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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

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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

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SPATIAL AUDITORY REPRESENTATION IN THE CASE OF THE VISUALLY IMPAIRED PEOPLE

Oana Bălan* [1]
Alin Moldoveanu* [2]
Florica Moldoveanu* [3]

ABSTRACT

Over the years, it has been widely believed that the blind individuals possess enhanced sound localization abilities that help them to navigate and orient in space in the lack of visual stimuli. In addition to this, it has been argued that the visually impaired people develop increased capacities of the remaining senses (auditory skills, in particular) that exceed those of the normally sighted individuals. The following paper aims to present and compare the most notable sound localization experiments that involved the participation of both blind and sighted control subjects. As the results of these studies provided different results, they have been classified in experiments that show a better localization performance for the blind participants and on the other hand, experiments that yielded equal or worst localization accuracy in the case of the visually impaired subjects. The underlying purpose of our research is to understand the modality and the degree at which the presence or absence of visual stimuli affect the spatial auditory resolution for each of the two target groups.

Keywords: Sound localization, blind people, psychoacoustics, virtual auditory display, compensatory strategy, plasticity, virtual reality.

1* Corresonding author. Faculty of Automatic Control and Computer Science, University POLITEHNICA of Bucharest. Splaiul Independenţei nr. 313, Bucharest, Romania. Email: oanab_2005@yahoo.com
2 Prof. PhD., Faculty of Automatic Control and Computer Science, University POLITEHNICA of Bucharest. Splaiul Independenţei nr. 313, Bucharest, Romania. Email: alin.moldoveanu@pub.ro
3 Prof. PhD., Faculty of Automatic Control and Computer Science, University POLITEHNICA of Bucharest. Splaiul Independenţei nr. 313, Bucharest, Romania. Email: florica.moldoveanu@pub.ro

QUANTITATIVE ANALYSIS OF RURAL TOURISM – A BASIS OF TOURISM MANAGEMENT

Marinel NEDELUȚ *[1]
Silvia Elena CRISTACHE [2]
George BĂLAN [3]
Roxana Cristina VÎLCU [4]

ABSTRACT

Rural tourism is an alternative form of tourism that takes place in rural areas. It has imposed itself gradually being one of the most popular tourist forms, especially in highly developed countries with a high degree of urbanization, whose inhabitants are operating in more stressful conditions. Rural tourism represents the return to pure values, to the ancestral space, closeness to nature, i.e. a return to origins. Thus we can motivate that in terms of resources villages respond in the highest degree to multiple tourist motivations. Rural tourism can generate stability, production, and quality, multiple economic and social effects, contributing greatly to maintaining rural living, by preserving the economic and social values.

Romanian rural tourism activity is subject to restructuring. The acceleration and enhancement of this restructuring is the result of de-globalization and sustainable development manifested at all levels of the national economy.

Key words: rural tourism, agro tourism, sustainable Development, macroeconomic indicators rural tourism, multi-factorial regression model.

[1] * Corresonding author. Professor, PhD, Financial Bank University of Bucharest, Piata Romana nr. 6, sector 1, Bucuresti Romania, Email address: nedelut@yahoo.com;

[2] Professor, PhD, Academy of Economic Studies of Bucharest, Piata Romana nr. 6, sector 1, Bucuresti, Romania, E-mail address: csilvia2005@yahoo.com;

[3] Professor, PhD, Romanian German University of Sibiu, Str. Rîului Nr. 23, Sibiu, Romania. E-mail address: gbmuscel@yahoo.com;

[4] PhD student, Academy of Economic Studies of Bucharest, Piata Romana nr. 6, sector 1, Bucuresti, Romania. E-mail address: roxanavilcu@gmail.com

SMART CITIES COMMUNITIES AND SMART ICT PLATFORM

***Virgil CHICHERNEA*[1]**

ABSTRACT

Smart Cities is a result of the dynamic process which is developed step by step (be recognize and ranked) along six main dimensions: smart economy, smart people, smart mobility, smart environment, smart living and smart governance. Smart ICT Platform is powerful tool that assure access, process, delivery and store information into big data base for using entire cities communities and can ensure all round development and prosperity without compromising on the quality of life, and no smart ICT platform not smart city. Smart ICT Platform involve in production processes for their benefit, use in businesses, contribute immensely towards improving the education system and health system, online public services use in public administration will improve the productivity and quality of the service offered to its citizens, businesses and is an important step for transparent governance. New technologies can protect and preserve a city's environment and provide a healthy living for its citizens and is essential for Smart Mobility. This paper presents the concept and contest of Smart ITC Platform and how this concept can be useful in the context of transition from traditional city to the smart city and some facilities offer to smart cities communities.

Keywords: Smart City, Smart City Communities, Smart ICT Platform, Internet of Thing (IoT), Everything-as-a Service (XaaS), Web-based DSS.

REAL-TIME GAZE TRACKING WITH A SINGLE CAMERA

***Constantin Carapencea* *[2]**
***Irina Mocanu* [3]**

ABSTRACT

This paper presents a non-intrusive method for gaze tracking, using a single monocular low-resolution camera. By tracking the face orientation and the center of the pupil, the system estimates the gaze direction which can be projected onto a screen to obtain the user's point of gaze. As the design is based on open source portable building blocks, the system can be used on a variety of devices. The implemented gaze tracker achieves real-time performance. Although the measured accuracy does not compete with other

[1] Prof. PhD., Romanian – American University, Bdul Expozitiei, Nr. 1, Bucharest, Romania. Email: vchichernea@gmail.com

[2] * Corresonding author. University POLITEHNICA of Bucharest, Spaliul Independentei No. 313, Bucharest 060042, Romania. Email: constantin.carapencea@cti.pub.ro

[3] Associate Professor, PhD, University POLITEHNICA of Bucharest, Spaliul Independentei No. 313, Bucharest 060042, Romania. Email: irina.mocanu@cs.pub.ro

expensive, more complex solutions, it is still possible to integrate it into other applications which require basic gaze tracking capabilities.

Key-words: GAZE, monocular low-resolution camera, gaze tracking, human-computer interaction

RESEARCH ISSUES REGARDING THE MAIN INDICATORS USED FOR ANALYSING THE INCOMES AND COSTS OF THE RENEWABLE ENERGY PRODUCERS OPERATING IN ROMANIA IN VIEW OF DEVELOPING A DECISION SUPPORT SYSTEM

***Cornelia Paulina BOTEZATU* [1]**
***Cezar BOTEZATU* [2]**
***George CARUTASU* [3]**
***Alexandru PÎRJAN* [4]**

ABSTRACT:
In this paper, we have analysed the main indicators regarding the incomes and costs of the renewable energy producers, indicators that a Decision Support System must take into account for when predicting, analysing and monitoring the technological and business processes in the field of energy produced from renewable sources in Romania. The results presented in this paper represent a part of the research conducted within the SIPAMER project ("Sistem Inteligent pentru Predicţia, Analiza şi Monitorizarea Indicatorilor de Performanţă a Proceselor Tehnologice şi de Afaceri în Domeniul Energiilor Regenerabile"), financed by the National Authority for Scientific Research (NASR).

Keywords: Decision Support System, renewable energy, economic indicators, green certificates, technologies.

[1] *Corresonding author. Professor, PhD. The Romanian-American University, 1B, Expozitiei Blvd., district 1, code 012101, Bucharest, Romania, E-mail: c2botezatu@yahoo.com
[2] Associate Professor, PhD. The Romanian-American University, 1B, Expozitiei Blvd., district 1, code 012101, Bucharest, Romania, E-mail: c2botezatu@yahoo.com
[3] Associate Professor, PhD. The Romanian-American University, 1B, Expozitiei Blvd., district 1, code 012101, Bucharest, Romania, E-mail: carutasu.george@profesor.rau.ro
[4] Lecturer, PhD. The Romanian-American University, 1B, Expozitiei Blvd., district 1, code 012101, Bucharest, Romania, E-mail: alex@pirjan.com

PIVOT TABLES, A DECISION-MAKING INSTRUMENT FOR TOURISM AGENCIES

Cezar Mihălcescu*[1]
Sion Beatrice[2]
Alexandra Mărginean[3]

ABSTRACT

A pivot table uses data organized on two dimensions to create a three-dimensional table. It represents a very proper means to concentrate a lot of information in a small space. Pivot tables allow data audit as well. The unique characteristic of pivot tables is their capacity to move fields by drag and drop. ***Excel*** *instantaneously replaces the data in a new arrangement. New formulae or the re-filtering of data are not necessary, as the pivot table is automatically recalculated when the fields are recalculated.*

Key words: data analysis, Excel, pivot table, table report

ASPECTS CONCERNING NONLINEARITY IN ECONOMETRIC MODELING

Cristina COCULESCU *[4]
Adam ALTĂR-SAMUEL [5]

ABSTRACT

In this paper, we present certain points of view regarding nonlinearity in the construction of econometric models, as well as its implications on parameter estimation. The research analyzes different scenarios encountered in economic practice and the appropriate methods of approach found in the econometric literature. In this context, we also present the authors' personal viewpoints regarding modeling of nonlinear economic relationships, substantiated by practice in modeling and simulation of economic phenomena and processes. Classifying nonlinear relationships is of importance both for

[1] * Corresonding author. Professor, PhD. School of Domestic and International Economy of Tourism. Romanian – American University. 1B, Expozitiei Blvd., district 1, code 012101, Bucharest, Romania. Email: cezar_mihalcescu@hotmail.com

[2] Lecturer, PhD. School of Domestic and International Economy of Tourism. Romanian – American University. 1B, Expozitiei Blvd., district 1, code 012101, Bucharest, Romania. Email: beatrice_sion@yahoo.com

[3] Teaching assistant, PhD. School of Domestic and International Economy of Tourism. Romanian – American University. 1B, Expozitiei Blvd., district 1, code 012101, Bucharest, Romania. Email: marginean.alexandra.roxana@profesor.rau.ro

[4] *Corresonding author. Associate Professor, PhD. Department of Computer Science, Statistics and Mathematics, Romanian – American University. 1B, Expozitiei Blvd., district 1, code 012101, Bucharest, Romania, E-mail: cristina_coculescu@yahoo.com

[5] Teaching Assistant, Department of Computer Science, Statistics and Mathematics, Romanian-American University, 1B, Expozitiei Blvd., district 1, code 012101, Bucharest, Romania, E-mail: adamalt@gmail.com

short-term estimation purposes and especially for the analysis of the precision of medium to long term predictions. There is a class of nonlinear models that can be approximated well by linear models, easily approachable using the OLS (Ordinary Least Squares) method. When we opt for such an approach, analyzing how the residual variable (the error) fits within the model is essential (meaning that linearization can be hindered by the additive or multiplicative form in which the error is expressed). Also, practice has shown that medium to long term evolutions can sometimes be nonlinear even though, for short-term predictions, a linear model has proven acceptable.

Keywords: Econometric Modeling, Linear/Nonlinear, Estimation

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LEARNING A PROGRAMMING LANGUAGE FOR TODAY

***TĂBUȘCĂ, ALEXANDRU*[1]**

ABSTRACT

The article focuses on the presenting current issue of the IT field related to programming languages and trends for 2015. Today, when almost everybody within the modern and civilized societies is connected to the internet we have to learn how to talk to the computers more efficient and easier than ever before. When the internet access is even protected by law in some countries [1] we need more and more programmers able to convince the computers to do what we want them to do. As we have a lot of languages to express ourselves, depending on the geographical location, we also have a lot of programming languages in order to make ourselves understood by different types of intelligent machines.

Keywords: Java, C++, JavaScript, programming languages

[1] Associate Professor, PhD, School of Computer Science for Business Management – Romanian-American University; 1B, Expozitiei Blvd., district 1, code 012101, Bucharest, Romania. Email: alextabusca@rau.ro

FINANCIAL VOLATILITY MEASUREMENT USING FRACTAL DIMENSION

Daniela Alexandra CRIȘAN [1]

ABSTRACT:
Financial volatility measures the variation of the price of a financial instrument over time. It is a very important instrument for both financial analysts and investors, as it is a measure of assets (un)stability. There have been previous attempts of using fractal analysis in estimating the financial volatility.
In this paper, the author will experiment the use of an image processing technique, computing the fractal "box-counting" dimension of the time series corresponding to an asset price. The fractal dimensions of 20 pairs of assets will be compared in order to describe their volatility. An original software application developed by the author for fractal processing purposes was used.

Keywords: financial volatility, fractal geometry, box-counting

FINANCIAL RISK EVALUATION IN THE CONTEXT OF INTERNATIONAL ACCOUNTING NORMALIZATION

Alice ȚÎNȚĂ[2]

ABSTRACT:
*Within the framework of the normalization phenomenon, the quality of the **accounting information** has improved as the companies have stepped up with their competitiveness parameters, compared to the opponents on the local and international markets by means of the accounting information they have access to. The main explanation of the phenomena of **normalization**, harmonization, convergence, internationalization is the augmentation of the global processes of the international markets, capital and the national economies that verge on to building a single system from the perspective of the global economic development. The exposure on the financial markets has an impact upon most organizations, either direct or indirect. When an organization is visible on the financial markets, it is very likely to have losses but also gains or profit. This specific exposure is the venue to strategic or competitive*[3]*benefits.*

Keywords: accounting normalization, financial situations, convergence, International Standards of Accounting and Reporting, financial risk.

[1] Associate Professor, PhD, School of Computer Science for Business Management, Romanian-American University, 1B, Expozitiei Blvd., district 1, code 012101, Bucharest, Romania. Email: crisan.daniela.alexandra@profesor.rau.ro
[2] PhD. Lecturer. Romanian – American University. 1B, Expozitiei Blvd., district 1, code 012101, Bucharest, Romania. Email: tinta.alice.emilia@profesor.rau.ro

[3] *K. Horcher, "Essentials of Financial Risk Management", John Wiley&Sons PH, New Jersey, 2005, p. 2*

A SEMANTIC E-LEARNING PLATFORM

Adam ALTĂR-SAMUEL*[1]
Dragoș-Paul POP [2]

ABSTRACT
This papers presents ideas regarding the design and implementation of an eLearning software platform, based on a detailed study of the most important semantic web technologies, including emerging semantic eLearning standards. The users of the platform can input texts from different areas of knowledge and the infrastructure will suggest the domain of the text, based on the domain ontology especially designed for this purpose and several text processing algorithms. The platform will then suggest appropriate studying materials for the inferred domain. For this purpose, the platform features a component that continuously searches the internet for new learning materials to add to the knowledge base.

Keywords: Semantic Web, e-learning platform, text classification, domain ontology

ANALYSIS OF DETERMINANTS FACTORS OF THE ECONOMIC ENVIRONMENT ON FOREIGN DIRECT INVESTMENT IN ROMANIA

Nedelescu Mihai*[3]
Stănescu Maria Cristina [4]

ABSTRACT*:*
Foreign direct investment (FDI), as a component of international financial flows, are a major factor in accelerating economic growth in Romania. This paper aims analyzing the impact of macroeconomic flows that are materialized through indicators at macroeconomic level on FDI and achieving a forecast regarding the future economical growth of Romania based on a high volume of FDI. The purpose of this study is to identify macroeconomic factors of influence on Foreign Direct Investment (FDI) to the national economy level.

Keywords*:* *foreign direct investment (FDI), globalization, optimal structure, regression model.* ***C - JEL:*** C01, C51, C52, E22, F2, P45.

[1] * Corresonding author. Teaching Assistant, Department of Computer Science, Statistics and Mathematics, Romanian-American University, 1B, Expozitiei Blvd., district 1, code 012101, Bucharest, Romania , E-mail: adamalt@gmail.com
[2] Teaching Assistant, Department of Computer Science, Statistics and Mathematics, Romanian-American University, 1B, Expozitiei Blvd., district 1, code 012101, Bucharest, Romania , E-mail: pop.dragos.paul@profesor.rau.ro
[3] *Corresonding author. Lecturer, PhD. Romanian – American University. 1B, Expozitiei Blvd., district 1, code 012101, Bucharest, Romania. Email: nedelescumihai@yahoo.com
[4] Lecturer, PhD. Romanian – American University. 1B, Expozitiei Blvd., district 1, code 012101, Bucharest, Romania. Email: cristina_voinea21@yahoo.com

SOLUTIONS FOR REPURPOSING THE DEFAULT ACTIONS AND STATES OF THE OFFICE CONTROLS THROUGH COMPONENT OBJECT MODEL ADD-INS

***Alexandru PÎRJAN*[1]**

ABSTRACT:
In this paper, we have approached a high interest research topic regarding the development of customized Office solutions by designing and implementing a Component Object Model Add-In (COM Add-In) for repurposing the controls' default actions and states and for extending the features offered by the Office suite. In the introduction, we have presented a brief overview of Visual Studio Tools for Office (VSTO) and its evolution. In the second section, we have developed a Word 2013 Add-in using VSTO 2013 and repurposed the default actions of the commands in Word 2013 using VSTO 2013. In the third section, we have developed a solution for extending the default features of the Office 2013 suite by programing in VSTO 2013 an extension to the existing Ribbon bar. The developed extension implements a new customized tab-menu, a customized group containing a customized menu and a toggleButton element. The customized menu contains three checkBoxes for controlling dynamically the state of the Bold, Italic and Underline controls, while the toggleButton dynamically controls the visibility of the existing Tab elements.

Keywords: VSTO 2013, .NET Framework, C#, COM Add-ins, Ribbon (XML).

RUN-TIME ANALYSIS FOR SORTING ALGORITHMS

***Daniela Alexandra CRIȘAN* *[2]**
***Gabriel Florian SIMION* [3]**
***Patrick Eugen MORARU* [4]**

ABSTRACT:
Analysis of algorithms complexity is an issue that has always aroused great interest. This is because an algorithm, however 'smart' it may seem, it could require a huge execution time. There are analytic techniques of evaluating the complexity of an algorithm,

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

[2] * Corresonding author. Associate Professor, PhD, School of Computer Science for Business Management, Romanian-American University, 1B, Expozitiei Blvd., district 1, code 012101, Bucharest, Romania. e-mail: crisan.daniela.alexandra@profesor.rau.ro

3 Bachelor's degree, School of Computer Science for Business Management, Romanian – American University, 1B, Expozitiei Blvd., district 1, code 012101, Bucharest, Romania. e-mail: florin_gabriel89@yahoo.com

4 Bachelor's degree, School of Computer Science for Business Management, Romanian – American University, 1B, Expozitiei Blvd., district 1, code 012101, Bucharest, Romania. e-mail: patrick2262@yahoo.com

although they usually are difficult to use. Most often, a more convenient solution is to estimate the run-time of the algorithm.

In this paper, a run-time comparative analysis is presented. It consists in evaluating the run-times of three well-known sorting algorithms: ***QuickSort, BubbleSort and InsertSort. A thousand different arrays of different sizes were randomly generated for the tests. Two analyses have been done: the first computes the mean run-time using all 1000 arrays with different sizes, the second uses for 1000 times a single 1000 items array. The three algorithms were implemented in three most common programming languages: Java, C++ and C#.***
The empirical results show that the fastest sorting algorithm is Quicksort, followed by Insertsort, then by Bubblesort. This observation conforms to the theoretical time complexity. A comparison between the three ***programming languages shows that the implementation in Java obtained the shortest run-time, followed by the C++ and C# versions. The order was the same for all three sorting algorithm.***

Keywords: sorting algorithm, complexity, QuickSort, BubbleSort, InsertSort

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SOLUTIONS FOR DEVELOPING AND EXTENDING RICH GRAPHICAL USER INTERFACES FOR OFFICE APPLICATIONS

Dana-Mihaela PETROŞANU* [1]
Alexandru PÎRJAN* [2]

ABSTRACT:
In this paper, we analyze solutions for developing and extending rich Graphical User Interfaces (GUI) for Office applications through Component Object Model Add-Ins (COM Add-Ins). We begin by presenting the Visual Studio Tools for Office (VSTO), its previous versions and the main features that it offers to the developers. In the second section, we make a survey of the most important Ribbon controls offered by the latest version of VSTO, launched in 2013, depicting their functionality, properties and possible applications. In the third section, we develop an example for extending rich GUI for Word 2013 through COM Add-Ins. The developed extension implements a new customized tab, three new customized groups within it containing the main customized Office controls:

[1] * Corresonding author. PhD, Department of Mathematics-Informatics, University Politehnica of Bucharest, 313, Splaiul Independentei, district 6, code 060042, Bucharest, Romania, E-mail: danap@mathem.pub.ro
[2] 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

CheckBox, Button, ToggleButton, vertical separators, ToggleButton, ComboBox, DropDown, EditBox. Through this example, we highlight the main VSTO controls and their properties.

Keywords: VSTO 2013, COM Add-ins, Ribbon (XML), Ribbon controls, developer.

CASE STUDY: RECRUITING OPPORTUNITIES FOR WEB DEVELOPERS ON THE CURRENT LABOR MARKET

Dragos-Paul POP *[1]
Serban Radu Cristian HERLEA [2]

ABSTRACT

In the ever changing world of Information Technology students often feel undecided when they need to choose a career path. The following research aims to show the growth of the web development demand on the workforce market by comparing job offerings and salaries across several countries: Romania, USA, Germany, France and UK.

Keywords: web development, labor market, case study

AN ANALISYS OF RDBMS, OOP AND NOSQL CONCCEPTS

Dragos-Paul POP*[3]
Edward Cristi BUTOIU[4]

ABSTRACT

Software applications often work with data. This data needs to be managed in careful way as to not be easy corrupted or lost. At the same time, programmers need a way to access this data and work with it. Classicaly, data was stored in a database that, more often than

[1] * Corresonding author. Teaching Assistant, Romanian – American University. 1B, Expozitiei Blvd., district 1, code 012101, Bucharest, Romania. Email: pop.dragos.paul@profesor.rau.ro
[2] Romanian – American University. 1B, Expozitiei Blvd., district 1, code 012101, Bucharest, Romania. Email: serban.herlea@gmail.com

[3] * Corresonding author. Romanian – American University. 1B, Expozitiei Blvd., district 1, code 012101, Bucharest, Romania. Email: pop.dragos.paul@profesor.rau.ro
[4] Romanian – American University. 1B, Expozitiei Blvd., district 1, code 012101, Bucharest, Romania. Email: edwardcristi@gmail.com

not, used the well known relational model. Programmers access these systems directly, trough and API, or they use Object Relational Mapping systems, a relatively old term (the first ORM, for SmallTalk, TopLink was released way back in 1994). A more recent database technology term is NoSQL (reinvented in 2009). We describe this term and what the systems that implement the concept do in the second part of the paper.

Keywords: SQL, RDBMS, ORM, NoSQL, MapReduce, OOP

RDF & RDF QUERY LANGUAGES – BUILDING BLOCKS FOR THE SEMANTIC WEB

Adam ALTĂR – SAMUEL* [1]
Alexandru COSTIN [2]
Dragoș ENACHE [3]

ABSTRACT
Although the World Wide Web is a relatively new concept, its expansion and the impact it had on the population were great. The Web is characterized by a network of interlinked documents, most of them designed to be read by humans, not interpreted by machines. The Semantic Web comes as a complement to the current web in which the available information can be interpreted by machines also, not only by people. Web services provide methods of publishing services in an UDDI registry, description of interfaces using WSDL and messaging through the network using various protocols, the most common being SOAP. This paper examines the close link between The Semantic Web and Web services, as well as other technologies necessary for this interaction.

Keywords: semantic web, web services, RDF (Resource Description Framework), SPARQL, WSDL (Web Service Description Language), OWL (Web Ontology Language)

[1] *Corresonding author. Teaching Assistant, Department of Computer Science, Mathematics and Statistics, Romanian – American University, 1B, Expozitiei Blvd., district 1, code 012101, Bucharest, Romania, Email: adamalt@gmail.com
[2] Faculty of Computer Science for Business Management, Romanian – American University, 1B, Expozitiei Blvd., district 1, code 012101, Bucharest, Romania, Email: alexandru.costin@itc.ro
[3] Faculty of Computer Science for Business Management, Romanian – American University, 1B, Expozitiei Blvd., district 1, code 012101, Bucharest, Romania, Email: Dragos_rash@yahoo.com

RESEARCH ISSUES REGARDING THE BITCOIN AND ALTERNATIVE COINS DIGITAL CURRENCIES

Alexandru PÎRJAN* [1]
Dana-Mihaela PETROŞANU* [2]
Mihnea HUTH* [3]
Mihaela NEGOIȚĂ* [4]

ABSTRACT:
In this paper, we research and analyse the main characteristics, the evolution of the Bitcoin and of the Alternative Coins (Alt-Coins) digital currencies, their numerous applications and ramifications. We make an in depth analysis of the Bitcoin digital currency and of the most significant Alternative Coins, taking into account their technical characteristics, their main advantages and limitations. Just as it happened in the past decades with the personal computers and Internet, the impact of these digital currencies will gradually increase in the future, leading to major changes in our lifestyle, redefining our everyday life, economy and society.

Keywords: digital currency, Bitcoin, Alternative Coins, electronic payments.

[1] *Corresonding author. PhD Lecturer. Faculty of Computer Science for Business Management, Romanian-American University, 1B, Expozitiei Blvd., district 1, code 012101, Bucharest, Romania, E-mail: alex@pirjan.com
[2] PhD Lecturer. Department of Mathematics-Informatics, University Politehnica of Bucharest, 313, Splaiul Independentei, district 6, code 060042, Bucharest, Romania, E-mail: danap@mathem.pub.ro
[3] Romanian-American University, 1B, Expozitiei Blvd., district 1, code 012101, Bucharest, Romania, E-mail: huth.cf.mihneacristian4@student.rau.ro
[4]Romanian-American University, 1B, Expozitiei Blvd., district 1, code 012101, Bucharest, Romania, E-mail: negoita.m.mihaela4@student.rau.ro

SECURITY ENHANCE THROUGH WEB SERVICES

***Alexandru Florea* [1]**
***Daniela Alexandra CRIȘAN* [2]**

ABSTRACT:
The Internet is the place where a great part of our economy is being built. Here vendors, customers and partners meet together, interact and collaborate. But, even the Internet has created this unique link, the applications used by companies are built around a variety of programming language, platforms and operating systems that cannot communicate to each other. Moreover, every minute we spend on the Internet we face the problem of data security. Web Services represents the next step in the attempt of a programmer to enhance the security of the data and one of the best solutions a company chooses in order to interconnect its web applications without paying attention to platform compatibility or what programming language is used.

Keywords: Web application, Security, Internet, Web Services

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[1] *Corresonding author. School of Computer Science for Business Management, Romanian-American University, 1B, Expozitiei Blvd., district 1, code 012101, Bucharest, Romania. e-mail: alexandru.florea@scenefz.net
[2] (Coordinator) Associate Professor, PhD, School of Computer Science for Business Management, Romanian-American University, 1B, Expozitiei Blvd., district 1, code 012101, Bucharest, Romania. e-mail: crisan.daniela.alexandra@profesor.rau.ro

BUSINESS COMMUNICATION IN ROMANIA: TRENDS AND OPPORTUNITIES

***Argentina VELEA*[1]**

ABSTRACT:
Business communication trends and tools broadly deal with technological developments and applications connected to business processes that can relate to back office operations, data management and analysis, professional services and support, to mention only a few. They cover almost any type of businesses, in manufacturing and/or services. Some of the most recent and relevant ones are discussed in this article.

Keywords: *enhancement, method, planning, audience, consultant, delivering, maximizing, delivering, extremely reliable*

AN ANALYTICAL POINT OF VIEW ABOUT MAINTENANCE PROCESSES FOR DISTRIBUTED APPLICATIONS

Eugen Gabriel GARAIS [2]

ABSTRACT
Maintenance processes is and important phase in the life cycle of online distributed applications, making it necessary to ensure their easy assistance after deployment of the application currently in use. Data mining from data sets collected from a third party application that stores raw data about maintenance processes in the application management provides valuable inforamtin for determining statistical study of the distribution and consumption of resources on the types of maintenance categories.

Keywords: maintenance; maintainability; distributed web applications; html structures; maintenance processes; maintenance metrics.

[1] PhD Lecturer, *Dimitrie Cantemir Christian University* in Bucharest, Splaiul Unirii 176, Bucureşti 030134. E-mail: argentina.velea@yahoo.com;

[2] Lecturer, PhD. School of Computer Science for Business Management, Romanian-American University, 1B Expozitiei Bld., Bucharest, Romania. Email: garais.gabriel.eugen@profesor.rau.ro

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