# JOURNAL OF INFORMATION SYSTEMS & OPERATIONS MANAGEMENT

## No. 2
## July 2008

The "JOURNAL OF INFORMATION SYSTEMS AND OPERATIONS MANAGEMENT" (http://JISOM.RAU.RO) published by the Romanian American University Bucharest, Romania, is specialized in IT area. The articles published, apply to the scientists, researchers and users of IT area, interested in enlarging the knowledge horizon with specialty notions, new work papers and reference studies, to apply in their own field. Through the presentation of some scientific paper works and statistical culture promotion, necessary for a functional market economy, the review wants to be a favourable space for debates and a challenge at the same time. Any study or opinion that can contribute to the development of the understanding degree of the IT area as a science is welcome.

Conditions for the articles design for JOURNAL OF INFORMATION SYSTEMS AND OPERATIONS MANAGEMENT (http://JISOM.RAU.RO)

The original scientific or technical works can be sent to be published either under article form or short communications in English.

The technical conditions for the articles to be presented can be found at http://JISOM.RAU.RO in the "Peer review" section.

# JOURNAL OF INFORMATION SYSTEMS & OPERATIONS MANAGEMENT

| Dep. Professor Popescu Cornel | University "Politehnica" Bucharest |
| Professor Victor Patriciu | National Technical Defence University, Romania |
| Dep. Professor Viorel Marinescu | The Technical University of Civil Engineering Bucharest |

*Senior Staff Text Processing:*

| Asist. Lect. Gabriel Eugen Garais | Romanian American University |
| Asist. Lect. Mariana Coancă | Romanian American University |

## FOREWORD

In 1991 the Romanian-American University was established in Bucharest, Romania, an institution entirely committed to promoting the values of American academic education on the background of the rich traditions of the Romanian education well-known abroad.

The initiator and founder of this university is Professor Ion Smedescu Ph.D., Rector of the Romanian American University, President of the Romanian American Foundation for the Promotion of Education and Culture, active member of the New York Academy of Sciences.

The university comprises six Faculties, whose number of students is more than 15.000:

- The Department of Studies for European Economic Integration;
- The Department of Management - Marketing;
- The Department of Domestic and International Commercial Financial - Banking Relations;
- The Department of Domestic and International Economy of Tourism;
- The Department of Computer Science for Business Managemnent;
- The Law School.
- We also have approximately 2.000 students enrolled in graduate programs. Our main focuses are business and law.

The university has been accredited through Law nr. 274 as of May 15, 2002, and operates as a higher education institution enjoying its full rights, as well as facing its due responsibilities. The university is a statutory warrant for its students, as well as a guarantee of stability, promotion and increased performance of its academic body. For more information: **www.rau.ro**

Starting with the academic year 2002-2003, the Ministry of Education and Research gave the Romanian-American University from Bucharest the approval to organize Master's Degree programs. There are currently 9 ongoing Master's Degree programs organized by majors and coordinated by the respective departments in the University.

The students enrolled in the Computer Science in Economics MS program present the results of their research

activity in the "INFORMATION SYSTEMS & OPERATIONS MANAGEMENT" workshop. Each of the six editions of this workshop, which took place during the semesters of each academic year, have been honored by students from abroad enrolled in the BRIE MA Program organized by the Academy of Economic Studies and in the "Computer Science" Program organized by the University "Politehnica" Bucharest. The first number of the "JOURNAL OF INFORMATION SYSTEMS & OPERATIONS MANAGEMENT" contains the representative papers selected from the six editions of this workshop.

We express our thanks to participants, to our colleagues from the Romanian- American University, Academy of Economic Studies and University "Politehnica" Bucharest, whose efforts, skills and understanding contributed to the welfare of the workshop. We would also like to thank the authors of these projects for presenting their research. In particular, we thank the chairmen of the different sections for their continuous support, our gratitude to Professor Ion Ivan and Professor Ion Bucur, two of the initiators of this project. We also like to thank our Assistant Professor Gabriel Eugen Garais and Assistant Professor Mariana Coancă for their diligence in preparing the final version of the projects.

Bucharest, July, 2008

Professor Virgil Chichernea, Ph. D.
Romanian –American University
Dean of the Department of
Computer Science for Business Management

# The Proceedings of Journal ISOM No. 2

8

## TECHNICAL REPORTS

10

# THE OPENING OF THE FIRST MICROSOFT INNOVATION CENTER IN ROMANIA WITHIN THE
# ROMANIAN – AMERICAN UNIVERSITY

**Virgil Chichernea, PhD**
**Romanian – American University**
**virgil.chichernea@rau.ro**

*Abstract:* On January 30, 2008, at the Romanian-American University, the Microsoft Innovation Center was opened, in the presence of Mr. Szomogy, state secretary at the Telecommunications Ministry, Mr. Silviu Hotăran, general manager of Microsoft Romania, prof. univ. dr. Ion Smedescu, founding rector of the Romanian-American University, teaching staff, students and representatives of prestigious companies in IT. On a global scale, there are, at present, 110 Microsoft Innovation Centers working in 60 countries, Romania joining, now, this network. With this opportunity the Contract of Collaboration between Microsoft Romania and the Romanian-American University was signed, which marked de creation of the first Microsoft Innovation Center in Romania, its goal being the increase of students abilities in business applications.

Key Words: innovation, e-campus platform, quality characteristics, business

# PROPERTIES OF THE COLLABORATIVE SYSTEMS METRICS

**ION IVAN, PhD**
**ACADEMY OF ECONOMIC STUDIES BUCHAREST**
**Email: ionivan@ase.ro**

**Cristian CIUREA**
**ACADEMY OF ECONOMIC STUDIES BUCHAREST**
**Email: cristian.ciurea@ie.ase.ro**

**Adrian VISOIU**
**ACADEMY OF ECONOMIC STUDIES BUCHAREST**
**Email: adrian.visoiu@ie.ase.ro**

**Abstract.** The paper describes the key properties of the collaborative systems. There are presented main quality characteristics for the collaborative systems. The paper analyzes different types of indicators. They represent the base for further metrics definition. There are described the indicators most important characteristics as sensitivity, non catastrophic, non compensatory and representatives.

# INFORMATION TECHNOLOGY APPLICATIONS IN THE JUDICIARY EVIDENCE SYSTEM

MĂGUREANU FLOREA, Ph.D
MĂGUREANU POPTEAN GEORGE, Ph.D candidate

ABSTRACT

The unprecedented evolution of IT system, could not help marking its stamp on the evidence system, by using some new opportunities and possibilities of evidence, for supporting the parties' statements in the civil lawsuit.

The pre-drawn written documents reflect the truth, to a larger extent, being drawn up before the appearance of the conflict between the subjects of the legal report under judgment, whether they are on paper or on electronic support.

The written documents under private signature can be made up using any way, but, in exchange, the signature of the one who has obligations must be oleograph; it cannot be typed or lithographed or replaced by a stamp, seal etc.

Commercial contracts, which are concluded online today, meant establishing a system which could be used, with the same safety elements as the signature or writings on paper as a writing support, and thus eliminating forgery.

# ONLINE ASSESSMENT OF INTEREST RATE RISK

**Alexandra Coman PhD Candidate**
**De Salle, Philadelphia University (SUA)**
**alexandra.coman.rau@gmail.com**

*Abstract: In addition to being of great importance to bank managers (due to the particular significance of Interest Rate to banking institutions: its fluctuation is, at the same time, a premise for success AND potentially fatal in case of inadequate management),* **Interest Rate Risk** *is of concern to any individual who possesses a financial portfolio (made up of loans, deposits, various investments, etc.), as any such portfolio may be endangered when exposed to fickle Interest Rates. Members of this latter category, however, are grossly neglected when it comes to availability of both information about and affordable or, better yet, free methods of protection against Interest Rate Risk.*

*Approaches to Interest-Rate-Risk assessment, from the traditional, time-honored methods (maturity and repricing schedules) to the more complex and experimental ones, are at least partially suited for software implementation. Using the Internet as medium, fairly simple, yet effective methods of Interest-Rate-Risk assessment can be made available to a vast audience, including current and potential bank employees involved in risk management, individuals whose interest in the matter is academic or, quite simply, members of the general public aware of the implications of Interest-Rate variation upon their financial investments.*

# TCP/IP XML Solution

Vlad DIACONITA PhD Candidate
Economic Information Department, Academy of Economic Studies
Bucharest, Romania

Ion LUNGU PhD
Economic Information Department, Academy of Economic Studies
Bucharest, Romania

**ABSTRACT**

Since its introduction, Extensible Markup Language (XML) has evolved and helped us evolve in the way which we think about structuring, describing, and exchanging information. The ways in which XML is used in the software industry are many and growing. For example, for Web services the importance of XML is crucial; all key Web service technologies are based on it. In this paper it's presented a TCP/IP XML solution for integrating an intermediary trading system with the Bucharest Stock Exchange trading system. The solution is presented from the intermediary point of view and can be the first step of a complete SOA solution.

Keywords: TCP/IP, XML, Bucharest Stock Exchange, Java

# E-LEARNING PLATFORM - THE DYNAMICS OF MILLS USED IN THE CONSTRUCTION MATERIALS INDUSTRY

Simona Marilena ILIE PhD Candidate
Technical University of Civil Engineering of Bucharest,
124 Blvd. Lacul Tei, RO-020396, ROMANIA

Cristian PAVEL PhD Candidate
Technical University of Civil Engineering of Bucharest,
124 Blvd. Lacul Tei, RO-020396, ROMANIA

## ABSTRACT

Virtual environment represents the tool which assures the access to the course material, and makes possible the interaction teacher – participant as well as the content management and the course activities.

For implementing an online courses program or some online collaboration spaces, one of the important decisions are referred to the virtual environment: VLE - Virtual Learning Environment or LMS - Learning Management System, where these will take place.

E-learning platform contains the following modules: information, schedule students, forums, chat, online course.

**Keywords**: e-learning, HTML - HyperText Markup Language, online course, Web technologies.

# TEN STEPS TO INCREASE THE KNOWLEDGE FOR AN EFFICIENT MANAGEMENT OF THE INTELLECTUAL CAPITAL IN THE ENTERPRISE BUSINESS INTELLIGENCE

Sebastian Marius ROŞU, PhD Candidate
Special Telecommunications Service, Information Technology
Department,

Marius GURAN, PhD
University Politehnica of Bucharest, PREMINV Research Center,

## ABSTRACT

In order to develop intelligent business for become competitive, the enterprises must increase the quality and technologic level of products and services conform with applicable codes and standards, to have permanent new products or to make old products bettering, to respect the market rules, the applicable laws and to have a good price politic.
These activities request a large amount of date, information and knowledge collecting from all sources and then transferring at each enterprise level.
This work analyses the state of the art of the knowledge management and it propose a methodological model, based on the occurrence of conversion types of the knowledge to be used during the product development process.

**Keywords**: Business intelligence, knowledge transfer, knowledge applications, knowledge capitalization, knowledge management.

# PETRI NET BASED APPROACHES TO MANUFACTURING SYSTEMS

Mihaela Elisabeta CIORTEA, PhD Candidate
Department of Mathematics and Computer Science,
University "1 Decembrie 1918"
Alba Iulia, România

**ABSTRACT**

This paper describes the planning in manufacturing systems. The skeleton and the functionality of a Petri Net Toolbox, embedded in the Matlab environment, are briefly presented, as offering a collection of instruments devoted to simulation, analysis and synthesis of discrete event systems.

Timed Petri Nets are used to model operational and routing in production systems. A generalized multi productive machine modules is defined, adapter to system feature, repeated and connected to compose the TPN models of production systems with different levels of routing and operation.

The present paper approaches the stochastic medium considered to be fundamental in describing the changes and the aleatory variations during the desertion process of machines and blocking times in the processing activity. We intend to present a simulated model according to which we can establish the time variation and the outputs process in a simple production system.

**Keywords**: Petri Nets, discrete event, manufacturing systems.

# PERSUASIVE COMMUNICATION IN BUSINESS

MARIANA COANCĂ, PhD Candidate
Faculty of Computer Science for Business Management
Romanian – American University, Bucharest, Romania

**ABSTRACT**
When we communicate, we usually want something to happen. We want results. And, when we're conscious of results, we're seeking effective communication. To put it another way, the effectiveness of communication can be measured by the responses it gets. It's not measured by how well we wrote or how eloquently we spoke, although those can help us get the responses we want. Good writing and speaking help us get a response because they help get the message across.

So, writing, designing, speaking, and all those other creative activities matter. But, in the end, responses are what count, and effectiveness means getting the responses we want.

That's true for all types of communication, and not just marketing campaigns. Managers who send messages to employees, for example, want employees to respond in a particular way. Maybe they want the employees to do something differently, or maybe they want to reinforce existing behaviors

**Keywords**: persuasion, phrases, listening, communication, verbal cushion, paraphrase, trial balloon, canvass, message, reply.

# TYPES OF METHODS AND RESEARCHES USED IN E-GOVERNMENT SYSTEMS/APPLICATIONS

Maria MOISE, PhD
Romanian American University, Bucharest, Romania

Victor POPA, PhD
National Institute for Research and Development in Informatics
Bucharest, Romania

**ABSTRACT**

E-Government is more and more a major characteristic of knowledge and information society. The e-Government system development was influenced in all countries by legislative measures regarding on-line services from public administration and also by rapidly usage of ICTs.
In this context, the paper presents some methods and researches used in e-Government systems/applications in order to provide through electronic means, high quality, efficient and accessible public services to citizen and business.

**Keywords:** e-Government, methods, researches challenges, strategies, risks.

# SEO TECHNIQUES FOR BUSINESS WEBSITES

Alexandru ENĂCEANU, PhD Candidate
Faculty of Computer Science for Business Management,
Romanian – American University, Bucharest, Romania

**ABSTRACT**

In the world of website marketing, search engines are an essential key to success. They are the most important way to bring traffic to websites. Understanding how search engines work and what they require is an important first step to harnessing their marketing power. There are proven methods to search engine marketing involving website design, content adaptation, and keyword strategy. The primary goal of these methods is to bring traffic to your site. The secondary goal is for that traffic to be targeted to your product. In the internet marketing game, exposure is essential. But marketing efficiency requires effective exposure to the right prospects.

**Keywords:** SEO, search engine optimization, pagerank, business website, Internet

# INTRODUCING MICROSOFT SILVERLIGHT

Dragos-Paul POP, MA Student
Faculty of Computer Science for Business Management,
Romanian – American University, Bucharest, Romania

## ABSTRACT

*Despite all the wonderful things you can say about HTML, CSS, and JavaScript, they form a pretty poor environment for developing modern sites and applications. If you care about your content working on most web browsers (or even just Internet Explorer and Firefox), accommodating their differences can be maddening. Many techniques and JavaScript libraries have been developed and shared over the years that can reduce this frustration, but none of them are silver bullets. In addition to browser differences, the graphical capabilities of HTML are too limiting for many user experiences that people want to create. Drawing a simple line, incorporating video, and a number of other things are extremely difficult or impossible with HTML alone. It's not that these technologies were poorly designed, but simply that they were designed for hyperlinked documents rather than the extremely rich presentations that most people want to create on the Web these days.*

# MATHEMATIC MODELING AND ITS ROLE IN OPERATIONAL RESEARCH

Cristina COCULESCU, PhD
Faculty of Computer Science for Business Management
Romanian-American University, Bucharest, Romania

## ABSTRACT

Relation between mathematics and economic activity has a dual character: mathematics feed from economic and social environment through different kinds while economic sciences, including leading science, are mathematized in a fast rhythm.

Under the conditions of the dynamic of contemporary economic life, is impossible to have the decisions adopted only by the means of intuition and usual judgment. For this, an important aid is given by mathematic-statistic methods, that is, operational research. Grace of operational research, the usual reasoning, which is always more or less empiric and intuitive, is filled with mathematic reasoning, rigorous, exact.

For have an overview over the object of operational research applied in economy, we consider to shortly study in this work, how appeared and developed management and leading branches and also the links between these branches. We also try to put in evidence the role of mathematical modeling in operational research.

**Keywords:** modeling, operational research, cybernetic, informatics, system analysis

# OPTIMIZING LARGE COMBINATIONAL NETWORKS FOR K-LUT BASED FPGA MAPPING

Ion I. BUCUR, *PhD*
Ioana FĂGĂRĂŞAN, *PhD*
Cornel POPESCU, PhD
*University Politehnica of Bucharest*

George CULEA, PhD
*University of Bacău, Faculty of Electrical Engineering,*

Alexandru E. ŞUŞU, PhD
*Swiss Federal Institute of Technology Lausanne*

**Abstract:** Optimizing by partitioning is a central problem in VLSI design automation, addressing circuit's manufacturability. Circuit partitioning has multiple applications in VLSI design. One of the most common is that of dividing combinational circuits (usually large ones) that will not fit on a single package among a number of packages. Partitioning is of practical importance for k-LUT based FPGA circuit implementation. In this work is presented multilevel a multi-resource partitioning algorithm for partitioning large combinational circuits in order to efficiently use existing and commercially available FPGAs packages.

**Keywords**: two-way partitioning, multi-way partitioning, recursive partitioning, flat partitioning**,** critical path, cutting cones, bottom-up clusters, top-down min-cut.

# INTEGRATING CRM SOFTWARE APPLICATIONS

Anda VELICANU, PhD Candidate
Academy of Economic Studies, Bucharest, Romania

**ABSTRACT**

Scientists, end users of CRM applications and producers of CRM software, all come to an agreement when talking about the idea of CRM, the CRM strategy or the term CRM. The main aspect is that CRM can be analyzed from two different points of view: CRM – the marketing strategy and CRM – the software. The first term refers to establishing some personalized relationships with the customers that can be afterwards easily managed. This way, it can determine at any time the past client relations, the products (or services) that the customers bought, the products' range, the products' price, the type of delivery, all this information being used in anticipation of the future sales. All these things can be physically achieved through a CRM software application whose main function is to properly manage the information relating to customers and to enable personalized communication with them (via e-mail, phone, fax, mail).

**Keywords:** CRM, customer, marketing.

# MODELS FOR LABOR FORCE ANALYSIS

Mihai Alexandru BOTEZATU, PhD Candidate
Ministry of Labor, Family and Equal Opportunities, Romania

**ABSTRACT**
Economic policy measures are generally fundamented on a system of indicators which allows both a static and a dynamic analysis of the complex processes taking place at macroeconomic level, especially when dealing with structural changes or dependences between population and economy.
Labor market development and functioning is one of the key issues of Romania's transition to the market economy. This requires the total reconsideration of the employment policy and of the use of labor in general, as well as of the mechanisms regulating demand and supply of labor.

# IMPLEMENTING E-LEARNING IN THE ROMANIAN EDUCATIONAL SYSTEM - A PRIORITY IN THE CONTEXT OF EU INTEGRATION

Ana-Maria PREDA, PhD
Daniela Alexandra CRIŞAN, PhD
Lavinia Justina STĂNICĂ, PhD Candidate
Adam Nelu ALTĂR SAMUEL, MA Student
Romanian-American University, Bucharest, ROMANIA

**ABSTRACT**

This paper intends to examine the development of e-Learning in Romania and to evaluate the gap between Romania and other members of the European Union (EU). Considering that Romania is part of the EU since 2007, it is imperative to achieve, in the shortest possible time, a real convergence with other member states. This requires finding the most effective ways to accelerate the development and increase the competitiveness. Using extensive IT&C technologies represent such a way, and public services – education, too – are among the development priorities on the agendas of all policies, both nationally and European. Thus, the subject treated in the paper is not only present but also of strategic importance for the immediate future of Romania.

Keyword: e-learning, e-education, IT&C

# MEDICAL IMAGE PROCESSING USING MATLAB

Emilia Dana SELEȚCHI, PhD Candidate
University of Bucharest, Romania

**ABSTRACT**

MATLAB and the Image Processing Toolbox provide a wide range of advanced image processing functions and interactive tools for enhancing and analyzing digital images. The interactive tools allowed us to perform spatial image transformations, morphological operations such as edge detection and noise removal, region-of-interest processing, filtering, basic statistics, curve fitting, FFT, DCT and Radon Transform. Making graphics objects semitransparent is a useful technique in 3-D visualization which furnishes more information about spatial relationships of different structures. The toolbox functions implemented in the open MATLAB language has also been used to develop the customized algorithms.

# TRIANGLE OF INNOVATION IN IT INDUSTRY

George CĂRUȚAȘU, PhD
Faculty of Computer Science for Business Management,
Romanian-American University, Bucharest, Romania

Cornelia Paulina BOTEZATU, PhD
Faculty of Computer Science for Business Management,
Romanian-American University, Bucharest, Romania

Cezar BOTEZATU, PhD
Faculty of Computer Science for Business Management,
Romanian-American University, Bucharest, Romania

**ABSTRACT**

In last decade, Romanian IT sector register a sustained grown up, accordingly with official statistics. Also, by Romanian adhesion to EU, the emergent market to this sector is growing to entire European coverage. So, new technologies must be applied, together with relative low cost for labor, in order to maintain advantages in front of competitors. In this case some innovation and R&D structure has been shaped, bringing together enterprises, education organisms and government subsidiaries. So, in this article we will debate three different R&D structure types, in context of innovation, structures that are working in Romanian-American University.

**Keywords**: innovation management, information systems, R&D management, knowledge management.

# MANUAL AND AUTOMATED CONTENT INTERLINKING IN A DYNAMIC WEBPAGE

Gabriel Eugen GARAIS, PhD Candidate
Faculty of Computer Science for Business Management,
Romanian – American University, Bucharest, Romania

**ABSTRACT**

In this article different ways of linking web pages are described using manual and automated content balancing procedures. SEO techniques are also used for better page interlinking with added value given by the new web standard 3.0 that stands on web semantics.
**Keywords**: web semantics, S.E.O., interlinking, Web3.0,

# THE OUTPUT EFFECT OF STOPPING INFLATION WHEN VELOCITY IS TIME VARYING

Lynne EVANS, PhD
Newcastle University Business School, UK

Anamaria NICOLAE, PhD Candidate
Durham University Business School, UK

**ABSTRACT**

This paper explores the role of time varying velocity on output responses to policies for reducing/stopping inflation. We study a dynamic general equilibrium model with sticky prices in which we introduce time varying velocity. Specifically, nonstationary velocity is endogenised in the model developed by Ireland (1997) for analysing optimal disinflation. The non-linear solution method reveals that, depending on velocity, the 'disinflationary boom' found by Ball (1994) may disappear and that early output losses may be much larger than previously thought. Indeed, we find that a gradual disinflation from a low inflation may even be undesirable given its overall negative impact on the economy

# HOW TO PROMOTE YOUR PRODUCT ONLINE

**Dan Smedescu**
**James Madison University Student, Virginia - USA**
**unicul@yahoo.com**

Abstract:

 *How to promote your product online, online payment processing. Why promote you product online and have an e-payment processor? The most important answer to these questions is 24h/day availability, 365 days a year. Having a website is like having a robotic salesman that can offer limited information whenever he is inquired. And the beauty of selling online is that you can make money even while you're sleeping.*

# THREE APPLICATIONS OF TRANSACTION COST ECONOMICS IN ROMANIA[*]

**Radu A. Păun, PhD**
**International Monetary Fund Institute**
**700 19th Street, N.W.**
**Washington, D.C. 20431**
**rpaun@imf.org or radupaun@yahoo.com**

**Abstract**

We begin by investigating the use of complex contracts in Romania. A transparent transaction cost economics (TCE) model generates the hypothesis that buyer and seller relationship-specific investments have opposite effects on contract complexity. Our analysis counters the problem of unobserved heterogeneity, generates estimates of the effects of specific investments that are opposite in sign on opposite sides of the agreement, and explains the patterns in the biases of ordinary least-squares estimates. We continue by presenting a simple methodology for measuring transaction costs at agreement level. These costs are assessed as large, accounting for more than a fifth of value added. The validity of the measure is tested and quality of the data is analyzed. Finally, we investigate the determinants of transaction costs estimates thus obtained. Results show that TCE theory is very successful at predicting the existence of transaction costs and moderately so at predicting their size when incurred by firms.

# INITIAL AND BOUNDARY VALUE PROBLEMS FOR DIFFERENCE EQUATIONS

**Mircea I CÎRNU**, PhD
Dept. of Mathematics III, Faculty of Applied Sciences
University "Politehnica" of Bucharest
cirnumircea@yahoo.com

Abstract: We consider initial and boundary value problems for linear nonhomogeneous difference equations with constant coefficients. For such problems we compute the numerical values of the solutions using the discrete deconvolution. The method can be easily used in applications and implemented on computer.

# REVIEW OF INEQUALITY METRICS WITH APPLICATION IN INCOME INEQUALITY IN LOUISIANA

**Mihaela Paun, PhD[1]**

*Department of Mathematics and Statistics*
*College of Engineering and Science, Louisiana Tech University*
P.O. Box 3178, Ruston, Louisiana 71272, U.S.A, E-mail:
mpaun@latech.edu

### Abstract

Economic data sets usually are, by their nature, very large and therefore researchers naturally want to analyze the distribution of the data set and make statistical inference about various parameters of interest, such as means, medians, variances, etc. To perform such tasks several incomes metrics or indices are generally used. Among the metrics widely used, we will consider in this paper only three: Lorenz curve, the the so-called S-Gini index and the Atkinson index. We also consider a general index of economic inequality that covers a number of indices, including the aforementioned S-Gini and Atkinson indices.

*Keywords*: Economic inequality, Gini index, Atkinson index, asymptotic normality.

# INFLATION CONVERGENCE IN CENTRAL AND EASTERN EUROPEAN ECONOMIES

**Alina M. Spiru**, PhD Candidate [*]
*Department of Economics, Lancaster University*

ABSTRACT

In this study, the degree of convergence of inflation rates of Central and East European economies to a variety of measures of European norm inflation is assessed using a range of econometric techniques. These include unit root testing based upon time series and panels of data and – an innovation to the pertinent literature – tests of nonlinear convergence. The results suggest that while convergence can be revealed in a number of cases, there is some sensitivity associated with the testing framework, in particular whether time series or panel methods are used. Furthermore, the inflation convergence performance of the Central and Eastern European countries is conditional on the chosen inflation benchmark, the composition of the panel and the correlations among members. Moreover, by conducting a battery of linearity tests, it is found that nonlinear inflation convergence is virtually ubiquitous for the period that includes the accession of the Central and Eastern European former transition economies into the EU.

---

[*] Address for correspondence: Department of Economics, Lancaster University Management School, Lancaster LA1 4YX, UK, Tel:+44 1524 594834, Email: a.spiru@lancaster.ac.uk

# THE RANDOM ITERATION ALGORITHM

Daniela Alexandra CRIŞAN, PhD
Justina Lavinia STĂNICĂ, PhD Candidate

Romanian – American University, Bucharest, Romania
dacrisan@yahoo.com, lavinia.stanica@gmail.com

**ABSTRACT**
In the last decades, many researchers concerned their attention on fractals properties of objects. Fractals can be use to describe natural shapes so their applications are various in many fields such as informatics, economics, engineering, medical studies. In this paper we present a way to describe fractal, using the Iterated Function System (IFS). We present the random iterated algorithm implemented in the C++ programming language used to generate selfsimilar fractals.
**Keywords:** fractal, IFS, random iteration algorithm