“Lucian Blaga” University of Sibiu
Faculty of Sciences

The Sixth International Students Conference on Informatics

„IMAGINATION, CREATIVITY, DESIGN, DEVELOPMENT”

Program & Abstracts

SIBIU, ROMANIA
May 19-21, 2016

Motto:

"There are no limits, only your imagination"

TOPICS

- Algorithms and data structures
- Graph theory and applications
- Formal languages and compilers
- Cryptography
- Modelling and simulation
- Computer programming
- Computer vision
- Computer graphics
- Game design
- Data mining
- Distributed computing
- Artificial Intelligence
- Service oriented applications
- Networking
- Grid computing
- Mobile operating systems
- Scientific computing
- Software engineering
- Bioinformatics
- Robotics
- Computer Architecture
- Evolutionary Computing
- Multimedia Systems
- Internet Communication and Technologies
- Web Applications

Organizer**: *„Lucian Blaga" University of Sibiu***
Faculty of Sciences
Department of Mathematics and Informatics
Informatics Division

OBJECTIVES

The conference is addressed to bachelor and master level students. Conference aim is to bring together students from different universities from all over the world to discuss and present their researches on informatics and related fields (like computational algebra, numerical calculus, bioinformatics, etc) and their original results. The presentation should include also an informatics application. Pure theoretical results are accepted only if they introduce new concepts.

SCIENTIFIC COMMITTEE

- Prof. PhD. Grigore Albeanu - University of Bucharest, Romania
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- Lecturer PhD. Anca Vasilescu - Transilvania University of Brasov, Romania

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O U T L I N E P R O G R A M

THURSDAY, May 19, 2016
Faculty of Sciences,
Sibiu, Dr. I. Raţiu st., No. 5-7
1st Floor, Room A18

8^{30} – 9^{00} Registration

9^{00} – 9^{30} Opening ceremony

9^{30} – 10^{30} IT companies presentation – EBS, ROPARDO, VISMA, MARQUARDT

10^{30} – 11^{15} Papers presentation

11^{15} – 11^{30} Coffee break

11^{30} – 12^{30} Papers presentation

13^{00} – 15^{00} Lunch – University canteen

15^{00} – 16^{00} Papers presentation

16^{00} – 16^{30} Coffee break

16^{30} – 17^{45} Papers presentation

19^{00} – Social program (Sibiu by night. Visit of the old city center)

FRIDAY, May 20, 2016
Faculty of Sciences,
Sibiu, Dr. I. Raţiu st., No. 5-7
1st Floor, Room A18

9^{30} – 10^{45} Papers presentation

10^{45} – 11^{00} IT companies presentation – iQuest

11^{00} – 11^{30} Coffee break

11^{30} – 13^{15} Papers presentation

13^{15} – 15^{00} Lunch – University canteen

16^{15} – 17^{15} Official closing and awards ceremony, Faculty of Sciences,A18 Room

17^{30} Official conference dinner – Meeting Academic Center (Banatului str., No.7)

SATURDAY, May 21, 2016

10^{00} - 13^{00} Social program (Visiting of ASTRA Museum, historic center, other museums)

Sixth International Students Conference on Informatics

„IMAGINATION, CREATIVITY, DESIGN, DEVELOPMENT"

Sibiu, May 19-21, 2016

P R O G R A M

THURSDAY, May 19, 2016

Faculty of Sciences,
Sibiu, Dr. I. Raţiu st., No. 5-7
1st Floor, Room A18

8^{30} – 9^{00} **Registration**

9^{00} – 9^{30} **Opening ceremony**

9^{30} – 10^{30} **IT companies presentation (EBS, Ropardo, Visma, Marquardt)**

10^{30} – 11^{15} **Papers presentation**
Chair Prof. dr. Dana Simian

- *Roev - Event Planner*
  Theodor-Ovidiu PALAMARU
  Coordinator Professor: Dana Simian
  "Lucian Blaga" University of Sibiu, Romania

- *An experiment on running surveillance software as a unikernel application*
  Paul - Gheorghe BARBU
  "Lucian Blaga" University of Sibiu, Romania

- *3D Mobile cross platform game*
  Dragos HODINA
  Coordinator Professor: Dana Simian
  "Lucian Blaga" University of Sibiu, Romania

11^{15} – 11^{30} **Coffee break**

11^{30} – 12^{30} **Papers presentation**
Chair Prof. dr. Dana Simian

- *Arcadia: Socialize and Learn in Virtual Reality*
  Petrică BOTA, Robert SĂNDICĂ
  Coordinator Professor: Dana Simian
  "Lucian Blaga" University of Sibiu, Romania

- *Parameters tuning for support vector machines*
  Eva TUBA
  Coordinator Professor: Milan Tuba
  Faculty of Computer Science, Serbia

- *Scytale encryption in modern days*
  István BIALKÓ
  Coordinator Professor: Dan Dumitru
  Spiru Haret University, Bucharest, Romania

- *Multicriteria alternative choice in the conditions of uncertainty on the basis of the fuzzy preference relations*
  Maria SOKOLOVA
  Coordinator Professor: Vladimir Chernov
  Vladimir State University , Russia

$13^{00} – 15^{00}$ **Lunch – University canteen**

$15^{00} – 16^{00}$ **Papers presentation**
Chair Lecturer dr. Daniel Hunyadi

- *Pseudocode Learning Companion*
  Cătălin POPA
  Teacher coordinator: Cornelia Ignat
  Liceul Tehnologic „Şcoala Naţională de Gaz" Mediaş, Romania

- *Smart Backpack*
  Vlad IONESCU, Emanuel GIURGIU, Vlad MURZEA, Sebastian VIDREA
  Coordinator Professor: Livia Sangeorzean
  Universitatea Transilvania, Brasov , Romania

- *"Dodgy Ninja"*
  Flavius HOLERGA, Andrei MILIK, Inocenţiu MOGA
  Teacher coordinator: Gabriela Florea
  L. T. "Axente Sever", Medias, Romania

- *Smart city and smart transportation. Bucharest case study*
  Crina CRISTEA, Alexandru DANIEL, Darko SHULESKI, Alexandru BIRSAN
  Coordinator Professor: Ioan Radu
  Bucharest Academy of Econimic Studies, Bucuresti, Romania

$16^{00} – 16^{30}$ **Coffee break**

$16^{30} – 17^{45}$ **Papers presentation**
Chair Lecturer dr. Florin Stoica

- Embedded application controlled by a mobile device
  Marius TOMA
  Coordinator Professor: Dana Simian
  "Lucian Blaga" University of Sibiu, Romania

- *Mark It*
  Dragomir ANDREI, Grozea IOAN
  Teacher coordinator: Delilah Florea
  National College „Samuel von Brukenthal" Sibiu

- *Optimization of Otsu's method for multilevel image thresholding by grid search*
  Una TUBA
  Coordinator Professor: Milan Tuba
  Faculty of Computer Science, Serbia

- *StarDust*
  Alexandru OLTEAN, Alin Gabriel PRĂVARIU
  Teacher Coordinator: Carmen Popescu, Georgeta Preda
  Colegiul Naţional "Gheorghe Lazăr" Sibiu, Romania

- *Foody, you are what you eat*
  Cristian BOTA, Adrian A. BĂRBOS
  Coordinator Professors: Camelia-M. Pintea, Hajdu Măcelaru Mara
  "Technical University" Cluj-Napoca, Romania

19^{00} **Social program (Sibiu by night. Visit of the old city center)**

FRIDAY, May 20, 2016

Faculty of Sciences,
Sibiu, Dr. I. Raţiu st., No. 5-7
1^{st} Floor, Room A18

9^{30} – 10^{45} **Papers presentation**
Chair Prof. dr. Dana Simian

- *ChessTime – a simple chess clock for Android*
  Dimitar TRIFONOV
  Coordinator Professor: Katalina Grigorova
  University of Ruse, Bulgaria

- *Test Generator Tool for Embedded Testing*
  Fineas - Iacob MURESAN
  Coordinator Professor: Dana Simian
  "Lucian Blaga" University of Sibiu, Romania

- *Remote monitoring applications through Windows APIs*
  Momcilo BRAJIC
  Faculty of Computer Science, Belgrade, Serbia

- *What'S What* android application
  Darius HAŢEGAN
  Coordinator Professor: Dana Simian

- *PhotoMaster*
  Radu HANDOLESCU, Alexandru-Nicolae MOTOC
  Teacher Coordinator: Nicolae Steavu, Cristina-Elena Steavu
  Colegiul Naţional "Radu Negru", Fagaras

10^{45} – 11^{00} **IT companies presentation – iQuest**

11^{00} – 11^{30} **Coffee break**

11^{30} – 13^{15} **Papers presentation**
Chair Prof dr. Milan Tuba

- *Bluetooth Rover*
  Radu STOICAN
  Teacher Coordinator: Oana Georgescu
  Colegiul National de Informatica "Grigore Moisil", Brasov, Romania

- *OpenGL Game Engine*
  Svetlozar ILIEV
  Coordinator Professor: Katalina Grigorova
  University of Ruse, Bulgaria

- *Fireball*
  Bogdan GEORGESCU, Ciprian PETREAN
  Teacher Coordinator: Ramona Humeniuc
  "Horea, Closca and Crisan" National College, Alba-Iulia, Romania

- *HoloMat - View 3D Graphs in MatLab into a hologram*
  Petru AMORTOAE, Maria – Alexandra CRAIU
  Coordinator Professor: Laura Stoica
  "Lucian Blaga" University of Sibiu, Romania

- *Angry Driver*
  Marius Daniel MARINESCU, Mihail Irinel PREDA
  Teacher Coordinator: Elena Liliana Martin, Alina Dinu, Viorica Raicu
  B.P.Hasdeu National College, Buzău, Romania

- *Reducing image quality loss in digital stenography*
  Vesna Dzepina
  Coordinator Professor: Ralf Fabian
  Faculty of Computer Science, Serbia

- *Structuring business process models*
  Mykhailo Dorokhov
  Coordinator Professor: Marlon Dumas
  University of Tartu, Estonia

13^{15}-15^{00} **Lunch – University canteen**

16^{15} – 17^{15} **Official closing and awards ceremony -** Faculty of Sciences, A18 Room

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SATURDAY, May 21, 2016

10^{00} - 13^{00}	**Social program** (Visit of ASTRA Museum, historic center, other museums)

A B S T R A C T S

HoloMat - View 3D Graphs in MatLab into a hologram

Petru AMORTOAE, Maria – Alexandra CRAIU
Coordinator Professor: Laura STOICA

HoloMat is an application for desktop developed in Matlab. The aim of the article is to present an original application in order to project a 3D hologram through a transparent pyramid using a smartphone. In this article we described our application that allows us to transform a 3D graphic of Matlab to be transformed in order to be designed as a hologram. The application has a user- friendly interface with the capacity to customize the graphics created in Matlab changing the colormap, shading, delay between frames and number of faces. Also this application has 5 different functions and some predefined animations.

An experiment on running surveillance software as a unikernel application

Paul - Gheorghe BARBU

The aim of this paper is to explore the recent shift from monolithic applications to using microservices in a virtualized environment for serving clients' needs. During the experiment I created an application that runs as a unikernel and manages video streams from an IP camera, thus running IP camera surveillance software on bare metal hardware and on type one hypervisors.

Scytale encryption in modern days

István BIALKÓ
Coordinator Professor: Dan DUMITRU

Reviving the ancient Greek encryption method (using a baton and a strip of parchment), with a slight modification. This article searches the answers to the questions: "How safe is it?", "How easily can it be cracked?" and "How can we make it more reliable?"

Foody, you are what you eat

Cristian BOTA, Adrian A. BĂRBOS,
Coordinators Professor: Camelia-M. PINTEA, Mara Hajdu Măcelaru

The current paper illustrates a new application meant to innovate the way you track your meals and also to help you discover new ones. Meet Foody, an application inspired by the need to track and to keep in order the most essential routine of our daily basis: the food we eat.
They say "You are what you eat", but hence we live in an alert system we are constantly neglecting the importance of eating healthy, and eating regular. We seek to ease and improve the way we organise our daily meals. The application looks promising for developing strong knowledge of what a normal diet should look like, thus maintaining a healthy lifestyle and a fit body.

Arcadia: Socialize and Learn in Virtual Reality

Petrică BOTA, Robert SĂNDICĂ
Coordinator Professor: Dana SIMIAN

Recently, the popularity of virtual reality headsets (VR) has increased dramatically. This is a direct result of the advancements made in processing power and screen resolutions driven especially by the smartphone market. At the moment, there are many VR apps that immerse the user in a simulated world. We consider that most of the apps currently existing on the market are lacking interactivity, thus we have created Arcadia. Arcadia is an online virtual platform where people from around the globe can meet with virtual representations of themselves for a variety of purposes, e.g. a meeting with a class of students attending a course in distance learning system.

Remote monitoring applications through Windows APIs

Momcilo BRAJIC
Coordinator Professor: Florin STOICA

In software development, an application programming interface (API) is a set of routines, protocols, and tools which provides facilities to develop applications using a given programming language. In this paper, we will use several APIs of Windows operating systems class to develop a client/server application able to intercept and monitor events occurred on targeted computers.

Smart city and smart transportation. Bucharest case study

Crina CRISTEA, Alexandru DANIEL, Darko SHULESKI, Alexandru BIRSAN
Coordinator Professor: Ioan RADU

"Non-smart" cities are particularly challenged today, if we consider transportation problems, meanwhile smart cities are able to find solutions to these problems. In spite of this, the concept of smart city is still undefined, even if there is abundant research on this concept and on the components of the smart city. This study aims to explain the manner in which a smart city offers a sustainable economic development and transportation, as well as a high quality life for its inhabitants. The perception of individuals on the current public transportation in Bucharest represents the main objective of the case study. According to our research, the inhabitants from Bucharest are highly unsatisfied with the public transportation, which results in their desire for better transportation and in solutions proposed for this reason.

Mark It

Andrei DRAGOMIR, Ioan GROZEA
Teacher Coordinator: Delilah FLOREA

Nowadays most of the technology is automatized. However, we couldn't find an application with repeatable commands for the smartphone, other than the alarm clock or other simple apps. Therefore, we decided to help the people in their daily activities by creating an application that can track the users by GPS using the phone's location feature. These will feature the maps from Google Maps, and they could set some checkpoints on the map. A pointer will show the user's current location, with an error of a couple meters, if the signal of the phone is good enough. The app will notice when the current location of the user is within a checkpoint and will change/update some phone settings based on this checkpoint. The app will work in background, so the users mustn't have the screen on.

Structuring business process models

Mykhailo DOROKHOV
Coordinator Professor: Marlon DUMAS

Nowadays, the trend is moving towards developing the systems that are not brand new, but created to substitute the existing ones. These systems are going to follow the requirements, which are partly inherited from the previous systems. That means, that analyst can not only create the behaviour model (in particular BPMN models), but also try to extract it from the event log, using the automated process discovery techniques [4]. However, making these results of a human-readable form is a significant issue, since the models on the output are not the best tuned for the better human comprehension, they are not only usually flat, but they also are not composed of a blocks that are

easy to understand and read [3]. Thus, having an automated means of structuring the process models would significantly facilitate the whole process of the inheriting requirements and analysing them.

Reducing image quality loss in digital stenography

Vesna DZEPINA
Coordinator Professor: Ralf FABIAN

Hiding information from third party is an important strategy when it comes to secure communication. This paper presents a strategy that involves stenography for transmitting secret data by multimedia carriers such as images, audio or video files. The goal is to hide the very existence of the embedded data and it can be widely used in many different applications. Robustness and image quality are the main factors that stenography might inherit from cryptography and watermarking digital data. Experiments presented in this paper will show how a series of data embedding parameters for stenography may reduce image quality loss in host.

Fireball

Bogdan GEORGESCU, Ciprian PETREAN
Teacher Coordinator: Ramona HUMENIUC

The aim of this project is to design an animation scene using 3D modelling. The animation is made for a future open world game. As a first step we've done a medieval fantasy themed cinematic. We used Blender in making models, compositing and animations. Blender is the free and open source 3D creation suite. It supports the entirety of the 3D pipeline—modelling, rigging, animation, simulation, rendering, compositing and motion tracking, even video editing and game creation. The project is compound of dynamic scenes, in which every object is modelled from a basic mesh and textured. Video editing and a part of compositing capabilities were done in Sony Vegas Pro.

PhotoMaster

Radu HANDOLESCU, Alexandru-Nicolae MOTOC
Teacher Coordinator: Nicolae STEAVU, Cristina-Elena STEAVU

The project we made, called "PhotoMaster", consists of a specialized program for editing photos or other images. The making of any type of program requires very strong knowledge of the programming environment especially when it is about an application with a well-defined practical role. While creating and designing this photo editor, we tried to closely study all the functionalities of a real editor, from the simplest ones to the most complex, and implement the new products as an original and easy to use program. We also wanted to highlight the usage of mathematical formulas

for resizing, Zoom and other operations. The pre-existent editors on the market bring together a great number of fatures and functionalities which can make the user feel overwhelmed by the situation. We tried to remove this impediment through a very simple and clean interface, making the access to the diverse tools very easy and intuitive. The reason we chose to develop such an application is our desire to engage in a large scale project in order to test our C# programming knowledge, as well as our algorithmic thinking and ability to work in a team. We chose the photo editor because of the reasons we stated above and due to the absence of a free and quality program of this kind.

What'S What android application

Darius HAȚEGAN
Coordinator Professor: Dana SIMIAN

What'S What is an android project which want to increase the access level of information through an application. The application is based on camera which scans barcode from the product. The user can introduce the barcode manually, if lines are not visible. Afterwards, the app search in a lot of sources, call web services, through application web service and at the end, shows the information to the user in a well structured interface.
We made a research based on ten existed applications. The test proves that the use of one single application cannot provide enough information. The applications based on barcode work with small sources/databases containing hundreds of products or specification, introduced in databases from different users. On the same side, these apps are not focused on user experience. Our application aims to remove these drawbacks of existing apps.
For now, *What'S What* is only a proof of concept (POC) but for the future it will be a commercial product, designed to transform the need of using this application into a real experience.

3D Mobile cross platform game

Dragos HODINA
Coordinator Professor: Dana SIMIAN

Smartphones, since they appeared, were integrant part of our daily activities. We use them more to navigate on the internet, send messages, watch videos, listen to music, take pictures than for calling other people. Since human brain is able to accomplish complex tasks, daily activities tend to be boring and our brain simply "implore" us to take a challenge. Smartphones can provide this challenge through engaging mobile games from different genres, most notably: action, strategy, arcade, adventure and logic. These games made me to develop such a game, a strategy one, just because they put your brain to work, involving quick strategically decisions, attention, scheduling skills and objects management.
„Monster Defense" is a strategy tower based game offering a fast real-time path computation system based upon optimizations made on A* path finding algorithm, enemy motion tracking, saving

progress capabilities, multiple upgrade options, multiple scenes, intuitive touch input, flexibility to screen resolutions, optimized graphics computations, low memory and CPU overhead, smooth enemy animations and maintainability using modular reusable scripting components.

"Dodgy Ninja"

Flavius HOLERGA, Andrei MILIK, Inocențiu MOGA
Teacher Coordinator: Gabriela FLOREA

The application "Dodgy Ninja" is a game designed for all. It is created for both gamers and people who want to spend their spare time in a pleasant way. The creators aim to catch the users interest by provoking him to a challenging game in terms of difficulty. The theme of the game is survival in 'ninja style', as long as possible, on a narrow piece of wood, under the pressure of obstacles thrown towards the character. Its difficulty will increase during the round. The obstacles come from a wide assortment of comic objects, such as balls, rockets etc.

OpenGL Game Engine

Svetlozar ILIEV
Coordinator Professor: Katalina Grigorova

This paper describes the creation of a 3D game engine, for use in an introductory video game programming. Having the right tools available can make illustrating the concepts of game development and design substantially easier. In creating the engine, a number of factors such as ease of use and accessibility, were considered. Successful implementation of tools allow clients to produce games quickly and the concepts of game development to be explored more effectively.

Smart Backpack

Vlad IONESCU, Emanuel GIURGIU, Vlad MURZEA, Sebastian VIDREA
Coordinator Professor: Livia SANGEORZEAN

In our days children are very attached with technology and their thirst for knowledge is growing up day by day. Their continuous curiosity to discover new thing together with their "spongy minds" inspire us to increase our possibilities and to oversteps our limits.
As we all know school and technology are hand in hand and the "old school methods of learning" are overcame for our days. Looking back, the traditional ways of writing with pencil and paper or the dust of the white Crete bring us a nostalgic feeling that futures generations wont get to know it. Even for a child from the first grade all this sound hilarious and definitely are not "cool" anymore. Not only that the 21-century school technology is more attractive but also the studies proved that is

more efficient. All this progress of the educational system have made the child more open minded, eager and excited about learning. In the past years the government spend millions of dollars to update and modernize the equipment in order to satisfy the needs of the pupils. All in all their effort have just encouraged the importance of having them in the educational process.
This era of evolution affect also another category and we refer here at the parents. They need to have a job, **Raicu** like the schedule of their children.
Last but not least the teachers are also affected. Besides they are working at school, they also need to work at home, for preparing the lessons, and the test papers. In this way the professor works for little and unimportant things instead of according sufficient time for the students.
Therefore we have tried to create a concept that combines all the solutions to the problems from the three perspectives discussed above.

Angry Driver

Marius Daniel MARINESCU, Mihail Irinel PREDA
Teacher Coordinator: Elena Liliana MARTIN, Alina DINU, Viorica RAICU

The application represent an entertainment software portable and interactive, implemented with UNITY, designed for ANDROID platform. It can be used by anybody within recreational scope, improving attention and reaction time.
The main objectives of the game are: avoiding obstacles by the player, which drives a vehicle and collecting coins with the aim of purchasing other cars. As far as the player goes, the cars' velocity increase. It allows purchasing other new cars, weapons which facilitates going forward and protective shield which allows to destroy the other cars. It will store a high score, collected coins and purchased vehicles. Also the application has two game modes: "Normal Mode", where the player has to drive the car during the day and "Night Mode", where the rewards are doubled and the player has to drive the vehicle during the night.
Unity uses Object Oriented Programming (OOP) and allows working with windows, buttons and other objects. The application becomes interactive, dynamic with personalized GUI (Graphic User Interface). It is integrated on an online edited web page (blog type). Any user can rapidly and surely download the application.

Test Generator Tool for Embedded Testing

Fineas - Iacob MUREŞAN
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This paper was put together in the Continental Automotive Systems Company, ADAS department (Advanced Drive Assistance Systems). The work object of ADAS department is represented by Short Range Lidar, a system which helps to avoid or minimizes the accidents at a low speed. At speeds below 30 km/h, the sensor which positioned above the windscreen, scans the area in front of the vehicle, about 7.6m looking for possible obstacles. If the sensor detects an obstacle, a speed

reduction or if a vehicle in front it is in a stationary position, it will indicate that a crash is imminent. In this case, the brakes will be recharged without the intentionality of the driver. If the driver remains passive (no reaction to avoid or to brake), the machine uses the brake automatically and reduces the torque engine. At a relatively lower speed, namely 15 km/h, the automatic breaks help the driver to entirely avoid the crash if an obstacle is ahead. If the speed between two vehicles is between 30 and 50 km/h the impact is expected to decrease.
The purpose of the application is to eliminate CANoe1 from the creation process of the integration tests and to have a special tool. This tool should offer the possibility to build tests, run them individually, and select multiple sequential tests to run. It should also generate a test report, text-format, containing real-time information about the performance of the tests.
Currently, there are two ways to create integration tests. One way is a tool by Vector, called CANoe, where the tests are designed for the validation. This tool is used also in the integration process. Testing is performed from actual editing (writing code) up to their running. Another way to create integration tests is simply writing some command lines in a text editor (Notepad, Notepad ++, etc.), then saving with the extension *.cmm* as a file and finally sending i as a parameter to Trace32, from a batch file. Trace32 is an executable that debugs the code on the sensor.
The main disadvantage for CANoe is the high price of the license for its use. Building this tool leads to saving a considerable amount of money, a sum that can be used for other purposes of the company. Furthermore, if writing texts would be addressed as in the second case, namely, writing commands in a text editor, this would lead to hard work favoring also the appearance of many errors, because the syntax is very strict. Another disadvantage of the existing testing represents the lack of possibility to select more tests for successive running without human intervention. In both cases, there are some drawbacks which have led to the need to build a new tool that can be affordable and build tests with ease.

StarDust

Alexandru OLTEAN, Alin Gabriel PRĂVARIU
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Since this year we celebrate Tomohiro Nishikado's[1] 72 anniversary at the end of the month, 31st of March to be more precise, our project will be based on one of his games, Space Invaders, but with a tint of new. Our game will keep the original 8bit theme but with brighter colours, small added details and attractive effects suitable for such a renowned game from 1978, remade after nearly 40 years from its release. It's recreated with the game engine Unity and scripts from C#.

Roev - Event Planner

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The purpose of this article is to present a web application used for events management. This application is developed with Liferay and it's designed mainly for companies and enterprises, but not exclusively. With an intuitive and friendly interface and with the help of reliable and modern technologies, it is a perfect tool for day to day meetings and events planning. Further in this article there are different sections which describe the application's components and how they work. There are also different screenshots from the application and a couple of code snippets included.

Pseudocode Learning Companion

Cătălin POPA
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Be it the introduction intro elementary algorithmic notions in the 9th grade, the preparation for the national exams in the 12th grade, or reviewing information during university, good knowledge of the pseudocode language is mandatory for any pupil studying Informatics. The aim of the program is not only to provide a modern an effective means of teaching (or updating) this language, but also to support self-learning. Made using Microsoft Visual C#, the program offers the possibility explain the language using multiple modules: learning environment, code checker and translator. The learning environment allows pupils to master the syntax and characteristics of an individual statement using on-screen instructions, and then to try and write it themselves and see whether it's correct. Later, the pupil may check if a whole algorithm that uses multiple statements has been written correctly. Last but not least, the translator provides an easy means of transition towards C++ or Pascal, by effectively translating pseudocode into real code.

Multicriteria alternative choice in the conditions of uncertainty on the basis of the fuzzy preference relations

Maria SOKOLOVA
Coordinator Professor: Vladimir CHERNOV

In this work a variant of a method of a multicriteria alternative choice ELECTRE, which allows to account for uncertainties of expert estimates, was developed and studied. Modified method ELECTRE is tested for solving a particular problem and describes different possible solutions of this problem in the program FuzzyCulc.

Bluetooth Rover

Radu STOICAN
Teacher Coordinator: Oana GEORGESCU

The project consists in a Bluetooth controlled rover. Any Bluetooth device can be used to communicate with the robot, for example computers, smartphones or tablets that have Android as an operating system. The main part of the project is the Arduino Uno microcontroller and the robot is programmed in the Arduino software with C++ language. The robot also has other parts as motors, sensors, LEDs and the ability to use SD and microSD cards.

Embedded application controlled by a mobile device

Marius TOMA
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The aim of this paper is to present an idea of a simple robot which is moving on four axes and is controlled by a mobile device through an android app using a Bluetooth module. This robot could have applications in various fields that we come across. With his computational and agile skills the robot can perform assignments that are difficult or hazardous to humans. One area where robots are beginning to come through, and which causes less controversial debate on their efficiency is as explorers.
The proposed work is to implement a robot that practically simulates a remote control vehicle. Due to the large wheels and the fact that the chassis is flexible, the robot well approaches any kind of hard surface ground. Also, the most basic component of the project is a microcontroller Arduino Uno. This is the "master" or "the brain" of the entire robot vehicle, the Arduino board uses a piece of written code similar to C ++ language loaded into its microcontroller memory to initialize or control the other components.

ChessTime – a simple chess clock for Android

Dimitar TRIFONOV
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Chess is a classic 2-player game popular all around the world and played by people of all ages. Nowadays you can easily play chess online, but playing in person, on a real chess board, is just a lot more fun. Unfortunately, while you may have a chess board that you can play on, very few people own a chess clock as well, which is mandatory for determining how long a game should be. ChessTime solves that problem in a convenient way for both players.

Parameters tuning for support vector machines

Eva TUBA
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Machine learning is one of the important field in computer science. It represents a type of artificial intelligence and it is used in many different applications. One of the tasks of machine learning is classification. Classification is widely used for applications in many scientific fields and represents very active research field. As result, different algorithms were proposed for solving the classification problem. One of the latest and widely used classifier is support vector machine (SVM). In order to get satisfying accuracy of classification by SVM a few parameters need to be tuned. In this paper we experiment with values of parameters for different data.

Optimization of Otsu's method for multilevel image thresholding by grid search

Una TUBA
Coordinator Professor: Milan TUBA

Digital images are widely used in every day life by many people. With increasing the use of digital images, different needs for their adjustment and processing was developed. Image thresholding is one of the very important algorithm used in computer science. Different algorithms for image thresholding was developed. One of the widely used is Otsu's method. Because of computational complexity , in order to perform multilevel image thresholding, some optimization is needed. In this paper we experiment with grid search for optimization of Otsu's method. Execution time can be significantly reduced with grid search.

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