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# ABSTRACTS BOOKS

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**12th WORLD CONFERENCE ON INNOVATION AND COMPUTER SCIENCE**
**(INSODE-2022)**

**ANTALYA**
**TURKEY**

**12 - 14 MAY 2022**

# ABSTRACTS BOOK

**Organization**
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# KEYNOTES

**Blerta Prevalla**
Computer Science Faculty
*AAB College*, Republic of Kosovo

**Title:** "The Effects of Flipped Learning Approach on Students' Perception and Achievement in Engineering Education"

## Abstract:

Flipped learning as an educational strategy changes the traditional lecturing by flipping the classroom in the sense of listening the lectures at home and doing dynamic, group-based problem-solving activities in the classroom. This will engage the students in active learning, critical thinking and meliorates interpersonal skills.

The purpose of this study was to develop and implement flipped learning materials in the Introduction to Programming course and investigate the effect of flipped learning on student's achievement and perceptions related to the flipped classroom. This study was conducted in the fall semester of 2018-2019 for 14 weeks at a university in the Republic of Kosovo. This study employed an explanatory mixed method research design. There were 87 students in the experimental group and 87 students in the control group. In the current study, the Achievement Test (AT) in the course Introduction to Programming with Java, Flipped Learning Technology Acceptance Model (FLTAM), Self-Directed Learning Readiness Scale (SDLR), Course Evaluation Questionnaire (CEQ) and the opinion of the students about pilot study of flipped classroom in engineering education were implemented to answer the research questions. The data collected through the achievement test, scales and student questionnaire were analyzed by using descriptive and inferential statistical analysis techniques. For the analysis of the data, SPSS 24.0 was used and alpha level was determined as .05.
The data for qualitative analysis obtained from the interviews were analyzed by using both the content and descriptive analysis techniques.

The findings of the study indicated that students' in the experimental group perform better according to all the instruments involved in this study as it can be seen in the following chapters.

**Keywords** – Flipped classroom, Engineering Education, Flipped learning, inverted classroom, engineering subjects..

**Prof. Dr. Sahure Gonca TELLİ**
**Doğuş University- Economics and Administrative Faculty of Sciences-(Dean)**

**Keynote Title**: "Digital Transformation"

**Abstract:** After the Industrial Revolution with the introduction of mass media into the life of mankind, the questions that he faced with the structures developed by digital technologies began to differ gradually. The fact that digitalization affects the present and future of humanity necessitates careful evaluation of this issue.

In today's world, where the fiction of the world and the future is transferred to digital environments, digitalization has become almost indispensable for individuals, societies and businesses. If we accept management as an orchestration, it should be kept in mind that practices should consist of melody but good-sounding melodies. Because orchestral layout requires a good composition, the inclusion of all orchestral elements and the harmonization of sounds from different instruments. Based on this, it can be observed from our environment how tiny touches motivate institutions and individuals within the existing density.

The necessity of examining the Digital Transformation process on the academic side is obvious. We are also faced with changes in the management side. In this case, digital transformation differentiates both business and social life. In fact, we witness this sometimes consciously and sometimes unconsciously. It is also clear that universities should focus on such new issues.

Transformations such as the transformation of thousands of years of development stages into seconds at some points or reaching thousands of people with a single click, encountering different places or characters with applications such as virtual reality such as holograms throw us into digital realities with the taste of fairy tales or mythology. It introduces issues such as the fact that some of them are still at the point of scenarios and that the course of some of these scenarios should be designed by universities and researchers.

That's why I find it very valuable in the academic community that issues such as how this digital transformation is, how it develops, what technologies it includes, how it is handled in sectors such as communication, business and engineering, in a way that will be evaluated from the window of opportunity in Turkey.

**Prof. Dr. Çetin BEKTAŞ**
Tokat Gaziosmanpaşa University, Turkey

**Keynote Title:** "Digitalization and the Role of Information Technology Personnel in Business Administration"

**Abstract**: In this modern era, information and communication technologies are increasing day by day. This increase has greatly changed the way of doing business in the enterprise. In this era, which is also called Industry 4.0, businesses are shifting to digital methods due to intense competition. The use of digital data in business management has also led to the emergence of new business models. Digitalization of business requires a redesign of all business functions. All departments such as purchasing, production, marketing, finance, human resource management and R&D are experiencing dramatic changes with digitalization. As digitalization is known as one of the most important ways to be successful in the competitive market to follow environmental conditions and adapt to the external environment. Moreover, there is a great change in the external environment of the enterprise. There are also some basic factors that cause this change. Additionally, globalization at all levels become the rapid development of corporate partnerships and information technologies.

Information Technology **(**IT) personnel, is one who enables the rapid development of information and communication technologies. The only input that is effective among the production inputs in the enterprise is the information labor force. For this reason, businesses that employ an adequate level of IT personnel, naturally succeed in the competitive market. For this reason, digitalization and IT personnel play an important role in business management. In addition, we explain the advantages of digitalization to the business and the role of IT personnel in the businesses. On the other hand, business management also gains a competitive advantage by establishing digital management systems and employing sufficient IT personnel. Therefore, the business can achieve a competitive advantage by increasing its efficiency. In this way, the business will also be able to reach its profitability and sustainability targets more easily.

**Bio:** Çetin Bektaş graduated from Çukurova University, Faculty of Economics and Administrative Sciences in 1993. In 1996, he completed his master's degree in Afyon Kocatepe University, Institute of Social Sciences, and Department of Business Administration. In 2000, he received his Ph.D. degree from the Department of Business Administration, Management and Organization. From 2001-2010, he worked for Uşak University, Faculty of Economics and Administrative Sciences, Department of Business Administration. In 2009, he received the title of associate professor in the field of Management and Organization. From 2010-2014, he worked at Erzincan Binali Yıldırım University in the faculty of Economics and Administrative Sciences. Since 2014, he has been working as a professor at Tokat Gaziosmanpaşa University in the department of Business Administration. Çetin Bektaş has published four books and many published articles in national and international journals. In addition, he has duties as an advisory board member at national and international conferences.

**Prof. Dr. Servet Bayram**
**Dean, Faculty of Education**
**İstanbul Medipol Üniversitesi**

**Keynote Title**: "**Current Perspectives in Educational Technologies: Cyberpsychology, Neuroscience and Ethical Issues**"

**Abstract:** Cyberspace is an extension of our individual and collective minds. How we react to the different educational environments within this space—be it computer game, social media, text messaging, e-mail, web, augmented reality or exotic virtual worlds,—depends on how that particular IT environment is constructed using the dimensions of Cyberpsychology and Neuroscience. Cyberpsychology and neuroscience use some useful transdisciplinary theories in analyzing the psychological impact of different digital learning environments, assessing an individual's digital lifestyle, investigating critical issues in learning and the using principles of general ethics. Future dimensions of IT, as it relates to dijital ethics, neuroscience, cyberpsychology, Education 5.0, training, and research intuitives are discussed.

**Bio:** Prof. Dr. Servet Bayram received his BS degree from Istanbul University, Department of Psychology in 1985. For a while, he worked with various groups of people who were treated in hospitals in the field of Clinical Psychology. After receiving the title of psychologist, he started to work as an Educational Psychologist at Boğaziçi University in 1988. He received his Master's degree in Guidance and Psychological Counseling at Boğaziçi University in 1991 and went to the United States for his PhD. He studied "Learning and Teaching Technologies" at the University of Pittsburgh and received his PhD in 1995. In his doctoral studies, he worked on "modeling of human mind and thought schemes with instructional design and computer software". After receiving a postdoctoral fellowship from Indiana University, he did Post-Doct studies on Electronic Performance Support and Information Systems. Here, he worked in fields such as Machine Learning, Artificial Intelligence, Human-Computer Interaction, Software Engineering and Usability between 1995-1997. Between

1997-1998, he served as a Lieutenant Psychologist - Instructor at the Istanbul Air Force Academy. Later, he started to work as a faculty member at Marmara University. He became Associate Professor in 2000 and Professor in 2006. He worked as the Head of the Department of Computer Education and Instructional Technologies at Marmara University for 15 years. During this period, he also carried out the Master's and Doctorate programs of the department. He carried out many academic-scientific studies in the fields of neuroscience, intelligence modeling and learning in the 'Human-Computer Interaction Laboratory' he founded in the department.

He started working at Yeditepe University in 2015. Here, he served as the Vice Rector, the Director of the Institute of Educational Sciences, the Head of the Computer-Instructional Technologies Education Department and the Head of the Information Technologies-Social Media Education Graduate Program. His work here has been on the adaptation of Artificial Intelligence, Industry 4.0 and Society 5.0 to human psychology, education and training.

Since 2021, he has been working as the Dean of the Faculty of Education at Istanbul Medipol University and the Head of the Educational Sciences (Guidance and Psychological Counseling) Department. He has given many courses at undergraduate / graduate level in different universities in Turkey and abroad. He takes part in Research Projects, international peer-reviewed journals and symposiums.

Research interests: The Effects of Human-Computer Interaction, Cyber Psychology, Cognitive-Learning Psychology (Attention, Perception, Motivation, Understanding and Intelligence), Psychological Testing, Neuroscience, Industry 4.0/5.0 and Education-Society 5.0 Approaches to the Digital Anthropocene (New Humanity) Age.

**Prof. Dr. Bekim Fetaji**
University “Mother Teresa”, North Macedonia

**Keynote Title:** “Will be announced”

**Abstract**: “Will be announced”

# ABSTRACTS BOOKS

## Feature-Oriented Programming Approach for Automotive Software Development

**Berkay Saydam,** TTTech Auto Turkey

**Abstract**

In the automotive industry, a specific software was developed for each project hardware before AUTOSAR. AUTOSAR provided the reusability of pre-validated software components with reuse existing functions in different hardware via creating an abstraction of hardware. Thus, there is a main running project software and the features, which are desired for a new project by the customer, are merged during different releases. These features might have been created at different project, or they can be provided from other features easily. If there is no synchronization between features, it causes unnecessary usage of memory and CPU, which are limited for embedded system. On the other hand, these features might be programmed nested, and they cause conflict and dependency at the same time. There should be independent between features to have manageability and maintainability easily. Nowadays, the automotive industry has highly dynamic and aggressive market. Agile process models are used to give fast response to market needs. Feature-oriented programming is a well-accepted paradigm to accomplish software reuse while at the same time the software has not dependency or conflict between features. By using this approach, features will be implemented efficiently, and customer needs are provided as much as quickly. This improves developer effort and error during feature integration phase as well.

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# E-voting, a Proposed Framework for Albania Scenario

**Kreshnik Vukatana,** University of Tirana

**Gerta Mata,** University of Tirana

**Abstract**

This study analyses the voting process in Albania, focusing on two key issues: the accuracy of the process and the impossibility of voting for the citizens living outside the country. The electronic voting process through electronic voting machines and online systems are analyzed as new technological approaches to address and solve the issues mentioned above. The aim is to propose an electronic voting architecture, using a hybrid solution that integrates voting kiosks within the country and online voting for Albanian citizens living abroad.

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# The advantages of parallel processing used to measure the performance of image processing on led walls on a national Albanian media

**Nevila Baci,** University of Tirana

**Denisa Millo,** University of Tirana

**Abstract**

Every day we testimony the technological changes that replace or improve each other in many ways. And the main purpose of such a development remains economical efficiency, seen by the point of view of an economist. As efficiency may bring about better performance, and thus better revenues. There are many technologies which help the change take place. One of them, which is having an important impact on todays' life is the Artificial Intelligence evolution. But the AI technology is also supplied by some important technologies such as parallel processing. The emphasis of this article is analyzing the benefits of parallel processing by illustrating it with a code in C using the MPI library. The latter use is analyzed in the context of image processing in a led wall platform of a national media, which supports a recent technology of parallel processing. The program is processed in different ways in parallel. The results show that the image is better and faster processed when the number of nodes increases, but the way it behaves depends on the relation between the number of processes and the number of processors in the nodes. The experiment is done for the first time for academic purposes in a High-Performance Computer used in a university space, and then re-applied in the business space of the media which uses the latter kind of computer with some more advanced features to process the images in led walls.

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# Session hijacking vulnerabilities and prevention algorithms

**Elira Hoxha,** University of Tirana

**Igli Tafa,** University of Tirana

**Kristi Ndoni,** University of Tirana

**Islam Tahiraj,** University of Tirana

**Andrea Muco,** University of Tirana

**Abstract**

Internet security concept is studied by computer science as a safe medium for exchanging data, while minimizing the likelihood of online threats. The extensive use of advanced web-based software in different industries as education, retail, medical care and payment systems, represents a security challenge for the programmers and an opportunity for the hackers to attack through different techniques, such as session hijacking. Based on a recent OWASP update, this kind of attack is one of the most frequent assaults that happens lately. Session hijacking happens as a result of poor designed websites and lack of security mechanisms, where the user's identity and session data are exposed. This paper will present this kind of vulnerabilities with the respective control mechanisms and will propose an approach for avoiding hijacking threats by using one-time cookies along with other prevention strategies.

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# Core Banking System Implementation Proposal

**Gjergji Mulla,** University of Tirana

**Abstract**

The purpose of the document is to provide analysis for the implementation of a new CCBS (Centralized Core Banking System) for a Retail Bank. This article has been written based with respect of highest evaluation standard set by institutions like World Bank etc for such systems implementation. The scope of work, that will be defined in this article identifies all components and work required for the proposed implementation under this article. The proposed CCBS solution will be implemented based on a phased approach implementation methodology. The Inception Reporting consist on a description of an acceptable range of outputs described in the Methodology, Project Management, Coordination and Reporting Section. The Inception Report includes producing a Project Plan acceptable for the bank. Upon acceptance by the bank of the project plan, implementation team will carry out the activities defined in the Project Plan. Implementation team will undertake a confirmatory analysis of functionality during the Inception Reporting period and also illustrate how data will be migrated from the legacy systems into the new CCBS. Banking IT personnel will receive advanced administration training to become expert subject matter users and administrators in operating these products so they can act as first line support to the bank. Banking personnel will receive CCBS training appropriate to their office function and the scope of their duties. Also a final report is require to review the progress of the project, the lessons learnt, aspects for improvement and recommendations for finalisation of software aspects of CCBS.

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# Text Mining for Automated Search and Exploration of COVID-19 Literature

**San Ho Lee,** Korea University

**Abstract**

Since Dec 2019, more than 50,000 scientific articles have been published on COVID-19. The exponential growth in the number of publications makes it difficult for clinicians, public health officials, biomedical researchers, and the general public to stay current with the latest findings. Text-mining tools are needed to facilitate rapid information extraction and summarization from experimental/clinical studies and answer high-priority questions. The main goal of this project is to use text-mining to extract and summarize the rapidly evolving information on risk factors, biomarkers, and drug targets in the COVID-19 scientific literature in PubMed abstracts. Co-occurrence based networks are used to summarize multiple articles and identify key biomedical terms (e.g. genes, cytokines, chemicals, mutations) that are related to the search query (e.g. COVID-19 delta variant). As a case study, we searched for top genes that are mentioned in the literature related to the query term: "(SARS-COV-2 or COVID-19) and diabetes" The top 5 genes included: angiotensin converting enzyme 2, cardiac troponin-1, plasmin, interleukin 6, and C-reactive protein. Automated summarization of biomedical text will enhance access to information and allow biomedical researchers and general public to find information related to risk factors of COVID-19 including pregnancy, smoking, and comorbidities and identify potential drug targets.

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# Time Optimal Trajectory Generation in Joint Space for 6R Industrial Serial Robots Using Cuckoo Search Algorithm

**Hasan KARCI,** Turkey

**Abstract**

In this paper, an optimal trajectory planning approach is proposed based on optimal time by utilizing the interpolation spline method. The method including a combination of cubic spline and 7th order polynomial is used for generating the trajectory in joint space for robot manipulators. Cuckoo Search (CS) optimization algorithm is chosen to optimize the joint trajectories based on objective, namely minimizing total travelling time along the whole trajectory. The spline method has been applied on PUMA robot for optimizing the joint trajectories with the CS algorithm based on objective. Moreover, results from the proposed algorithm have been compared with that of the algorithms suggested by earlier studies. With the trajectory planning method, the joint velocities, accelerations and jerks along the whole trajectory optimized by CS meet the requirements of the kinematic constraints in case of objective. Simulation results validated that the used trajectory planning method based on the proposed algorithm are very effective in comparison with the same methods based on the algorithms proposed by earlier authors.

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