

# PROGRAM GUIDE



## **NBiS-2018**

The 21-st International Conference on  
Network-Based Information Systems  
and



*Intelligent Networking  
and Collaborative Systems*

## **INCoS-2018**

The 10-th International Conference on  
Intelligent Networking and Collaborative Systems

September 5<sup>th</sup> - September 7<sup>th</sup>, 2018

Comenius University in Bratislava, Slovakia

Technically Co-sponsored by:



Comenius University  
in Bratislava, Slovakia



Fukuoka Institute of Technology  
Japan

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## NBiS-2018 Organizing Committee

### General Co-Chairs

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Yi Liu, Fukuoka Institute of Technology, Japan

Donald Elmazi, Fukuoka Institute of Technology, Japan

Miralda Cuka, Fukuoka Institute of Technology, Japan

### Steering Committee Co-Chairs

Leonard Barolli, Fukuoka Institute of Technology, Japan

Makoto Takizawa, Hosei University, Japan

### **Message from the NBiS-2018 Steering Committee Co-Chairs**

Welcome to the 21-th International Conference on Network-Based Information Systems (NBiS-2018), which will be held at Comenius University in Bratislava, Slovakia from September 5 to September 7, 2018.

The main objective of NBiS is to bring together scientists, engineers, and researchers from both network systems and information systems with the aim of encouraging the exchange of ideas, opinions, and experiences between these two communities.

NBiS started as a workshop and was held for 12 years together with DEXA International Conference as one of the oldest among DEXA Workshops. The workshop was very successful and in 2009 edition the NBiS was held at IUPUI, Indianapolis, USA as an independent International Conference supported by many international volunteers. In following years, the NBiSs was held in Takayama, Gifu, Japan (2010), Tirana, Albania (2011) Melbourne, Australia (2012), Gwangju, Korea (2013), Salerno, Italy (2014), Taipei, Taiwan (2015), Ostrava, Czech Republic (2016) and Toronto, Canada (2017).

In this edition of NBiS, many papers were submitted from all over the world. They were carefully reviewed and only high quality papers will be presented during conference days. In conjunction with NBiS-2018 are held also 9 International Workshops where specific and hot topics are deeply discussed.

Many volunteer people have kindly helped us to prepare and organize NBiS-2018. First of all, we would like to thank General Co-Chairs, Program Co-Chairs and Workshops Co-Chairs for their great efforts to make NBiS-2018 a very successful event. We would like to thank all NBiS-2018 Organizing Committee Members, Program Committee Members and other volunteers for their great help and support. We have special thanks also to Finance Chair and Web Administrator Co-Chairs. Finally, we thank the Local Organization Team at Comenius University in Bratislava, Slovakia for their good arrangements.

We do hope that you will enjoy the conference and have a good time in Bratislava, Slovakia.

#### **NBiS-2018 Steering Committee Co-Chairs**

**Leonard Barolli**, *Fukuoka Institute of Technology (FIT), Japan*

**Makoto Takizawa**, *Hosei University, Japan*

### **Welcome Message from NBiS-2018 General Co-Chairs**

We would like to welcome you to the 21-st International Conference on Network-Based Information Systems (NBiS-2018), which will be held at Comenius University in Bratislava, Slovakia from September 5 to September 7, 2018.

It is our honour to chair this prestigious conference, as one of the important conferences in the field. Extensive international participation, coupled with rigorous peer reviews, has made this an exceptional technical conference. The Technical Program and Workshops add important dimensions to this event. We hope that you will enjoy each and every component of this event and benefit from interactions with other attendees.

Since its inception, NBiS has attempted to bring together people interested in information and networking, in areas that range from the theoretical aspects to the practical design of new network systems, distributed systems, multimedia systems, Internet/web technologies, mobile computing, intelligent computing, pervasive/ubiquitous networks, dependable systems, semantic services, Grid, P2P, and scalable computing. For NBiS-2018, we have continued these efforts as novel networking concepts emerge and new applications flourish. NBiS-2018 consists of the main conference and 9 workshops. We received 135 papers, and out of them 38 were accepted (about 28% acceptance ratio), which will be presented during three days of the conference.

The organization of an international conference requires the support and help of many people. A lot of people have helped and worked hard for a successful NBiS-2018 technical program and conference proceedings. First, we would like to thank all the authors for submitting their papers. We are indebted to Track Co-Chairs, Program Committee members and reviewers who carried out the most difficult work of carefully evaluating the submitted papers.

We would like to give our special thanks to Prof. Leonard Barolli and Prof. Makoto Takizawa the chairs of the Steering Committee for giving us the opportunity to hold this conference and for their guidance on organizing the conference. We would like to thank Program Co-Chairs and Workshops Co-Chairs for their excellent work. We would like to express our great appreciation to our keynote speakers for accepting our invitation as keynote speakers of NBiS-2018.

We would like to thank the Local Arrangements Chairs and Local Organization Team at Comenius University in Bratislava, Slovakia for making good local arrangements for the conference.

We hope that you have an enjoyable and productive time during this conference, and have a great time in Bratislava, Slovakia.

#### **NBiS-2018 General Co-Chairs**

**Natalia Kryvinska**, *Comenius University in Bratislava, Slovakia*

**Tomoya Enokido**, *Rissho University, Japan*

**Markus Aleksy**, *ABB AG Corporate Research Centre, Germany*

## **Welcome Message from NBiS-2018 Program Committee Co-Chairs**

Welcome to the 21-st International Conference on Network-Based Information Systems (NBiS-2018), which will be held at Comenius University in Bratislava, Slovakia from September 5 to September 7, 2018.

The purpose of NBiS conference is to bring together developers and researchers to share ideas and research work in the emerging areas of network and information systems.

The contributions included in the proceedings of NBiS-2018 cover all aspects of theory, design and application of computer networks and information systems. There are many topics of information networking such as cloud computing, wireless sensor networks, ad-hoc networks, peer-to-peer systems, grid computing, social networking, multimedia systems and applications, security, distributed and parallel systems and mobile computing.

In this edition, 135 submissions were received from all over the world. Each submitted paper was peer-reviewed by Program Committee members and external reviewers who are experts in the subject area of the paper. Then, the Program Committee accepted 38 papers (about 28% acceptance ratio). In the conference program are also included the distinguished keynote addresses.

The organization of an International Conference requires the support and help of many people. First, we would like to thank all authors for submitting their papers. We would like to thank all Track Chairs and Program Committee Members, who carried out the most difficult work of carefully evaluating the submitted papers. We also would like to thank NBiS-2018 Workshops Chairs for organizing excellent workshops with NBiS-2018 conference.

We would like to give special thanks to Prof. Leonard Barolli and Prof. Makoto Takizawa the Chairs of the Steering Committee of NBiS for their strong encouragement, guidance, insights, and for their effective coordination of conference organization. We would like to greatly thank General Co-Chairs for their great support and invaluable suggestions to make the conference a very successful event.

We hope you will enjoy the conference and have a great time in Bratislava, Slovakia.

### **NBiS-2018 Program Committee Co-Chairs**

**Michal Greguš**, *Comenius University in Bratislava, Slovakia*

**Fumiaki Sato**, *Toho University, Japan*

## Welcome Message from NBiS-2018 Workshops Co-Chairs

Welcome to the NBiS-2018 Workshops to be held in conjunction with the 21-st International Conference on Network-Based Information Systems (NBiS-2018) at Comenius University in Bratislava, Slovakia from September 5 to September 7, 2018.

The goal of NBiS-2018 workshops is to provide a forum for international researchers and practitioners to exchange and share their new ideas, research results, and ongoing work on leading-edge topics in the different fields of network-based information systems and their applications. Some of the accepted workshops deal with topics that open up perspectives beyond the ordinary, thus, enriching the topics usually addressed by the NBiS-2018 conference.

1. The 13-th International Workshop on Network-based Virtual Reality and Tele-existence (INVITE-2018)
2. The 12-th International Workshop on Advanced Distributed and Parallel Network Applications (ADPNA-2018)
3. The 9-th International Workshop on Heterogeneous Networking Environments and Technologies (HETNET-2018)
4. The 9-th International Workshop on Intelligent Sensors and Smart Environments (ISSE-2018)
5. The 9-th International Workshop on Trustworthy Computing and Security (TwCSec-2018)
6. The 8-th International Workshop on Information Networking and Wireless Communications (INWC-2018)
7. The 7-th International Workshop on Advances in Data Engineering and Mobile Computing (DEMoC-2018)
8. The 7-th International Workshop on Web Services and Social Media (WSSM-2018)
9. The 6-th International Workshop on Cloud and Distributed System Applications (CADSA-2018)

We would like to thank the research community for their great response to NBiS-2018 workshops. The excellent technical program of the workshops was the result of a professional work from workshop chairs, workshop program committees, reviewers, and authors.

We would like to give our special thanks to Prof. Leonard Barolli and Prof. Makoto Takizawa the Steering Committee Chairs of NBiS conference for their strong encouragement and guidance to organize the NBiS-2018 workshops. We would like to thank NBiS-2018 General Co-Chairs and Program Co-Chairs for their advices to make possible organization of NBiS-2018 workshops.

We would like to express special thanks to NBiS-2018 Web Administration Chairs for their timely unlimited support for managing the conference systems. We also would like to thank NBiS-2018 Local Arrangement Co-Chairs and Local Organization Team at Comenius University in Bratislava, Slovakia for making the local arrangement for the conference and workshops.

We wish all of you entertaining and rewarding experience in all workshops and NBiS-2018 conference.

### NBiS-2018 Workshops Co-Chairs

**Peter Balco**, *Comenius University in Bratislava, Slovakia*

**Yusuke Gotoh**, *Okayama University, Japan*

**Isaac Woungang**, *Ryerson University, Canada*

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Makoto Takizawa, Hosei University, Japan

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Michal Greguš, Comenius University in Bratislava, Slovakia

Leonard Barolli, Fukuoka Institute of Technology, Japan

### Program Committee Co-Chairs

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Flora Amato, University of Naples, Italy

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Kin Fun Li, University of Victoria, Canada

### Award Co-Chairs

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Fang-Yie Leu, Tunghai University, Taiwan

### Web Administrators

Donald Elmazi, Fukuoka Institute of Technology, Japan

Yi Liu, Fukuoka Institute of Technology, Japan

Miralda Cuka, Fukuoka Institute of Technology, Japan

Kosuke Ozero, Fukuoka Institute of Technology, Japan

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Peter Balco, Comenius University in Bratislava, Slovakia

Martina Drahošová, Comenius University in Bratislava, Slovakia

### Steering Committee Co-Chairs

Fatos Xhafa, Technical University of Catalonia, Spain

Leonard Barolli, Fukuoka Institute of Technology, Japan

## Welcome Message from the INCoS-2018 Organizing Committee

Welcome to the 10th International Conference on Intelligent Networking and Collaborative Systems (INCoS-2018), which is held from 5th to 7th September 2018 at Comenius University in Bratislava, Slovakia.

INCoS is a multidisciplinary conference that covers latest advances in intelligent social networks and collaborative systems, intelligent networking systems, mobile collaborative systems, secure intelligent cloud systems, etc. Additionally, the conference addresses security, authentication, privacy, data trust and user trustworthiness behaviour, which have become crosscutting features of intelligent collaborative systems. With the fast development of the Internet, we are experiencing a shift from the traditional sharing of information and applications as the main purpose of the networking systems to an emergent paradigm, which locates people at the very centre of networks and exploits the value of people's connections, relations and collaboration. Social networks are playing a major role as one of the drivers in the dynamics and structure of intelligent networking and collaborative systems.

Virtual campuses, virtual communities and organizations strongly leverage intelligent networking and collaborative systems by a great variety of formal and informal electronic relations, such as business-to-business, peer-to-peer and many types of online collaborative learning interactions, including the virtual campuses and eLearning and MOOCs systems. Altogether, this has resulted in entangled systems that need to be managed efficiently and in an autonomous way. In addition, the conjunction of the latest and powerful technologies based on Cloud, mobile and wireless infrastructures are currently bringing new dimensions of collaborative and networking applications a great deal by facing new issues and challenges. INCoS-2018 conference paid a special attention to Cloud Computing Services, Storage, Security and Privacy, Data Mining, Machine Learning and Collective Intelligence, Cooperative Communication and Cognitive Systems, Management of Virtual Organisation and Enterprises, Big Data Analytis, eLearning, Virtual Campuses and MOOCs, among others.

In all, the principal aim of this conference is to stimulate research that will lead to the creation of responsive environments for networking and, at longer-term, the development of adaptive, secure, mobile, and intuitive intelligent systems for collaborative work and learning. INCoS-2018 addressed a large number of themes and focuses on the following research tracks:

- Data mining, machine learning and collective intelligence
- Fuzzy systems and knowledge management
- Grid and p2p distributed infrastructure for intelligent networking and collaborative systems
- Nature's inspired parallel collaborative systems
- Security, organization, management and autonomic computing for intelligent networking and collaborative systems
- Software engineering, semantics and ontologies for intelligent networking and collaborative systems
- Wireless and sensor systems for intelligent networking and collaborative systems
- Service-based systems for enterprise activities planning and management
- Next generation secure network protocols and components
- Big data analytics for learning, networking and collaborative systems
- Cloud computing: services, storage, security and privacy
- Intelligent collaborative systems for work and learning, virtual organization and campuses

- Social networking and collaborative systems
- Intelligent and collaborative systems for ehealth

As in all previous editions, INCoS-2018 counted on with the support and collaboration of a large and internationally recognized TPC covering all main themes of the conference. This conference edition comprises 28 regular papers. Additionally, five workshops were organized in conjunction with the conference, in which 21 workshop papers were accepted.

The successful organization of the conference is achieved thanks to the great collaboration and hard work of many people and conference supporters. First and foremost, we would like to thank all the authors for their continued support to the conference by submitting their research work to the conference, for their presentations and discussions during the conference days. We would like to thank TPC members and external reviewers for their work by carefully evaluating the submissions and providing constructive feedback to authors. We would like to thank the track chairs for their work on setting up the tracks and the respective TPCs and also for actively promoting the conference and their tracks. We would like to appreciate the work of PC Co-chairs and Workshops Co-Chairs for the successful organization of workshops in conjunction with main conference.

We would like to acknowledge the excellent work and support by the International Advisory Committee. Our gratitude and acknowledgment for the conference keynotes, Peter Hellinckx, University of Antwerp, Belgium, Juraj Laifr, SAP Education, Slovakia and Peter Linhardt, FineSoft Ltd. Slovakia, for their interesting and inspiring keynote speeches.

We greatly appreciate the support by Web Administrators Donald Elmazi, Yi Liu, Miralda Cuka and Kosuke Ozero, Fukuoka Institute of Technology (FIT), Japan.

We would like to give special thanks to the members of the local organizing committee from Comenius University in Bratislava, Slovakia, for excellent arrangements for the conference.

We are very grateful to Springer as well as several academic institutions for their endorsement and assistance.

Finally, we hope that you will find these proceedings to be a valuable resource in your professional, research and educational activities!

#### **INCoS-2018 General Co-Chairs**

**Michal Greguš**, *Comenius University in Bratislava, Slovakia*  
**Leonard Barolli**, *Fukuoka Institute of Technology, Japan*

#### **INCoS-2018 Program Co-Chairs**

**Peter Balco**, *Comenius University in Bratislava, Slovakia*  
**Flora Amato**, *University of Naples, Italy*

### **Message from INCoS-2018 Workshops Chairs**

Welcome to the Workshops of the 10th International Conference on Intelligent Networking and Collaborative Systems (INCoS-2018), which is held from 5th to 7th September 2018 at Comenius University in Bratislava, Slovakia. In this edition of the conference, there are held five workshops, which complemented the INCoS main themes with specific themes and research issues and challenges, as follows.

1. The 10-th International Workshop on Information Network Design (WIND-2018)
2. The 8-th International Workshop on Adaptive Learning via Interactive, Collaborative and Emotional approaches (ALICE-2018)
3. The 6-th International Workshop on Frontiers in Intelligent Networking and Collaborative Systems (FINCoS-2018)
4. The 4-th International Workshop on Theory, Algorithms and Applications of Big Data Science (BDS-2018)
5. The 1-st International Workshop on Machine Learning in Intelligent and Collaborative Systems (MaLICS-2018)

We would like to thank the workshop organizers for their great efforts and hard work in proposing the workshop, selecting the papers, the interesting programs and for the arrangements of the workshop during the conference days. We are grateful to the INCoS-2018 Conference Chairs for inviting us to be the workshops co-chairs of the conference.

We hope you will enjoy the workshops programs!

### **INCoS-2018 Workshops Co-Chairs**

**Natalia Kryvinska**, *Comenius University in Bratislava, Slovakia*

**Hiroyoshi Miwa**, *Kwansei Gakuin University, Japan*

**Omar Hussain**, *UNSW Canberra, Australia*

## NBiS-2018 & INCoS-2018 Keynote I



**Dr. Peter Hellinckx, University of Antwerp, Antwerp, Belgium**

### **IoT and CPS Two Worlds Growing Together: The Embedded Software Point of View**

**Abstract:** IoT and CPS are growing together. Autonomous vehicles are probably the best example. The car as a CPS will communicate or even be part of an IoT environment enriching environment knowledge and optimizing the CPS control. However new innovations come with new challenges. In this talk, I will focus on different challenges in the distributed embedded software context. More specifically I will talk about, WCET- and schedulability- analysis, (Real-Time) resource oriented real-time code placement/movement and testing of emergent behavior.

## NBiS-2018 & INCoS-2018 Keynote II



**Mr. Juraj Laifr, SAP Education, Bratislava, Slovakia**

### **SAP Leonardo, Your Digital Innovation System**

**Abstract:** Never before have there been so many promising breakthrough technologies available — and so many businesses ready to capitalize on them. SAP Leonardo delivers new capabilities in future-forward technologies, which add tremendous value along the company’s digital journey. SAP Leonardo is a holistic digital innovation system that seamlessly integrates future-facing technologies and capabilities into the SAP Cloud Platform, using our Design Thinking Services. This powerful portfolio enables people to rapidly innovate, scale new models and continually redefine the business.

## NBiS-2018 & INCoS-2018 Keynote III



**Dr. Peter Linhardt, CEO, Partner FineSoft Ltd., Kosice, Slovakia**

### **Centralised eHealth National Wide Concept to Reduce the Complexity of Integration**

**Abstract:** Implementation of e-solution in the field of health care is the must in order to achieve the efficiency, quality of care and implementation of new methods for care provisioning. All subsystems and points of care have to communicate with EHR silos, central and local applications and it underlines of importance of proper protocols, data format and integration issues, as well the importance of proper project management for testing and delivery in real time conditions of cloud and infrastructure. All this effort is essential in order to ensure the wide portfolio o benefits for all grouped of health care stakeholders and for delivery the future application in e/commerce and m/commerce environment.



# **NBiS-2018**

## **Main Conference and Workshops Program**

**Wednesday, September 5, 2018**

**08:00 Registration**

**09:00-09:30 Opening Ceremony**

**09:30-10:30 Single Session: NBiS-2018 & INCoS-2018 Keynote I**

**NBiS-2018 & INCoS-2018 Keynote Talk I**

**Dr. Peter Hellinckx:** IoT and CPS Two Worlds Growing Together: The Embedded Software Point of View

**10:30-11:00 Coffee Break**

**11:00-12:00 Single Session: NBiS-2018 & INCoS-2018 Keynote II**

**NBiS-2018 & INCoS-2018 Keynote Talk II**

**Mr. Juraj Laifr:** SAP Leonardo, Your Digital Innovation System

**12:00-14:00 Lunch Break****14:00-16:00 Parallel Sessions****NBIS-S1: Engery Efficient Systems****Chair: Makoto Takizawa, Hosei University, Japan**

1. An Energy-efficient Dynamic Live Migration of Multiple Virtual Machines  
*Dilawaer Duolikun, Shigenari Nakamura, Tomoya Enokido, Makoto Takizawa*
2. Globally Optimization Energy Grid Management System  
*Abdul Rahman, Nadeem Javaid, Muhammad Asad Zaheer, Maryam Bibi, Zoha Fatima, Qurat Ul Ain*
3. Evaluation of an Energy-efficient Tree-based Model of Fog Computing  
*Ryuji Oma, Shigenari Nakamura, Dilawaer Duolikun, Tomoya Enokido, Makoto Takizawa*
4. The Improved Transmission Energy Consumption Laxity Based (ITECLB) Algorithm for Virtual Machine Environments  
*Tomoya Enokido, Dilawaer Duolikun, Makoto Takizawa*
5. Efficient Energy Management using Fog Computing  
*Muhammad KaleemUllah Khan, Nadeem Javaid, Shakeeb Murtaza, Maheen Zahid, Wajahat Ali Gilani, Muhammad Junaid Ali*

**NBIS-S2: Intelligent Systems****Chair: Leonard Barolli, Fukuoka Institute of Technology, Japan**

1. A Fuzzy-based System for Actor Node Selection in WSNs for Improving Network Connectivity and Increasing Number of Covered Sensors  
*Donald Elmazi, Miralda Cuka, Makoto Ikeda, Leonard Barolli*
2. A Fuzzy-based Approach for Improving Peer Awareness and Group Synchronization in MobilePeerDroid System  
*Yi Liu, Kosuke Ozero, Keita Matsuo, Makoto Ikeda, Leonard Barolli*
3. Resource Allocation Over Cloud-fog Framework Using BA  
*Farkhanda Zafar, Nadeem Javaid, Kanza Hassan, Shakeeb Murtaza, Saniah Rehman, Sadia Rasheed*
4. A Hybrid Simulation System based on Particle Swarm Optimization and Distributed Genetic Algorithm for WMNs: Performance Evaluation Considering Normal and Uniform Distribution of Mesh Clients  
*Admir Barolli, Shinji Sakamoto, Leonard Barolli, Makoto Takizawa*
5. A Cloud-Fog Based Smart Grid Model using Max-Min Scheduling Algorithm for Efficient Resource Allocation  
*Sadia Rasheed, Nadeem Javaid, Saniah Rehman, Kanza Hassan, Farkhanda Zafar, Maria Naeem*
6. Efficient Resource Distribution in Cloud and Fog Computing  
*Mubashar Mehmood, Nadeem Javaid, Junaid Akram, Sadam Hussain Abbasi, Abdul Rahman, Fahad Saeed*

**INVITE-S1: Multimedia Applications****Chair: Tomoyuki Ishida, Fukuoka Institute of Technology, Japan**

1. Server System of Converting from Surface Model to Point Model  
*Hideo Miyachi and Isamu Kuroki*
2. Proposal of a Virtual Traditional Crafting System using Head Mounted Display  
*Tomoyuki Ishida, Yangzhicheng Lu, Akihiro Miyakawa, Kaoru Sugita, Yoshitaka Shibata*

3. Development of AR Information System based on Deep Learning and Gamification  
*Tetsuro Ogi, Yusuke Takesue, Stephan Lukosch*
4. A Study on Practical Training with Multiple Large-scale Displays in Elementary and Secondary Education  
*Yasuo Ebara and Hiroshi Hazama*

**TwCSec-S1: Secure Systems and Applications****Chair: Hiroaki Kikuchi, Meiji University, Japan**

1. A Secure Framework for User-Key Provisioning to SGX Enclaves  
*Takanori Machida, Dai Yamamoto, Ikuya Morikawa, Hirotaka Kokubo, Hisashi Kojima*
2. Evaluation of User Identification Methods for Realizing an Authentication System Using s-EMG  
*Hisaaki Yamaba, Kentaro Aburada, Tetsuro Katayama, Mirang Park, Naonobu Okazaki*
3. Person Tracking Based on Gait Features from Depth Sensors  
*Takafumi Mori and Hiroaki Kikuchi*
4. Privacy-preserving All Convolutional Net based on Homomorphic Encryption  
*Wenchao Liu, Feng Pan, Xu An Wang, Yunfei Cao, Dianhua Tang*
5. Verification of Persuasion Effect to Cope with Virus Infection Based on Collective Protection Motivation Theory  
*Kana Shimbo, Shun-ichi Kurino, Noriaki Yoshikai*
6. Zero-knowledge proof for Lattice-based Group Signature Schemes with Verifier-local Revocation  
*Maharage Nisansala Sevewandi Perera, Takeshi Koshiba*

**16:00-16:30 Coffee Break****16:30-18:30 Parallel Sessions****NBiS-S3: Cloud, Fog and Edge Computing****Chair: Hiroaki Nishino, Oita University, Japan**

1. Consideration of Policy Information Decision Processes in the Cloud Type Virtual Policy Based Network Management Scheme for the Specific Domain  
*Kazuya Odagiri, Shogo Shimizu, Naohiro Ishii, Makoto Takizawa*
2. Mobile Interactions and Computation Offloading in Drop Computing  
*Radu-Ioan Ciobanu and Ciprian Dobre*
3. Cloud-Fog Based Smart Grid Paradigm for Effective Resource Distribution  
*Muhammad Ismail, Nadeem Javaid, Muhammad Zakria, Muhammad Zubair, Faizan Saeed, Muhammad Asad Zaheer*
4. A Robot Assistant in an Edge-Computing-Based Safe Driving Support System  
*Toshiyuki Haramaki, Akihito Yatsuda, Hiroaki Nishino*
5. Effective Resource Allocation in Fog for Efficient Energy Distribution  
*Abdullah Sadam, Nadeem Javaid, Muhammad Usman Sharif, Abdul Wasi Zia, Muhammad Yousaf, Syed Muhammad Saleh Arfi*
6. Optimized Load Balancing using Cloud Computing  
*Wajahat Ali Gilani, Nadeem Javaid, Muhammad KaleemUllah Khan, Hammad Maqbool, Sajid Ali, Danish Majeed Qureshi*

**NBiS-S4: Wireless and Mobile Networking****Chair: Evjola Spaho, Polytechnic University of Tirana, Albania**

1. Evaluation of Table Type Reader for 13.56 MHz RFID System Considering Distance Between Reader and Tag  
*Kiyotaka Fujisaki*
2. Distributed Approach for Detecting Collusive Interest Flooding Attack on Named Data Networking  
*Tetsuya Shigeyasu and Ayaka Sonoda*
3. Performance Evaluation of Energy Consumption for Different DTN Routing Protocols  
*Evjola Spaho, Klodian Dhoska, Kevin Bylykbashi, Leonard Barolli, Vladi Kolici, Makoto Takizawa*
4. A Delay-Aware Fuzzy-based System for Selection of IoT Devices in Opportunistic Networks  
*Miralda Cuka, Donald Elmazi, Keita Matsuo, Makoto Ikeda, Leonard Barolli*
5. A New Generation Wide Area Road Surface State Information Platform Based on Crowd Sensing and V2X Technologies  
*Yoshitaka Shibata, Goshi Sato, Noriki Uchida*

**INVITE-S2: Multimedia Systems and Modeling****Chair: Yoshitaka Shibata, Iwate Prefectural University, Japan**

1. Implementation and Evaluation of Unified Disaster Information System on Tiled Display Environment  
*Akira Sakuraba, Tomoyuki Ishida, Yoshitaka Shibata*
2. 3D Measurement and Modeling for Gigantic Rocks at the Sea  
*Zhiyi Gao, Akio Doi, Kenji Sakakibara, Tomonori Hosokawa, Masahiro Harda*
3. Adaptive Array Antenna Controls with Machine Learning based Image Recognition for Vehicle to Vehicle Networks  
*Noriki Uchida, Ryo Hashimoto, Goshi Sato, Yoshitaka Shibata*
4. Performance Evaluation of a Smartphone-based Active Learning System for Improving Learning Motivation During Study of a Difficult Subject  
*Noriyasu Yamamoto and Noriki Uchida*

**CADSA-S1: Security and Network Applications****Chair: Flora Amato, University of Naples, Italy**

1. Overview of Digital Forensic Tools for Database Analysis  
*Flora Amato, Giovanni Cozzolino, Marco Giacalone, Antonino Mazzeo, Francesco Moscato, Francesco Romeo*
2. Remarks of Social Data Mining Applications in the Internet of Data  
*Salvatore Cuomo, Francesco Maiorano, Francesco Piccialli*
3. An Approach for Securing Cloud-based Wide Area Monitoring of Smart Grid Systems  
*Luigi Coppolino, Salvatore D'Antonio, Giovanni Mazzeo, Luigi Romano, Luigi Sgaglione*
4. Cooperative Localization Logic Schema in Vehicular Ad Hoc Networks  
*Walter Balzano and Silvia Stranieri*
5. FiDGP: A Smart Fingerprinting Radiomap Refinement Method Based on Distance-Geometry Problem  
*Walter Balzano and Fabio Vitale*

**19:00-21:00 Welcome Reception Party**

Main Entrance Hall, Comenius University in Bratislava,  
Mail Building on Safarikovo Namestie

**Thursday, September 6, 2018****08:00 Registration****09:00-10:00 Single Session: NBiS-2018 & INCoS-2018 Keynote III****NBiS-2018 & INCoS-2018 Keynote Talk II**

**Dr. Peter Linhardt:** Centralised eHealth National Wide Concept to Reduce the Complexity of Integration

**10:00-10:30 Coffee Break****10:30-12:30 Parallel Sessions****NBiS-S5: Security and Privacy****Chair: Masakatsu Nishigaki, Shizuoka University, Japan**

1. On Estimating Platforms of Web User with JavaScript Math Object  
*Takamichi Saito, Takafumi Noda, Ryohei Hosoya, Kazuhisa Tanabe, Yuta Saito*
2. A Study on Human Reflex-Based Biometric Authentication Using Eye-Head Coordination  
*Yosuke Takahashi, Masashi Endo, Hiroaki Matsuno, Hiroaki Muramatsu, Tetsushi Ohki, Masakatsu Nishigaki*
3. Intrusion Detection Method Using Enhanced Whitelist Based on Cooperation of System Development, System Deployment, and Device Development Domains in CPS  
*Nobuhiro Kobayashi, Koichi Shimizu, Tsunato Nakai, Teruyoshi Yamaguchi, Masakatsu Nishigaki*
4. Innovative Protocols for Data Sharing and Cyber Systems Security  
*Urszula Ogiela, Makoto Takizawa, Lidia Ogiela*
5. Joint Deployment of Virtual Routing Function and Virtual Firewall Function in NFV-based Network with Minimum Network Cost  
*Kenichiro Hida and Shin-ichi Kuribayashi*

**NBiS-S6: Distributed and Parallel Computing****Chair: Wendy Osborn, University of Lethbridge, Canada**

1. Object-based Information Flow Control Model in P2PPS Systems  
*Shigenari Nakamura, Tomoya Enokido, Makoto Takizawa*
2. Continuous k-Nearest Neighbour Strategies using the mqtree  
*Wendy Osborn*
3. Self-outer-recognition of OpenFlow Mesh in Cases of Multiple Faults  
*Minoru Uehara*
4. Implementation of Mass Transfer Model on Parallel Computational System  
*Miron Pavluš, Tomáš Bačinský, Michal Gregus*
5. A Position Detecting System Using Supersonic Sensors for Omnidirectional Wheelchair Tennis  
*Keita Matsuo and Leonard Barolli*

**WSSM-S1: Web Applications and Systems****Chair: Shusuke Okamoto, Seikei University, Japan**

1. A Graphical Front-End Interface for React.js  
*Shotaro Naiki, Masaki Kohana, Shusuke Okamoto, Masaru Kamada*
2. An Attendance Management System Capable of Mapping Participants onto the Seat Map  
*Shinya Kinoshita, Michitoshi Niibori, Masaru Kamada*
3. An Image Source Checker for Educational Presentation Materials  
*Yasuhiro Ohtaki*
4. Anonymous Accessible Bulletin Board System with Location Based Access Control Mechanism  
*Jun Iio, Shogo Asada, Mitsuhiro Kai*
5. Newly-added Functions for Video Search System Prototype with a Three-Level Hierarchy Model  
*Tongjin Lee and Jun Iio*
6. A Location-Based Web Browser Network for Virtual Worlds  
*Masaki Kohana and Shusuke Okamoto*

**ADPNA-S1: Distributed and Parallel Systems****Chair: Tomoya Enokido, Rissho University, Japan**

1. A Causally Precedent Relation among Messages in Topic-based Publish/Subscribe Systems  
*Takumi Saito, Shigenari Nakamura, Tomoya Enokido, Makoto Takizawa*
2. Fog-Cloud based Platform for Utilization of Resources using Load Balancing Technique  
*Nouman Ahmad, Nadeem Javaid, Mubashar Mehmood, Mansoor Hayat, Atta Ullah, Haseeb Ahmad Khan*
3. A Practical Indoor Localization System with Distributed Data Acquisition for Large Exhibition Venues  
*Hao Li, Joseph K. Ng, Shuwei Qiu*
4. Secure Visible Light Communication Business Architecture based on Federation of ID Management  
*Shigeaki Tanimoto, Chise Nakamura, Motoi Iwashita, Shinsuke Matsui, Takashi Hatashima, Hitoshi Fuji, Kazuhiko Ohkubo, Junichi Egawa, Yohsuke Kinouchi*
5. Peer-to-peer Data Distribution System with Browser Cache Sharing  
*Kazunori Ueda and Yusei Irifuku*

**12:30-14:00 Lunch Break**

**14:00-16:00 Parallel Sessions**

**NBIS-S7: Multimedia and Web Applications****Chair: Fumiaki Sato, Toho University, Japan**

1. Developing a Low-cost Thermal Camera for Industrial Predictive Maintenance Applications  
*Alda Xhafa, Pere Tuset-Peiró, Xavier Vilajosana*
2. Deterrence System for Texting-While-Walking Focused on User Situation  
*Megumi Fujiwara and Fumiaki Sato*
3. Lessons Learned in Tokyo Public Transportation Open Data APIs  
*Toshihiko Yamakami*
4. Slovak Broadcast News Speech Recognition and Transcription System  
*Martin Lojka, Peter Vizslay, Ján Staš, Daniel Hladekm Jozef Juhár*

5. Web based Interactive 3D Educational Material Development Framework Supporting 360VR Images/Videos and Its Examples  
*Yoshihiro Okada, Akira Haga, Wei Shi*
6. A Robot Gesture Framework for Watching and Alerting the Elderly  
*Akihito Yatsuda, Toshiyuki Haramaki, Hiroaki Nishino*

### **ISSE-S1: Intelligent and Smart Environments**

#### **Chair: Chuan-Yu Chang, National Yunlin University of Science and Technology, Taiwan**

1. A Cloud-Fog Based Environment using Beam Search Algorithm in Smart Grid  
*Komal Tehreem, Nadeem Javaid, Hamida Bano, Kainat Ansar, Moomina Waheed, Hanan Butt*
2. A Microservices-based Social Data Analytics Platform over DC/OS  
*Ming-Chih Hsu and Chi-Yi Lin*
3. Application of Independent Component Analysis for Infant Cries Separation  
*Chuan-Yu Chang, Chi-Jui Chen, Ching-Ju Chen*
4. BLE Beacon based Indoor Position Estimation Method for Navigation  
*Takahiro Uchiya, Kiyotaka Sato, Shinsuke Kajioka*
5. Metaheuristic Optimization Technique for Load Balancing in Cloud-fog Environment Integrated with Smart Grid  
*Syed Aon Ali Naqvi, Nadeem Javaid, Hanan Butt, Muhammad Babar Kamal, Ali Hamza, Muhammad Kashif*
6. The Optimal Beacon Placement for Indoor Positioning  
*Ching-Lung Chang and Chun-yen Wu*

### **INWC-S1: Mobile Computing and Communication**

#### **Chair: Shinji Sakamoto, Seikei University, Japan**

1. A Path Search System Considering the Danger Degree Based on Fuzzy Logic  
*Shinji Sakamoto, Shusuke Okamoto, Leonard Barolli*
2. A Recovery Method for Reducing Storage Usage Considering Different Thresholds in VANETs  
*Shogo Nakasaki, Yu Yoshino, Makoto Ikeda, Leonard Barolli*
3. Butt-Joint Assembly of Photonic Crystal Waveguide Units for Large Scale Integration of Circuits with Variety of Functions  
*Hiroshi Maeda*
4. Clustering in VANETs: A Fuzzy-based System for Clustering of Vehicles  
*Kosuke Ozera, Kevin Bylykbashi, Yi Liu, Makoto Ikeda, Leonard Barolli*
5. Movement Detection Methods with Wireless Signals and Multiple Sensors on Mobile Phone for Traffic Accident Prevention Systems  
*Shoma Takeuchi, Noriki Uchida, Yoshitaka Shibata*

### **DEMoC-S1: Data Engineering and Mobile Computing**

#### **Chair: Yusuke Gotoh, Okayama University, Japan**

1. A System to Select Reception Channel by Machine Learning in Hybrid Broadcasting Environments  
*Tomoki Yoshihisa, Yusuke Gotoh, Akimitsu Kanzaki*
2. A Meeting Log Structuring System using Wearable Sensors  
*Ayumi Ohnishi, Kazuya Murao, Tsutomu Terada, Masahiko Tsukamoto*
3. Hiding File Manipulation of Essential Services by System Call Proxy  
*Masaya Sato, Hideo Taniguchi, Toshihiro Yamauchi*
4. Evaluation of Broadcasting System for Selective Contents Considering Interruption Time  
*Takuro Fujita and Yusuke Gotoh*

5. Play Recognition Using Soccer Tracking Data Based on Machine Learning  
*Tomoki Imai, Akira Uchiyama, Takuya Magome, Teruo Higashino*

### 16:00-16:30 Coffee Break

### 16:30-18:30 Parallel Sessions

#### HETNET-S1: Heterogeneous Networking and Applications

**Chair: Juggapong Natwichai, Chiang Mai University, Thailand**

1. A Dynamism View Model of Convergence and Divergence of IoT Standardization  
*Toshihiko Yamakami*
2. Optimized Resource Allocation in Fog-Cloud Environment using Insert Select  
*Muhammad Usman Sharif, Nadeem Javaid, Muhammad Junaid Ali, Wajahat Ali, Gilani Abdullah Sadam, Muhammad Hassaan Ashraf*
3. Smart Grid Management using Cloud and Fog Computing  
*Muhammad Hassaan Ashraf, Nadeem Javaid, Sadam Hussain Abbasi, Mubariz Rehman, Muhammad Usman Sharif, Faizan Saeed*
4. Evaluation of Self-actualization Support System by Using Students Independence Rubric  
*Yoshihiro Kawano*
5. Characterizations of Local Recoding Method on k-Anonymity  
*Waranya Mahanan, Juggapong Natwichai, Wanpracha Chaovalitwongse*

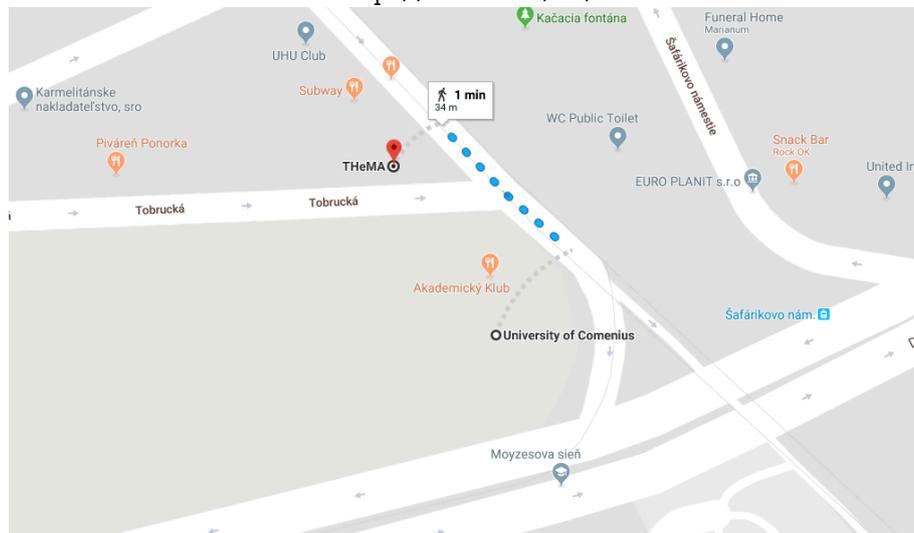
### 19:00-21:00 Banquet Party

Restaurant THEMA

Šafárikovo námestie 7, Bratislava, Slovakia 811 09

Tel: +421 948 092 229

<http://thema.sk/en/>



**Friday, September 7, 2018**

**NBiS-2018 Organizing Committee Meeting and Discussion**



*Intelligent Networking  
and Collaborative Systems*

# **INCoS-2018 Main Conference and Workshops Program**

**Wednesday, September 5, 2018**

**08:00 Registration**

**09:00-09:30 Opening Ceremony**

**09:30-10:30 Single Session: NBiS-2018 & INCoS-2018 Keynote I**

**NBiS-2018 & INCoS-2018 Keynote Talk I**

**Dr. Peter Hellinckx:** IoT and CPS Two Worlds Growing Together: The Embedded Software Point of View

**10:30-11:00 Coffee Break**

**11:00-12:00 Single Session: NBiS-2018 & INCoS-2018 Keynote II**

**NBiS-2018 & INCoS-2018 Keynote Talk II**

**Mr. Juraj Laifr:** SAP Leonardo, Your Digital Innovation System

**12:00-14:00 Lunch Break****14:00-16:00 Parallel Sessions****INCoS-S1: Cloud and Distributed Computing****Chair: Fatos Xhafa, Universitat Politècnica de Catalunya, Spain**

1. Findings from a Success Factor Analysis for SaaS Usage  
*Dietmar Nedbal and Mark Stieninger*
2. Distributed Computation for Protein Structure Analysis  
*Nobuyuki Tsuchimura and Adnan Sljoka*
3. Solutions for Secure Collaboration, Selection of Methodology, Implementation and Case Studies for Their Use  
*Juraj Zelenay, Peter Balco, Michal Greguš, Ján Luha*
4. Cuckoo Optimization Algorithm Based Job Scheduling Using Cloud and Fog Computing in Smart Grid  
*Saqib Nazir, Sundas Shafiq, Zafar Iqbal, Muhammad Zeeshan, Subhan Tariq, Nadeem Javaid*
5. Detection of Defects on SiC Substrate by SEM and Classification using Deep Learning  
*Shota Monno, Yoshifumi Kamada, Hiroyoshi Miwa, Koji Ashida, Tadaaki Kaneko*
6. Semantic Analysis of Social Data Streams  
*Flora Amato, Giovanni Cozzolino, Francesco Moscato, Fatos Xhafa*

**ALICE-S1: Interactive, Collaborative and Adaptive Learning****Chair: Santi Caballé, Open University of Catalonia, Spain**

1. Using an Intelligent Tutoring System with Plagiarism Detection to Enhance e-Assessment  
*David Bañeres, Ingrid Noguera, M. Elena Rodríguez, Ana Guerrero-Roldán*
2. Multi-Criteria Fuzzy Ordinal Peer Assessment for MOOCs  
*Nicola Capuano and Santi Caballé*
3. Conversational Agents in Support for Collaborative Learning in MOOCs: An Analytical Review  
*Santi Caballé and Jordi Conesa*
4. A Teaching Application to Improve Access and Management of Web-based Academic Materials  
*Antonio Sarasa Cabezuelo, Jordi Conesa*
5. Providing Timely Support to Students in Educational Virtual Worlds  
*Anupam Makhija, Deborah Richards, Santi Caballé, Jordi Conesa*

**16:00-16:30 Coffee Break****16:30-18:30 Parallel Sessions****INCoS-S2: Machine Learning and Intelligent Systems****Chair: Hiroyoshi Miwa, Kwansai University, Japan**

1. Exploring User Feedback Data via A Hybrid Fuzzy Clustering Model Combining Variations of FCM and Density-based Clustering  
*Erind Bedalli, Enea Mançellari, Esteriana Haskasa*
2. Expert Knowledge-Based Authentication Protocols for Cloud Computing Applications  
*Marek R. Ogiela and Lidia Ogiela*

3. Train Global, Test Local: Privacy-preserving Learning of Cost-effectiveness in Decentralized Systems  
*Jovan Nikolić, Marcel Schöengens, Evangelos Pournaras*
4. Performance Evaluation of WMNs for Normal and Uniform Distribution of Mesh Clients Using WMN-PSOSA Simulation System  
*Shinji Sakamoto, Leonard Barolli, Shusuke Okamoto*
5. An Evaluation of Cooperative Communication in Cognitive Radio as Applied to Autonomous Vehicles  
*Jamal Raiyn*
6. Method of Generating Computer Graphics Animation Synchronizing Motion and Sound of Multiple Musical Instruments  
*Amuro Takano, Jun-ya Hirata, Hiroyoshi Miwa*

**WIND-S1: Information Network Design****Chair: Masato Tsuru, Kyushu Institute of Technology, Japan**

1. Reliable Network Design Problem Considering Cost to Improve Link Reliability  
*Keyaki Uji and Hiroyoshi Miwa*
2. Two-Factor Blockchain for Traceability Cacao Supply Chain  
*Andi Arniaty Arsyad, Sajjad Dhadkah, Mario Köppen*
3. On the Characteristics of TCP/NC Tunneling in Heterogeneous Environments  
*Nguyen Viet Ha and Masato Tsuru*
4. Method for Determining Recovery Order for Successive Node Failures  
*Tsuyoshi Yamasaki and Hiroyoshi Miwa*

**19:00-21:00 Welcome Reception Party**

Main Entrance Hall, Comenius University in Bratislava,  
Mail Building on Safarikovo Namestie

**Thursday, September 6, 2018****08:00 Registration****09:00-10:30 Single Session: NBiS-2018 & INCoS-2018 Keynote III****NBiS-2018 & INCoS-2018 Keynote Talk II**

**Dr. Peter Linhardt:** Centralised eHealth National Wide Concept to Reduce the Complexity of Integration

**10:30-11:00 Coffee Break****11:00-13:00 Parallel Sessions****INCoS-S3: Collaborative Information and Communication Systems****Chair: Aneta Poniszewska-Maranda, Lodz University of Technology, Poland**

1. Collaborative All-Optical Alignment System for Free Space Optics Communication  
*Takeshi Tsujimura, Kiyotaka Izumi, Koichi Yoshida*
2. Proposing A System for Collaborative Traffic Information Gathering and Sharing Incentivized by Blockchain Technology  
*Akihiro Fujihara*
3. Employment in Information and Communication Technologies in European Countries and Its Potential Determinants and Consequences  
*Peter Pisár, Ján Huňady, Peter Balco*
4. Automatic Process of Continuous Integration of Web Application  
*Tomasz Krym, Aneta Poniszewska-Maranda, Erich Markl, Remy Dupas*
5. Heuristic Min-conflicts Optimizing Technique for Load Balancing on Fog Computing  
*Muhammad Babar Kamal, Nadeem Javaid, Syed Aon Ali Naqvi, Hanan Butt, Talha Saif, Muhammad Daud Kamal*
6. Three-dimensional Motion Tracking System for Extracting Spatial Movement Pattern of Small Fishes  
*Akira Senda, Miki Takagi, Hiroyoshi Miwa, Eiji Watanabe*

**MaLICS-S1: Machine Learning in Intelligent and Collaborative Systems****Chair: Jakub Nalepa, Silesian University of Technology, Poland**

1. Matching A Model to A User-application of Meta-learning to LPG Consumption Prediction  
*Michał Koziełski and Zbigniew Łaskarzewski*
2. Automated Optimization of Non-Linear Support Vector Machines for Binary Classification  
*Wojciech Dudzik, Jakub Nalepa, Michał Kawulok*
3. Cloud and Fog Based Smart Grid Environment for Efficient Energy Management  
*Maria Naeem, Nadeem Javaid, Maheen Zahid, Amna Abbas, Sadia Rasheed, Saniah Rehman*
4. Multi-Scale Voting Classifiers for Breast-Cancer Histology Images  
*Jakub Nalepa, Szymon Piechaczek, Michał Myller, Krzysztof Hryneczenko*

**12:30-14:00 Lunch Break****14:00-16:00 Parallel Sessions****INCoS-S4: Collaborative Management and Business Intelligence Systems****Chair: Peter Balco, Comenius University in Bratislava, Slovakia**

1. Towards the Analysis of Self-rated Health using Supervised Machine Learning and Business Intelligence  
*Laia Subirats, Estefania Piñeiro, Jordi Conesa, Manuel Armayones*
2. Economic Interpretation of eHealth Implementation in Countrywide Measures  
*Peter Balco, Helga Kajanová, Peter Linhardt*
3. Development Methodology of a Higher Education Institutions Maturity Model  
*João Vidal Carvalho, Rui Humberto Pereira, Álvaro Rocha*
4. State Based Load Balancing Algorithm for Smart Grid Energy Management in Fog Computing  
*Muhammad Junaid Ali, Nadeem Javaid, Mubariz Rehman, Muhammad Usman Sharif, Muhammad KaleemUllah Khan, Haris Ali Khan*
5. Crowdfunding - An Empirical Study on The Entrepreneurial Viewpoint  
*Valerie Busse*

**BDS-S1: Big Data Science****Chair: Marcello Trovati, Edge Hill University, UK**

1. Load Balancing on Cloud Analyst using First Come First Serve Scheduling Algorithm  
*Faizan Saeed, Nadeem Javaid, Muhammad Zubair, Muhammad Ismail, Muhammad Zakria, Muhammad Hasaan Ashraf, Muhammad Babar Kamal*
2. On the Need for a Novel Intelligent Big Data Platform: A Proposed Solution  
*Jeffrey Ray and Marcello Trovati*
3. Place of Analytics within Strategic Information Systems: A Conceptual Approach  
*Martina Halás Vančová*
4. Big Data Inconsistencies: A Literature Review  
*Olayinka Johnny and Marcello Trovati*

**16:00-16:30 Coffee Break****16:30-18:30 Parallel Sessions****INCoS-S5: Collaborative and Secure Networking Systems****Chair: Simon Tjoa, Pölvten University of Applied Sciences, Austria**

1. Selected Legislative Aspects of Cybernetic Security in the Slovak Republic  
*Tomáš Peráček, Boris Mucha, Patrícia Brestovanská*
2. A Readiness Model for Measuring the Maturity of Cyber Security Incident Management  
*David Rieger and Simon Tjoa*
3. Model for Generation of Social Network Considering Human Mobility  
*Naoto Fukae, Hiroyoshi Miwa, Akihiro Fujihara*

4. Spectrum Trading in Wireless Communication for Tertiary Market  
*Anil Bikash Chowdhury, Fatos Xhafa, Rupkamon Ghosh, Sajal Mukhopadhyay, Vikash Kumar Singh*
5. Voting Process with Blockchain Technology: Auditable Blockchain Voting System  
*Michał Pawlak, Jakub Guziur, Aneta Poniszewska-Maranda*

### **FINCoS-S1: Frontiers in Intelligent Networking and Collaborative Systems**

#### **Chair: Fatos Xhafa, Technical University of Catalonia, Spain**

1. Integration of Cloud-fog based Environment with Smart Grid  
*Hanan Butt, Nadeem Javaid, Muhammad Bilal, Syed Aon Ali Naqvi, Talha Saifi, Komal Tehreem*
2. Improved Functional Encryption Schemes By Using Novel Techniques  
*Xu An Wang, Jindan Zhang, Guangming Wu, Chenghai Yu*
3. Improved Provable Data Transfer from Provable Data Possession and Deletion in Cloud Storage  
*Yudong Liu, Xu An Wang, Yunfei Cao, Dianhua Tang, Xiaoyuan Yang*
4. Chinese POS Tagging Method Based on Bi-GRU+CRF Hybrid Model  
*Jia-jun Guo, Shu-pei Wang, Cheng-hai Yu, Jin-yu Song*

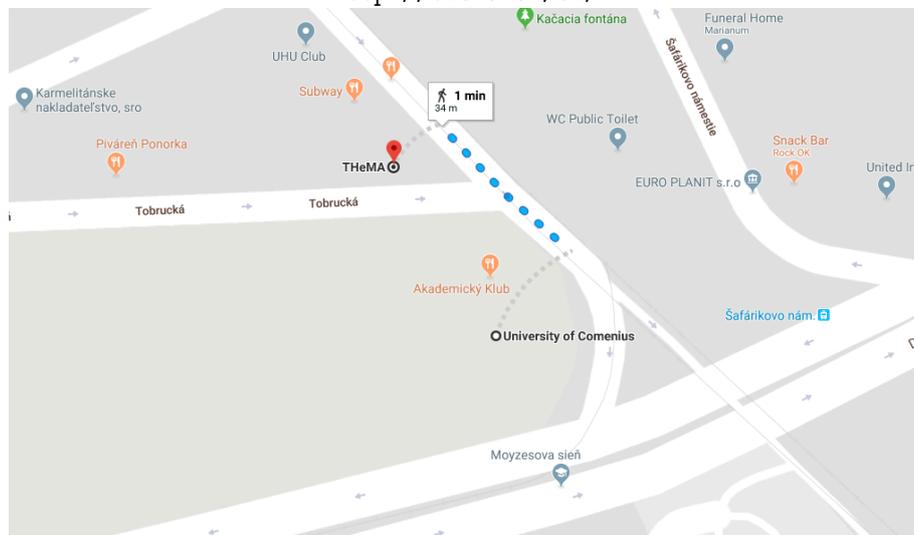
### **19:00-21:00 Banquet Party**

Restaurant THEMA

Šafárikovo námestie 7, Bratislava, Slovakia 811 09

Tel: +421 948 092 229

<http://thema.sk/en/>



**Friday, September 7, 2018**

**INCoS-2018 Organizing Committee Meeting and Discussion**

# Time Table

## NBiS-2018 and INCoS-2018 Session Schedule September 5<sup>th</sup> – 7<sup>th</sup>, 2018 Comenius University in Bratislava, Slovakia

<b>Wednesday (September 5, 2018)</b>		<b>ROOM 1</b>	<b>ROOM 2</b>	<b>ROOM 3</b>	<b>ROOM 4</b>	<b>ROOM 5</b>	<b>ROOM 6</b>
<b>Slot</b>	<b>Time</b>	Registration					
<b>Opening</b>	<b>09:00 – 09:30</b>	Opening Ceremony					
<b>Session 1</b>	<b>09:30 – 10:30</b>	NBiS-2018 and INCoS-2018 Keynote I					
Coffee Break	10:30 – 11:00	Coffee Break					
<b>Session 2</b>	<b>11:00 – 12:00</b>	NBiS-2018 and INCoS-2018 Keynote II					
Lunch	12:00 – 14:00	Lunch Break					
<b>Session 3</b>	<b>14:00 – 16:00</b>	NBiS S1	NBiS S2	INVITE S1	TwCSec S1	INCoS S1	ALICE S1
Coffee Break	16:00 – 16:30	Coffee Break					
<b>Session 4</b>	<b>16:30 – 18:30</b>	NBiS S3	NBiS S4	INVITE S2	CADSA S1	INCoS S2	WIND S1
Social Event	19:00 – 21:00	Welcome Reception Party					

<b>Thursday (September 6, 2018)</b>		<b>ROOM 1</b>	<b>ROOM 2</b>	<b>ROOM 3</b>	<b>ROOM 4</b>	<b>ROOM 5</b>	<b>ROOM 6</b>
<b>Slot</b>	<b>Time</b>	Registration					
<b>Session 1</b>	<b>09:00 – 10:00</b>	NBiS-2018 and INCoS-2018 Keynote III					
Coffee Break	10:00 – 10:30	Coffee Break					
<b>Session 2</b>	<b>10:30 – 12:30</b>	NBiS S5	NBiS S6	WSSM S1	ADPNA S1	INCoS S3	MaLICS S1
Lunch	12:30 – 14:00	Lunch Break					
<b>Session 3</b>	<b>14:00 – 16:00</b>	NBiS S7	ISSE S1	INWC S1	DEMoC S1	INCoS S4	BDS S1
Coffee Break	16:00 – 16:30	Coffee Break					
<b>Session 4</b>	<b>16:30 – 18:30</b>	HETNET S1				INCoS S5	FINCoS S1
Social Event	19:00 – 21:00	Banquet Party					

<b>Friday (September 7, 2018)</b>		<b>ROOM 1</b>	<b>ROOM 2</b>	<b>ROOM 3</b>	<b>ROOM 4</b>	<b>ROOM 5</b>	<b>ROOM 6</b>
<b>Slot</b>	<b>Time</b>	NBiS-2018 and INCoS-2018 Steering Committee Meeting and Discussion					