND EMPLOYEE MANAGEMENT

Dragos-Paul Pop³¹

ABSTRACT

In today's busy economy, big companies often outsource their new job openings to recruiting agencies, because finding the right candidate for a job often implies a series of

²⁹ PhD, Assistant Teacher at the Romanian-American University, Bucharest.
Email: iordache_ana_maria_mihaela@yahoo.com

³⁰ Bucharest University of Economic Studies, Cybernetics and Statistics Department, bianca.pira@yahoo.com

³¹ Assistant Lecturer, Romanian-American University, 1b Expozitiei Blvd., Bucharest, 012101, Romania, pop.dragos.paul@profesor.rau.ro

complex interviews and screening. This process is better managed by a specialized company that employs professionals like psychologists and recruiting personnel that can better manage a large number of candidates and filter the best people for a certain job opening. Of course, for complex jobs, the final part of the interview is still done by the employer, but the recruiting agency provides a very important report on the candidate's soft skills. These skills are a very important set of characteristics defining every candidate and they are more important than occupational skills on the long term for some professions. Soft skills are behavioural competencies and are often associated with a person's EQ (Emotional Intelligence Quotient). This is a set of traits regarding personality, communication, language, habits, social interaction, optimism, emotions, feelings, insights and friendliness that define a person's relationship with other people. This set of characteristics or skills complement a candidate's hard skills that define the occupational requirements of a certain job. Unlike hard skills, soft skills are not easily demonstrated by CV, diploma or certificate and can only be evaluated by specialists like psychologists. Just like hard skills, behavioural competencies can be developed and improved over time. In this paper, we outline the structure, methodology and characteristics of an online tool we are building that will allow people to determine their soft skills levels and provide insight on how to improve certain aspects. Also, the tool allows employers to test their candidates and employees in order to see how they evaluate against a certain set of competencies that the company deems important. Employers will see how their employees grow over time and how the market evolves through complex reports and tools that the software provides. Companies can build and manage recruiting projects and evaluations, setting levels over certain competencies and inviting candidates and employees to undergo certain tests that our software generates. These tests are built using our own methodology that is described in this paper.

Keywords: soft skills; behavioural competencies; recruiting; employee management; online tool.

THE NEW ECONOMY, PREMISE OF SUSTAINABLE DEVELOPMENT

Diana Apostol³²
Cristina Bălăceanu³³
Elena Ilie³⁴

ABSTRACT

The crisis has highlighted the fragility and cyclic unpredictability of the economies or how vulnerable world's nations and their social systems can be when the markets that finance them collapse, but other crises of high amplitude and duration, although not as stormy, describe the people- natural environment ratio (what Lipietz calls crisis of abundance or new scarcity of natural resources, that threat the industrial pattern) and the severe wide

³² Ph D Postdoctoral Student, Dimitrie Cantemir Christian University

³³ PhD, Dimitrie Cantemir Christian University

³⁴ Ph D student, Dimitrie Cantemir Christian University, Email: movitea@yahoo.com

disparities between North & South, which seem to be positioned exactly in the heart of the current model of growth and development located in economic crisis.

Keywords: new economy, sustainable development, human development, crisis

JEL classification: O31, O44

A CREDIT SCORE MODEL ON ROMANIAN REAL ESTATE MARKET USING SAS

Ionela-Cătălina Zamfir¹
Ana-Maria Mihaela Iordache²

ABSTRACT

Nowadays, many banks have their own system to identify good clients from bad clients. Even though we talk about persons or companies, many banks rely their decision for giving a loan on the loans history from their databases systems, the financial results of the entity (revenue for person and profit for companies), or the "friendship" between the bank and the client (a bank's friend is an old client). Very few banks develop a market analysis or a credit score model in order to analyze the market on which the company operates. In this article, we propose a credit score model, taking into account 12 activity indicators for 21 companies in the real estate market. Using the principal component analysis, cluster analysis and discriminant analysis, we obtain two score functions that can make the difference between companies with a low risk of bankruptcy and companies with a high risk of not refunding the loan.

Keywords: real estate market, credit score, principal components analysis, cluster analysis, discriminant analysis

DESIGNING THE PRODUCTION RULES FOR AN EXPERT SYSTEM TOWARDS VALUATION LIQUIDITY AND SOLVENCY RISK

Ștefan Cristian Gherghina³

ABSTRACT

Liquidity ratios analyze the company's capacity to pay off its short-term debt obligations, whereas solvency ratios examine the company's ability to meet its long-term liabilities. However, banks are particularly concerned about the liquidity and solvency of a corporation rather than just the collateral securitizing the loan. One of the artificial intelligent tools which have been most widely employed for applications out of various industrial sectors is expert systems. An expert system provides support towards removing limitations on information that only the experts in the specific field could provide. The knowledge is represented as a set of rules called productions. A suitable set of rules can be used to form the basis of a production system which is one of the main methods of implementing expert systems. Current paper aims at designing the production rules for an

¹ Phd Student, Economic Cybernetics and Statistics Doctoral School, Bucharest University of Economic Studies

² Assitant Lecturer, Phd, School of Computer Science for Business Management, Romanian-American University, Bucharest

³ Bucharest University of Economic Studies, 6 Romana Square, 1st district, Bucharest, 010374 Romania, E-mail: stefan.gherghina@fin.ase.ro

expert system in order to assist risk managers towards valuation liquidity and solvency risk. Likewise, several tools for building the suggested expert system are proposed.

**Keywords: Expert system, Production Rules, Shell, Liquidity Risk, Solvency Risk
E-LEARNING AND ITS IMPACT ON THE ACADEMIC CULTURAL
ENVIRONMENT**

Dan Smedescu⁴

Disclaimer: This paper has been written as part of the project „Romanian Culture and European cultural models: research, synchronization, durability”, supported by the Sectorial Operational Programme Human Resources Development (SOP HRD), financed from the European Social Fund and by the Romanian Government under the contract number SOP HRD/159/1.5/S/136077

ABSTRACT:

Distance learning, online courses and other aspects of e-Learning have spurred a need for a change of mentality, a change in the culture of professors and also in that of their students. New tools, such as social media and mobile learning come with new challenges and the way higher education institutions respond to them will shape their organizational culture and their success in the coming years. This paper aims to present these e-Learning tools and the changes they bring upon the academic cultural environment.

Keywords: e-Learning, social media, higher education, culture, organizational change

**FACIAL RECOGNITION BASED ON THE LOCAL BINARY PATTERNS
MECHANISM**

Alexandru Blanda⁵

ABSTRACT

This work presents a method of facial recognition, based on Local Binary Models. The idea of using this algorithm was induced by the fact that human faces can be seen as a composition of microstructures, which can be easily described by this algorithm. I will discuss about the process of facial recognition at a theoretical level and the implementation of an application, written in MATLAB, which will help me run some experiments on a number of images, using a standard database.

Keywords: Local Binary Patterns (LBP), classification, characteristics extraction, facial recognition, histograms.

⁴ Romanian American University, Expozitiei bd. no 1B, Bucharest, dan.smedescu@gmail.com

⁵ Engineer , blanda.alexandru@gmail.com, ”Politehnica” University of Bucharest, 060042 Bucharest, Romania

DETECTING A PATTERN IN A VIDEO STREAM AFTER DENOISING AND COLOR FADING PREPROCESSING

Andrei Danescu⁶

ABSTRACT

This paper presents an algorithm for identifying a pattern in an image, by using the “cross-correlation” technique. In addition, it shows the difficulties of implementing the algorithm in a video stream context and the solutions applied to remedy these shortcomings. The modified “template matching” algorithm manages to process the image in real-time by using downscaling for restricting the search area.

Filtering noise, in real time, has applications in speech and image processing. Considerable interest has arisen in recent years regarding filtering in the wavelet transform domain. This technique has been effective in noise removal with minimum side effects on important features such as image details and edges. In this paper, the effectiveness of both soft and hard thresholding for desired detail levels has been demonstrated. Python implementation is proposed due to its simplicity.

This article presents an image conversion method from color space to grayscale, using Fourier transform on luminance and chrominance channels. The method keeps the image chromatic contrast, which could be lost in case of a simple luminance channel extraction. Frequency domain naturally offers the contrast values on all channels, in all spatial scales. Consequently, there are just arithmetic operations necessary to factorize chromatic differences in final intensity of the image, so the image processing speed is raised up considerably.

Keywords: pattern matching, template matching, Fourier transform, luminance, color to grayscale, wavelet, Haar.

SEEDING PHASE SOFTWARE ARCHITECTURE MODEL FOR VIRTUAL BUSINESS INCUBATORS

Alin-Cristian Joița⁷
Floarea Năstase⁸

ABSTRACT

The basic role of the virtual business incubator is to enhance the performance of its clients, to accelerate their growth mostly through virtual instruments for know-how, mentoring and networking. Often enough, for members to follow the incubation program they require funding. In order for a virtual business incubator to also provide a funding solution, this

⁶ Engineer, andrei.danescu@cti.pub.ro, ”Politehnica” University of Bucharest, 060042 Bucharest, Romania

⁷ Teaching assistant, PhD student, Romanian-American University, Bucharest, Romania
joiita.alin.cristian@profesor.rau.ro

⁸ Professor, PhD, The Bucharest Academy of Economic Studies, Bucharest, Romania
nastasef@ase.ro

article analyzes crowd-funding principles, existing systems and proposes a model for a crowd-funding platform.

Studies show that crowd-funding is considered viable to a wide range of projects in different fields, such as economy, entertainment, art etc. In this manner, start-up members get exposure and funding from investors all over the world, whether they are simple individuals or international companies.

This system allows potential customers to gain a proactive role by becoming investors and participants to the success of the product and the company.

Keywords: crowd-funding, virtual business incubator, seeding stage, funding, software architecture

JEL Classification: C61, C80

PRINCIPLES OF IMAGE DEBLURRING

Alexandra Ghecenco⁹

ABSTRACT

This paper presents a method for deblurring distorted images using a known convolution kernel. Pre-existing methods and algorithms are presented, each with its advantages and disadvantages. In this implementation, Gaussian kernels are considered for blurring. The algorithmic approach is detailed and the sampled results show the effectiveness of the chosen method.

Keywords: image deblurring, non-blind image deconvolution

PERCEPTUAL SYSTEMS APPROACH TO MEASURING IMAGE RESEMBLANCE

*Irina Bocearov¹⁰
Mihai Zaharescu¹¹*

ABSTRACT

This projects implements a particular approach in measuring image resemblance called Perceptual Systems Approach, based on Near Sets Theory where image resemblance is viewed as a form of nearness between sets of perceptual objects. This application offers a

⁹ Engineer, alexandra.ghecenco@cti.pub.ro, "Politehnica" University of Bucharest, 060042 Bucharest, Romania

¹⁰ Engineer, irina.bocearov@cti.pub.ro, "Politehnica" University of Bucharest, 060042 Bucharest, Romania

¹¹ Engineer, mihai.zaharescu@cs.pub.ro, "Politehnica" University of Bucharest, 060042 Bucharest, Romania

simple interface that is easy to use and understand. The user only needs to upload two images and in a few seconds he will have the result he was interested in.

Keywords: Perceptual resemblance, image resemblance, resemblance measure

ANALYSIS OF THE EMPLOYMENT GROWTH AT REGIONAL LEVEL USING EVIIEWS SOFTWARE

Gogâltan Nicoleta Maria¹²

ABSTRACT

Because of its rigorous side, the economic modelling represents a resources optimisation managerial instrument (material, human, financial) with its objectives set for a certain period of time, giving the opportunity to take the best decision in certain given conditions, without altering the reality. In relation to the economic theories, the models have a complex and diverse nature. The frequent transformations and adaptations that take place in the economic science do not allow for the possibility of a methodological systematisation of the mathematical models which are being used. The economic model is defined as a simplified representation of an economic reality, while the modelling method is a scientific instrument which aims at forming useful representations for the proper understanding of some activities/fields of economic nature.

Keywords: model, regression, panel data, employment, eviiews

¹² TA, Romanian-American Univeristy, E-mail gogaltan.maria.nicoleta@yahoo.com

JOURNAL
of
**Information Systems &
Operations Management**

ISSN : 1843-4711

**Romanian American University
No. 1B, Expozitiei Avenue
Bucharest, Sector 1, ROMANIA
<http://JISOM.RAU.RO>
office@jisom.rau.ro**