



# ACeSYRI

## Program of

the International Workshop on  
Modern Experience for PhD students  
and Young Researchers

June 22-24, 2021  
Žilina, Slovakia



Co-funded by the  
Erasmus+ Programme  
of the European Union



The International Workshop on **ACeSYRI: Modern Experience for PhD students and Young Researchers** has been organized by representatives from the Faculty of Management Science and Informatics (University of Žilina).

The workshop has been implemented in frame of the ERASMUS+ project:

*Advanced Centre for PhD Students and Young Researchers in Informatics* (ACeSYRI) (Project EACEA.CBHE, reg. no.: 610166-EPP-1-2019-1-SK-EPPKA2-CBHE-JP supported by the European Union's Erasmus+ programme).

This Workshop is post-project event of the project “Centers of Excellence for young RESearchers” (CERES) - 544137-TEMPUS-1-2013-1-SK-TEMPUS-JPHS



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of the European Union



ACeSYRI workshop website:

[https://idt.fri.uniza.sk/index.php?clanok=workshop\\_acesyri](https://idt.fri.uniza.sk/index.php?clanok=workshop_acesyri)

# Preface

We have the pleasure to present to you the Program of International Workshop on **ACeSYRI: Modern Experience for PhD students and Young Researchers**. This workshop is organized as an event of the ERASMUS+ project ACeSYRI (Advanced Centre for PhD Students and Young Researchers in Informatics, reg.no. 610166-EPP-1-2019-1-SK-EPPKA2-CBHE-JP).

The ACeSYRI workshop holds simultaneously takes place during the conference Information and Digital Technologies (IDT 2021). IDT 2021 provides a forum for presentation and discussion of scientific contributions covering the theories and methods in the field of information and digital technologies, and their application to a wide range of industrial, civil and social sectors and problem areas. IDT 2021 is also an opportunity for researchers, practitioners, academics, and engineers to meet, exchange ideas, and gain insights from each other.

This ACeSYRI workshop is intended for PhD students, young researchers, their scientific advisors, and educators from different countries. The main goal of the workshop is to approbate presentation skills of young researchers, to establish and to expand international contacts and co-operation of young researchers from Partner Countries with potential foreign co-advisors. ACeSYRI project results have been presented at this seminar. The young researchers presented at the workshop with their lectures about their scientific research. We expect that this workshop will be useful for the establishment and expansion of international contacts and the cooperation of young researchers.

The ACeSYRI workshop program is divided into two essential parts. The first part contents one Plenary section and three regular Sections that cover numerous aspects of Informatics. Twenty-five young researchers have been selected for present their results in this part. These researchers were recommended by members of the Program Committee of the ACeSYRI workshop. All presentations were prepared in English. These presentations will be published on the ACeSYRI website.

The second part includes the IDT 2021 Conference. More than 60 reports of famous and young researchers from different countries have been selected in this part. These researchers presented their own achievements in Bio-Medical and Information Technologies, Information Systems, Artificial Intelligence, Communication, Reliability and Safety Technologies, etc. In addition to nine regular Sections, the next invited lectures have been presented at the three Plenary Sections:

- *Analyzing physical activity data collected with accelerometers* by prof. Timo Jämsä (University of Oulu, Finland);
- *Optimization of Convolutional Neural Networks* by dr. Martin Lukac (Nazarbayev University, Nursultan, Kazakhstan);
- *Infinite Petri Nets for Cybersecurity of Intelligent Networks, Grid, and Clouds* by prof. Dmitry Zaitsev (Supercomputación Castilla y León, Spain);
- *Cognitive systems for smart applications*, by prof. Kor Ah-Lian (University of Leeds United Kingdom).

We thank Keynote Speakers for offering their unique perspectives on Information Technologies. And we thank members of the Programme Committee for recommended presentations of younger researchers. We gratefully acknowledge the Faculty of Management Science and Informatics of the University of Žilina for the organizational and technical support of the ACeSYRI workshop. We also thank all the contributed paper authors for their submissions and presentations.

The organization team of ACeSYRI 2021

# ACeSYRI 2021 Program Committee

**Chair**      **Zaitseva Elena**, *University of Žilina (UNIZA), Slovakia*  
**Martin Lukac**, *Nazarbayev University (NU), Nursultan, Kazakhstan*

- **Aliyarova Madina**, *Almaty University of Power Engineering and Telecommunication (AUPET), Kazakhstan*
- **Balbayev Gani**, *Almaty University of Power Engineering and Telecommunication (AUPET), Kazakhstan*
- **Bogdanchikov Andrey**, *Suleyman Demirel University (SDU), Kaskelen, Kazakhstan*
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- **Iung Benoît**, *University of Lorraine (UL), Nancy, France*
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- **Kenshinbay Temirbolat**, *Korkyt Ata Kyzylorda State University (KKSU), Kyzylorda, Kazakhstan*
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- **Kuchеров Dmytro**, *National Aviation University (NAU), Kyiv*
- **Kukhareno Yevgeniya**, *Manash Kozybayev North Kazakhstan University (NSU), Petropavlovsk, Kazakhstan*
- **Kulmurzayev Nurlan**, *Korkyt Ata Kyzylorda State University (KKSU), Kyzylorda, Kazakhstan*
- **Kvassay Miroslav**, *University of Žilina (UNIZA), Slovakia*
- **Levashenko Vitaly**, *University of Žilina (UNIZA), Slovakia*
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- **Mironova Vicktoriia**, *Taras Shevchenko National University of Kyiv (TSNUK), Kyev, Ukraine*
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- **Nurmagambetov Amantay**, *Bologna process and academic mobility center Ministry of education and science of Republic of Kazakhstan (BPAMC), Almaty, Kazakhstan*
- **Pleskach Valentyna**, *Taras Shevchenko National University of Kyiv (TSNUK), Kyev, Ukraine*
- **Pokusov Victor**, *Kazakhstan Information Security Association (KISA), Nursultan, Kazakhstan*
- **Podlaski Krzysztof**, *University of Lodz (ULO), Poland*
- **Rabcan Jan**, *University of Žilina (UNIZA), Slovakia*
- **Seilova Nurgul**, *Kazakh National Research Technical University after K.I.Satbaev (KazNRTU), Almaty*
- **Skakun Victor**, *Belarus State University (BSU), Minsk, Belarus*
- **Sultanova Zamzagul**, *Zhangir khan West Kazakhstan Agrarian-Technical University (WKATU), Uralsk, Kazakhstan*
- **Tatur Michail**, *Belarus State University Informatics and Radioelectronics (BSUIR), Minsk, Belarus*
- **Terenchuk Svetlana**, *National University of Construction and Architecture (KNUCA), Kyiv, Ukraine*
- **Turan Cemil**, *Suleyman Demirel University (SDU), Kaskelen, Kazakhstan*

## Technical Committee

- **Rusnak Patrik**, *University of Žilina (UNIZA), Slovakia*
- **Sedlacek Peter**, *University of Žilina (UNIZA), Slovakia*

# ACeSYRI 2021. Time Schedule

**Channel 1.** [https://teams.microsoft.com/l/meetup-](https://teams.microsoft.com/l/meetup-join/19%3aU3nPAYl09Z55epbrzOxmu9xbduCnKmAPlyqLwLb3vxM1%40thread.tacv2/1623769267248?context=%7b%22id%22%3a%228324ff4b-14c8-4bf5-b07e-a0713179f37e%22%2c%22oid%22%3a%225530e086-8de0-4f1f-9499-4d5a9c323999%22%7d)

[join/19%3aU3nPAYl09Z55epbrzOxmu9xbduCnKmAPlyqLwLb3vxM1%40thread.tacv2/1623769267248?context=%7b%22id%22%3a%228324ff4b-14c8-4bf5-b07e-a0713179f37e%22%2c%22oid%22%3a%225530e086-8de0-4f1f-9499-4d5a9c323999%22%7d](https://teams.microsoft.com/l/meetup-join/19%3aU3nPAYl09Z55epbrzOxmu9xbduCnKmAPlyqLwLb3vxM1%40thread.tacv2/1623769267248?context=%7b%22id%22%3a%228324ff4b-14c8-4bf5-b07e-a0713179f37e%22%2c%22oid%22%3a%225530e086-8de0-4f1f-9499-4d5a9c323999%22%7d)

**Channel 2.** [https://teams.microsoft.com/l/meetup-](https://teams.microsoft.com/l/meetup-join/19%3aU3nPAYl09Z55epbrzOxmu9xbduCnKmAPlyqLwLb3vxM1%40thread.tacv2/1623770970351?context=%7b%22id%22%3a%228324ff4b-14c8-4bf5-b07e-a0713179f37e%22%2c%22oid%22%3a%225530e086-8de0-4f1f-9499-4d5a9c323999%22%7d)

[join/19%3aU3nPAYl09Z55epbrzOxmu9xbduCnKmAPlyqLwLb3vxM1%40thread.tacv2/1623770970351?context=%7b%22id%22%3a%228324ff4b-14c8-4bf5-b07e-a0713179f37e%22%2c%22oid%22%3a%225530e086-8de0-4f1f-9499-4d5a9c323999%22%7d](https://teams.microsoft.com/l/meetup-join/19%3aU3nPAYl09Z55epbrzOxmu9xbduCnKmAPlyqLwLb3vxM1%40thread.tacv2/1623770970351?context=%7b%22id%22%3a%228324ff4b-14c8-4bf5-b07e-a0713179f37e%22%2c%22oid%22%3a%225530e086-8de0-4f1f-9499-4d5a9c323999%22%7d)

**UTC +2 CEST Central European Summer Time (Bratislava)**

Monday, June 21, 2021		
13:00-14:00	Testing of the connection.	
Tuesday, June 22, 2021		
09:00-09:40	Registration and connection (channel 1)	
09:40-10:00	Opening of the IDT Conference (channel 1)	
10:00-12:00	The First Plenary Section (channel 1)	
12:00-13:00	Lunch	
13:00-14:30	Section BT1, channel 1	Section IT1, channel 2
14:30-14:45	Coffee/tea	
14:45-16:30	Section RaST1, channel 1	Section ACeSYRI1, channel 2
Wednesday, June 23, 2021		
09:00-10:45	Section RaST2, channel 1	Section ACeSYRI2, channel 2
10:45-11:00	Coffee/tea	
11:00-12:00	The Second Plenary Section (channel 1)	
12:00-13:00	Lunch	
13:00-14:30	The Industrial Center (channel 1)	
14:30-14:45	Coffee/tea	
14:45-16:30	Section BT2, channel 1	Section CT, channel 2
Thursday, June 24, 2021		
09:00-10:45	Section AI1, channel 1	Section IT2, channel 2
10:45-11:00	Coffee/tea	
11:00-12:00	The Third Plenary Section (channel 1)	
12:00-13:00	Lunch	
13:00-14:30	Section AI2, channel 1	Section ACeSYRI3, channel 2
14:30-15:30	The Forth Plenary Section (channel 1)	The ACeSYRI Plenary Section (channel 2)
15:45-16:00	Closing ceremony (channel 1)	

# Detailed Schedule

## Monday, June 21, 2021

Please, activate these URLs and check the Conference's connection to channel1 and channel2 in advance. Do not hesitate to contact the representative of the Organizing Committee (Ing. Peter Sedlacek, PhD student, peter.sedlacek@fri.uniza.sk) if you have got any technical problems.

**Channel 1.** <https://teams.microsoft.com/l/meetup-join/19%3aU3nPAYlQ9Z55epbrzOxmu9xbduCnKmAPlyqLwLb3vxM1%40thread.tacv2/1623769267248?context=%7b%22Tid%22%3a%228324ff4b-14c8-4bf5-b07e-a0713179f37e%22%2c%22Oid%22%3a%225530e086-8de0-4f1f-9499-4d5a9c323999%22%7d>

**Channel 2.** <https://teams.microsoft.com/l/meetup-join/19%3aU3nPAYlQ9Z55epbrzOxmu9xbduCnKmAPlyqLwLb3vxM1%40thread.tacv2/1623770970351?context=%7b%22Tid%22%3a%228324ff4b-14c8-4bf5-b07e-a0713179f37e%22%2c%22Oid%22%3a%225530e086-8de0-4f1f-9499-4d5a9c323999%22%7d>

## Tuesday, June 22, 2021

### Opening of the Conference

**09:40-10:00 (channel 1)**

The Conference Opening	Prof. Elena Zaitseva
Welcome words of the Conference Chair	Prof. Paolo Soda
Welcome words from the University of Žilina	Prof. Karol Matiaško
Welcome words of the Dean of the Faculty	Dr. Emil Kršák
Welcome words of the chair ESRA	Prof. Marko Čepin

### The First Plenary Section

**10:00-12:00 (channel 1)**

**Moderators:** Prof. Paolo Soda, Italy

**Assistant:** Ing. Peter Sedláček, Slovakia

**Prof. Timo Jämsä (University of Oulu, Oulu, Finland)**

*Analyzing physical activity data collected with accelerometers*

**Dr. Martin Lukač (Nazarbayev University, Nursultan, Kazakhstan)**

*Optimization of Convolutional Neural Networks*

## Section BT1. Biomedical technologies

**13:00-14:30 (channel 1)**

**Moderators:** Dr. Jaroslav Majernik, Slovakia

**Assistant:** Ing. Peter Sedláček, Slovakia

Luisa Francini, Paolo Soda and Rosa Sicilia.

*Describing rumours: a comparative evaluation of two handcrafted representations for rumour detection*

Jaroslav Majernik, Martin Komenda, Andrzej Kononowicz, Inga Hege and Adrian Ciureanu.

*Software based support of curriculum mapping in education at medical faculties*

Kristína Kovalčíková, Hynek Bachraty, Katarína Bachratá and Katarína Buzáková.

*Numerical Experiment Characteristics Dependence on Red Blood Cell Parameters*

Kirill Yakunin, Ravil Mukhamediev, Marina Yelis, Adilkhan Symagulov, Yan Kuchin, Elena Muhamedijeva, Jan Rabcan and Aubakirov Margulan.

*Reflection of the COVID-19 pandemic in mass media*

Maike Krips, Nenad Kostanjsek, Sebastian Decker and Thomas M. Deserno.

*Terminology to classify events in the early rescue chain*

Natalia Aralova, Valery Mashkin and Iryna Mashkina.

*Information technologies for decision-making support in case of viral infectious*

## Section I1. Information Technologies

**13:00-14:30 (channel 2)**

**Chair:** Dr. Michal Kvet, Slovakia

**Assistant:** Dr. Patrik Rusnák, Slovakia

Roman Čerešňák, Michal Kvet, Karol Matiaško and Adam Dudáš.

*Mapping rules for schema transformation SQL to NoSQL and back*

Stanislava Simonova.

*Requirements Gathering for Specialized Information Systems in Public Administration*

Oksana Nass, Gaukhar Kamalova, Rauan Shotkin and Jan Rabcan.

*Analysis of methods for planning data processing tasks in distributed system for the remote access to information resources*

Matej Meško, Patrik Hrkút, Štefan Toth, Michal Ďuračík and Dominik Kornhauser.

*Checking the writing of commas in Slovak*

Roman Čerešňák, Michal Kvet and Karol Matiaško.

*Improved method of selecting data in a nonrelational database*

Vasyl Gorbachuk, Serge Gavrilenko, Gennady Golotsukov and Dmytro Nikolenko.

*On the Corporate Digital System for Organization and Management of Pools for Intellectual Property Rights in Ukraine*

## Section RaST1: Reliability and Safety Technologies

**14:45-16:30 (channel 1)**

**Chair: Prof. Nicolae Brînzei, France**

**Assistant: Ing. Peter Sedláček, Slovakia**

Attila Kuki, Tamás Bérczes, János Sztrik and Ádám Tóth.

*Reliability analysis of a retrieval queueing systems with collisions, non-patient customers, and catastrophic breakdowns*

Ádám Tóth, János Sztrik, Ákos Pintér and Zoltán Bács.

*Reliability Analysis of Finite-Source Retrieval Queueing System with Collisions and Impatient Customers in the Orbit Using Simulation*

Gaël Hequet, Nicolae Brînzei and Jean-François Pétrin.

*Usage profile in physical systems modeled with stochastic hybrid automata*

Ihor Kliushnikov, Vyacheslav Kharchenko, Herman Fesenko and Elena Zaitseva.

*Multi-UAV Routing for Critical Infrastructure Monitoring Considering Failures of UAVs: Reliability Models, Rerouting Algorithms, Industrial Case*

Peter Sedlacek and Elena Zaitseva.

*Software reliability model based on syntax tree*

Alexander Kolchin, Stepan Potiyenko and Thomas Weigert.

*Extending data flow coverage with redefinition analysis*

Michal Mrena and Miroslav Kvassay.

*Comparison of Left Fold and Tree Fold Strategies in Creation of Binary Decision Diagrams*

## Section on ACeSYRI1

**14:45-16:30 (channel 2)**

**Chair: Prof. Martin Lukac, Kazakhstan**

**Assistant: Dr. Patrik Rusnák, Slovakia**

Marat Isteleyev (NU), *Developing a new data collection approach and analysing cough audio signals*

Ainur Bazarbayeva (WKATU), *Agile and scrum in product development and their situation in Kazakhstan*

Yeva Volnianska (TSNUK), *E-commerce software system of handmade products*

Artiom Tsarik (BSUIR), *Mobile application for the passage of the route by an athlete*

Nurguzat Yerkebukan (AUPET), *Analysis of the connection of an analog digital sensor to the Field-Programmable Gate Array (FPGA)*

Rauan Shotkin (WKATU), *Using AGILE methodology in research activities for assigning and monitoring tasks*

Anel Kaiyrbek (KKSU), *Data Transfer Through LED. Implementation of Li-Fi Wireless Network*

Ilyas Assanov, Kirill Yakunin, Ravil Muhamedyev (KazNRTU), and Dmitry Sokolov (UL), *Path planning algorithm for heterogeneous multi-UAV system for precise agriculture*

**Wednesday, June 23, 2021**

## **Section RaST2: Reliability and Safety Technologies**

**09:00-10:45 (channel 1)**

**Chair: Prof. Frank Coolen, United Kingdom**

**Assistant: Ing. Peter Sedláček, Slovakia**

Dmitry Zaitsev, Tatiana Shmeleva and Peyman Ghaffari.

*Modeling Multidimensional Communication Lattices with Moore Neighborhood by Infinite Petri Nets*

Mikhail Tatur, Aleksander Ivanitski, Viachaslau Prorovski and Miroslav Kvassay.

*Exploratory analysis of the fire statistics using automatic time series decomposition*

Mohamed Hedi Zaghouani, Hamza Nemouchi and János Sztrik.

*Reliability analysis of Cognitive Radio Networks with balking and reneging*

Patrik Rusnak.

*Algorithms for calculation of logical derivatives for survival signature and their analysis*

Galina Zverkina.

*On polynomial convergence rate for extended reliability standby system*

Stanislaw Czapp.

*Time-Current Tripping Characteristics of RCDs for Sinusoidal Testing Current*

## **Section on ACeSYRI2**

**09:00-10:45 (channel 2)**

**Chair: Dr. Krzysztof Podlaski, Poland / Dr. Miroslav Kvassay, Slovakia**

**Assistant: Dr. Patrik Rusnák, Slovakia**

Rollan Shapirov (NU), *Neural Network hacking*

Taras Pavelko (TSNUK, Kyev, Ukraine), *Electronic Document Management Software for School*

Nursultan Zhetenbayev (AUPET), *Exoskeleton for human ankle joint treatments*

Olga Gordeeva (ASUACE, Astrakhan, Russia), *Information system for commercial electricity metering*

Alatau Akhmet-Sultan (KISA), *Influence of eHealth and suggestions to improve data collection*

Dmitrii Nedelko (ASUACE, Astrakhan, Russia), *Information and analytical system for optimizing work with URL links*

Bagdat Sauanov and Nurgul Seilova (KazNRTU), *Advanced Persistent Threat*

## The Second Plenary Section

**11:00-12:00 (channel 1)**

**Moderators:** Prof. Daria Filatova, France

**Assistant:** Ing. Peter Sedláček, Slovakia

**Prof. Dmitry A. Zaitsev (Odessa State Environmental University, Ukraine;  
Supercomputación Castilla y León, Spain)**

*Infinite Petri Nets for Cybersecurity of Intelligent Networks,  
Grid, and Clouds*

## The Industrial Centre

**13:00-14:30 (channel 1)**

**Moderators:** Prof. Janos Sztrik, Hungary

**Assistant:** Ing. Peter Sedláček, Slovakia

Miroslav Kvassay and Elena Zaitseva (University of Žilina)

*University-Industry Educational Centre in Advanced Biomedical and Medical  
Informatics*

Adrian Petrik (StaPro)

*Early warning score – from paper to a digital solution*

Nika Kvaššayová, Marek Mansell and Martin Cápay

*The BBC micro:bit in Slovakia*

## Section BT2: Biomedical Technologies

**14:45-16:30 (channel 1)**

**Chair:** Dr. Tomaz Amon, Slovenia

**Assistant:** Ing. Peter Sedláček, Slovakia

Marek Kvet.

*Impact of Fairness Constraints on Average Service Accessibility in Emergency  
Medical System*

Mariana Ondrušová and Ivan Cimrák.

*Computational study of red blood cell behaviour in shear flow for different bending  
stiffness of the membrane*

Sara Mollà-Casanova, Núria Sempere-Rubio, Marta Aguilar-Rodríguez, Marta Inglés  
and Pilar Serra-Añó.

*Effectiveness of Bodily Illusion Therapy on gait and pain in patients with  
incomplete spinal cord injury*

Michal Kvet and Karol Matiascko.

*The efficiency of the Temporal Medical Data Retrieval*

Mikuláš Klimo, Nika Kvaššayová, Miroslav Kvaššay, Marek Mansell, Bibiána Kleinová.

*3D Printed Face Shield as a Help for Nursing Homes During COVID-19 Pandemic*

Kim Gandy, Myra Schmaderer, Anthony Szema, Chris March, Mary Topping, Anna Song, Marcos Garcia-Ojeda, Arthur Durazo, Jos Domen and Paul Barach.

*Remote Patient Monitoring: A Promising Digital Health Frontier*

Tomaz Amon.

*Experience with the usage of virtual reality worlds about natural history in Slovenia*

Vasyl Martsenyuk, Nazar Milian and Roksolana Milian.

*The U-Net model application for retinal vessels segmentation using minimax approach*

Alexander Fedorov, Sergei Koryagin, Pavel Klachek and Irina Liberman.

*Development of neurodynamic methods based on hybrid computational intelligence*

## Section CT: Communication Technologies

**14:45-16:30 (channel 2)**

**Chair: Prof. Andriy Luntovskyy, Germany**

**Assistant: Dr. Patrik Rusnák, Slovakia**

Andriy Kovalenko, Nina Kuchuk, Heorhii Kuchuk and Jozef Kostolny.

*Horizontal scaling method for a hyperconverged network*

Andriy Luntovskyy and Tim Zobjack.

*Secured and Blockchain IoT*

Hanan Tariq and Stanislaw Czapp.

*Tripping of F-type RCDs for High-Frequency Residual Currents*

Andrii Astrakhantsev, Larysa Globa, Rina Novogrudskaya, Mariia Skulysh and Olexandr Stryzhak.

*Improving Service Delivery Efficiency in a Hybrid Communication Environment Networks*

Sofya Chikarenko, Kseniya Ivanova, Alexandra Skornyakova and Sergey Tyurin.

*Self-Timed FPGA Design Perspectives*

Ekaterina Danilova, Dmitry Kovylyaev and Alexey Gorodilov.

*Advanced genetic algorithm for the embedded FPGA logic diagnostic*

Ibrahim Alameri, Stepan Hubalovsky and Jitka Komarkova.

*Evaluation of impact of mobility, network size and time on performance of adaptive routing protocols*

Ibrahim Alameri, Jitka Komarkova and Mustafa Ramadhan.

*Conceptual analysis of single and multiple path routing in MANET network*

## Section AI1: Artificial Intelligence

**09:00-10:45 (channel 1)**

**Chair:** Prof. Ravil Mukhamediev, Kazakhstan

**Assistant:** Ing. Peter Sedláček, Slovakia

Rajesh Venkatachalapathy, Kai Brooks, Mikhail Mayers, Roman Minko, Tyler Hull, Bliss Brass, Martin Zwick, Adam Slowik and Marek Perkowski.

*Universal Biological Motions for Educational Robot Theatre and Games*

Alexei Belotserkovsky, Pavel Lukashevich, Mert Doganli and Jan Rabcan.

*A Concept of a Multi-robotic System for Warehouse Automation*

Ravil Mukhamediev, Marina Yelis, Ilyas Assanov, Yan Kuchin, Adilkhan Symagulov, Kirill Yakunin and Peter Sedlacek.

*Rapid bibliometric analysis in deep learning domain*

Meseret Yihun Amare and Stanislava Simonova.

*Big-Data Based Prediction Model for Learning Analytics-Identification of suitable prediction methods*

Jozef Kostolny, Patrik Rusnak and Rudolf Simo.

*Development of Knowledge Games in an Interactive Educational Portal*

Marek Baláž and Peter Tarábek. *AlphaZero with Real-Time Opponent Skill Adaptation*

Daria Shaptala. *Decision-making at evolutionary search during limited number of fuzzy experiments with multiple criteria*

## Section IT2. Information Technologies

**09:00-10:45 (channel 2)**

**Chair:** Prof. Charles El-Nouty, France

**Assistant:** Dr. Patrik Rusnák, Slovakia

Terézia Sliacka, Michal Varga and Norbert Adamko. *Application of the A\* algorithm for navigation of workers in simulation models of railway yards*

Jaroslav Janacek and Marek Kvet.

*Customization of Uniformly Deployed Set Kit for Path-relinking Method*

Darya Filatova, Charles El-Nouty and Roman Fedorenko.

*Some theoretical backgrounds for reinforcement learning model of supply chain management under stochastic demand*

Adam Dudáš, Jarmila Škrinárová and Adam Kiss.

*On Graph Coloring Analysis Through Visualization*

Dobroslav Grygar and Michal Koháni. *Simulated annealing metaheuristic with greedy improvement for road segments selection problem*

Baptiste Jacquet, Frank Jamet and Jean Baratgin.

*On the Pragmatics of the Turing Test*

Ján Kučera, Norbert Adamko and Michal Varga.

*Securing constrained edges in a triangulation*

## The Third Plenary Section

**11:00-12:00 (channel 1)**

**Moderators:** Dr. Miroslav Kvassay, Slovakia

**Assistant:** Ing. Peter Sedláček, Slovakia

**Prof. Kor Ah-Lian (Leeds Beckett University, United Kingdom)**

*Cognitive systems for smart applications*

## Section AI2: Artificial Intelligence

**13:00-14:30 (channel 1)**

**Chair:** Dr. Marek Kvet, Slovakia

**Assistant:** Ing. Peter Sedláček, Slovakia

Katerina Prihodova and Jakub Jech.

*Gender recognition using thermal images from UAV*

Jan Bohacik.

*Phishing Detection for Secure Operations of UAVs*

Sergey Stankevich, Nick Lubskyi and Artur Lysenko.

*Longwave infrared remote sensing data spatial resolution enhancement using modulation transfer function fusion approach*

Milan Ondrašovič, Peter Tarábek and Ondrej Šuch.

*Object Position Estimation from a Single Moving Camera*

Irena Drofova and Milan Adamek.

*Analysis of counterfeits using color models*

Leonardo Pinheiro de Queiroz, Helder Oliveira and Svetlana Yanushkevich.

*Thermal-Mask -- A Dataset for Facial Mask Detection and Breathing Rate Measurement in Infrared Spectrum*

## Section on ACeSYRI3

**13:00-14:30 (channel 2)**

**Chair:** Prof. Nicolae Brînzei, France

**Assistant:** Dr. Patrik Rusnák, Slovakia

Maria Demidik (BSU, Minsk, Belarus). *Feature selection for non-small-cell lung carcinoma subtype classification*

Duc-Hanh Dinh, Phuc Do and Benoit Iung (UL), *Opportunistic Predictive Maintenance for Multi-Component System with Multiple Dependences*

Ladyzhets Viktor and Mazurenko Roman (KNUCA, Kyev, Ukraine), *Computerized analysis of stock market: models and methods*

Farkhad Adilkhan (KKSU), *Solving the Problem of Synthesis of a Flying Robot Control System by the Network Operator Method*

Olzhas Akyzbekov and Shynassyl Azat Madiuly (KazNU), *Security and Data Science*

Bogdan Molchanov (TSNUK, Ukraine), *Web application for drug inventory management*

Alexander Panasyuk (TSNUK, Kyev, Ukraine), *Medical information system for polyclinic and outpatient*

Alexander Martynenko (NAU, Kyev, Ukraine), *Mobile Application for Remote Control of Electrical Appliances Using Bluetooth Technology*

## The Fourth Plenary Section

**14:30-15:30 (channel 1)**

**Moderators:** Dr. Jan Rabčan, Slovakia

**Assistant:** Ing. Peter Sedláček, Slovakia

**Dr. Korhan Cengiz (Trakya University, Edirne, Turkey)**

***Novel WSN Protocols for Health Care and Critical Applications***

## The ACeSYRI Plenary Section

**14:30-15:30 (channel 1)**

**Moderators:** Prof. Vitaly Levashenko, Slovakia

**Assistant:** Ing. Michal Mrena, Slovakia

**Dr. Patrik Rusnák (University of Žilina, Slovakia)**

***Reliability analysis based on the logic differential calculus***

**Peter Sedláček (University of Žilina, Slovakia)**

***Reliability analysis of non-coherent system***