

Contents

Chairs' Welcome.....	1
Organisation	3
International Programme Committee	4
General and Thematic Track Sessions	11
Invited Sessions	12
Plenary Talks.....	15
STEM and ICT Education in Intelligent Environments.....	15
Smart Manufacturing coming of age	17
Sensor Marketing and Data Mining.....	19
On the need of an Explainable Artificial Intelligence.....	20
IT Crisisology: the New Discipline for Managing Software Development in Crisis.....	22
Timetable – Tuesday 3 September	23
Timetable – Wednesday 4 September	24
Timetable – Thursday 5 September.....	26
Timetable – Friday 6 September	28
Presentation Schedule – General Tracks	30
G1A: Theoretical Foundations of Intelligent Systems.....	30
G1B: Theoretical Foundations of Intelligent Systems.....	31
G1C: Theoretical Foundations of Intelligent Systems.....	32
G2A: Intelligent Applications	33
G2B: Intelligent Applications	34
G2C: Intelligent Applications	35
G2D: Intelligent Applications.....	36
G2E: Intelligent Applications	37
G3A: Emergent Intelligent Technologies	38
G3B: Emergent Intelligent Technologies	39
G3C: Emergent Intelligent Technologies	40
T1A: Knowledge Technology	41
T1B: Knowledge Technology.....	42
T1C: Knowledge Technology.....	43
Presentation Schedule – Invited Sessions	44
Sym2A: 2nd Symposium on Information Systems and Technologies for Management, Economy and Decision Making	44
Sym2B: 2nd Symposium on Information Systems and Technologies for Management, Economy and Decision Making	45
Sym2C: 2nd Symposium on Information Systems and Technologies for Management, Economy and Decision Making	46
Sym2D: 2nd Symposium on Information Systems and Technologies for Management, Economy and Decision Making	47

Sym2E: 2nd Symposium on Information Systems and Technologies for Management, Economy and Decision Making.....	48
IS01: Cyber-Physical Systems and Applications.....	49
IS02A: Numerical Modelling and Recognition Techniques.....	50
IS02B: Numerical Modelling and Recognition Techniques.....	51
IS02C: Numerical Modelling and Recognition Techniques.....	52
IS11: Bioengineering Applications.....	53
IS04: Data Science for Big Data	54
IS05: Knowledge Engineering in Large-Scale Systems.....	55
IS06: Cybersecurity and Big Data	56
IS08A: Knowledge-Based Systems for e-Business	57
IS08B: Knowledge-Based Systems for e-Business	58
IS09: Networks for Innovation, Knowledge Creation and Sharing	59
IS07A: Knowledge-based Information Systems Engineering in Optimizing Future Enterprise Applications.....	60
IS07B: Knowledge-based Information Systems Engineering in Optimizing Future Enterprise Applications.....	61
IS10: Collaboration in Software and System Engineering	62
IS12A: Advances from Heuristics to Hyperheuristics: new trends and applications in hard optimization and constraint reasoning.....	63
IS12B: Advances from Heuristics to Hyperheuristics: new trends and applications in hard optimization and constraint reasoning.....	64
IS12C: Advances from Heuristics to Hyperheuristics: new trends and applications in hard optimization and constraint reasoning.....	65
IS13: Cybercrime Investigation and Digital Forensics.....	66
IS14: Digital Architecture and Decision Management	67
IS15A: Chance Discovery and Market of Data.....	68
IS15B: Chance Discovery and Market of Data.....	69
IS18: Decision modeling with and without pairwise comparisons.....	70
IS19: Knowledge and data engineering in medicine and health care	71
IS20: Bio-Inspired Computing and Bioinformatics	72
IS21: Skill Acquisition and Ubiquitous Human Computer Interaction.....	73
IS23A New Generation Computing in Engineering, Life Science and Economy.....	74
IS23B New Generation Computing in Engineering, Life Science and Economy.....	75
IS24: Knowledge-based Learning and Education Support System: Design and Function	76
IS26: Immunity-Based Systems: Resilience with AI	77
IS27 Smart Education: Active Learning using ICT and e-Learning	78
IS28: Active learning using ICT for smart education.....	79
IS29: Computational Intelligence System and Applications	80

IS33: Exploiting Internet of Things and embedded systems features
within high-performances architectures81

IS34A: Internet-of-Things and Intelligent Systems82

IS34B: Internet-of-Things and Intelligent Systems83

Front cover: Budapest, Hungary

Chairs' Welcome

Welcome to the 23rd International Conference on Knowledge - Based and Intelligent Information & Engineering Systems (KES 2019), organised by KES International and held at the Danubius Health Spa Resort, Budapest over 4-6 September 2019.

KES 2019 is the 23rd event in a series of broad-spectrum intelligent systems conferences first held in Adelaide, Australia in 1997. The main aim of this KES conference series is to provide an internationally respected forum for the dissemination of research results and the discussion of issues relating to the theory, technologies and applications of intelligent engineering and information systems.

This truly international conference attracted submissions from a substantial number of researchers and practitioners from all over the world, who submitted their papers to three general tracks, one thematic track and 34 special sessions on specific topics. A large number of submissions was received and each paper was peer reviewed by at least two members of the International Program Committee. From them 274 high-quality papers were accepted for oral presentation and publication in *Procedia Computer Science*, submitted for indexing in Conference Proceedings Citation Index (CPCI) and Scopus.

The conference chairs would like to express their gratitude to the Keynote Speakers: Prof Dana Barry, Clarkson University, USA, title of talk: *'STEM and ICT Education in Intelligent Environments'*; Dr Carlos Toro, ARTC (Advanced Remanufacturing and Technology Centre) - A*Star, Singapore, title of talk: *'Smart Manufacturing coming of age'*; Prof Katsutoshi Yada, Kansai University, Japan, title of talk: *'Sensor Marketing and Data Mining'*; Prof Cecilia Zanni-Merk, INSA Rouen Normandie / LITIS Laboratory, France, title of talk *'On the need of an Explainable Artificial Intelligence'*; and Prof Sergey Zykov, National Research University Higher School of Economics, Russia, title of talk: *'IT Crisisology: the New Discipline for Managing Software Development in Crisis'*.

We would like to acknowledge also the Programme Co-Chairs, the General Track Chairs, the International Programme Committee members and reviewers for their valuable efforts in the review process, helping us to guarantee the highest quality possible for the conference. We would also like to thank the organisers and chairs of the special sessions which make an essential contribution to the success of the conference. Lastly, we would like to thank all the authors, presenters and delegates for their valuable contribution in making this an extraordinary event.

KES International hopes and intends that KES2019 will make a significant contribution to international research collaboration and understanding, an essential task for the promotion of scientific joint work and excellence.

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Dr Carlos Toro, ARTC, A*STAR, Singapore

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General and Thematic Track Sessions

Code	Track Title	Track Chair
G01	Theoretical Foundations of Intelligent Systems: Theories, Algorithms and Methodologies	Prof. Cecilia Zanni-Merk
G02	Intelligent Applications	Dr Carlos Toro
G03	Emergent Intelligent Technologies	Prof Ron Hartung
T01	Knowledge Technologies	Prof Anne Hakansson

Invited Sessions

Code	Session	Session Chair
IS01	Cyber-Physical Systems and Applications	Prof Anne Hakansson, Prof. Ronald Hartung
IS02	Numerical Modelling and Recognition Techniques	Prof. Margarita N. Favorskaya, Dr. Alena V. Favorskaya, Prof. Lakhmi C. Jain
IS03	Intelligent Cybersecurity Systems	Dr. Leslie F. Sikos
IS04	Data Science for Big Data	Prof. Katsutoshi Yada, Prof. Takahira Yamaguchi
IS05	Knowledge Engineering in Large-Scale Systems	Prof. Dr. Sergey Zykov
IS06	Cybersecurity and Big Data	Dr. Francesco Mercaldo, Prof. Alfredo Cuzzocrea
IS07	Knowledge-based Information Systems Engineering in Optimizing Future Enterprise Applications	Dr. Shastri L. Nimmagadda, Neel Mani
IS08	Knowledge-Based Systems for e-Business	Prof. Kazuhiko Tsuda, Prof. Masakazu Takahashi, Dr. Nobuo Suzuki
IS09	Networks for Innovation, Knowledge Creation and Sharing	Prof. Shuichiro Yamamoto
IS10	Collaboration in Software and System Engineering	Dr Maria Spichkova, Dr Milan Simic
IS11	Bioengineering Applications	Dr. Milan Simic, Dr. Maria Spichkova
IS12	Advances from Heuristics to Hyperheuristics: new trends and applications in hard optimization and constraint reasoning	Prof. Sadok Bouamama, Dr. Moez Hammami
IS13	Cybercrime Investigation and Digital Forensics	Assoc. Prof. Da-Yu Kao, Assis. Prof. Fuching Tsai, Prof. Michael Soltys
IS14	Digital Architecture and Decision Management	Prof. Alfred Zimmermann, Dr. Rainer Schmidt
IS15	Chance Discovery and Market of Data	Prof. Akinori Abe, Prof. Yukio Ohsawa, Prof. Noriyuki Kushiro

Code	Session	Session Chair
IS16	2nd Symposium on Information Systems and Technologies for Management, Economy and Decision Making	Prof. Jaroslaw Jankowski, Assoc. Prof. Jaroslaw Watrobski, Dr. Wojciech Salabun, Prof. Ewa Ziemba
IS17	Intelligent solutions in e-commerce, network economy and manufacturing (ISENEM 2019)	Prof. Arkadiusz Kawa, Prof. Pawel Pawlewski
IS18	Decision modeling with and without pairwise comparisons	Prof. Ryszard Janicki, Dr. Konrad Kulakowski, Dr. Sandor Bozoki
IS19	Knowledge and data engineering in medicine and health care	Assist. Prof. Pancerz Krzysztof, Assist. Prof. Wieslaw Paja, Assoc. Prof. Catalin Stoean
IS20	Bio-Inspired Computing and Bioinformatics	Prof. Victor Mitran, Prof. Andrei Paun
IS21	Skill Acquisition and Ubiquitous Human Computer Interaction	Assoc. Prof. Masato Soga, Assist. Prof. Hirokazu Miura, Prof. Hirokazu Taki
IS22	Recent advances in 5G system channel modelling	Prof. Stefan Panik
IS23	New Generation Computing in Engineering, Life Science and Economy	Dr. Piotr Nikonczuk, Prof. Elisabeth Rakus-Andersson
IS24	Knowledge-based Learning and Education Support System: Design and Function	Prof. Tomoko Kojiri, Dr. Yuki Hayashi
IS25	Unmanned Aerial Vehicles: Developments, Challenges, and Future Direction	Dr. Abolfazl Razi, Dr. Francesco Malandrino
IS26	Immunity-Based Systems: Resilience with AI	Prof. Dr. Yoshiteru Ishida, Associate Prof. Dr. Takeshi Okamoto
IS27	Smart Education: Learning environment using technology	Prof. Nobuyuki Ogawa, Prof. Hideyuki Kanematsu, Prof. Kuniaki Yajima, Assist. Prof. Katsuko T. Nakahira
IS28	Active learning using ICT for smart education	Prof. Dana M. Barry, Prof. Takashi Yukawa
IS29	Computational Intelligence System and Applications	Prof. Yuji Iwahori, Prof. Yoshinori Adachi, Prof. Nobuhiro Inuzuka, Assoc. Prof. Ryosuke Yamanishi

Code	Session	Session Chair
IS30	Robust Intelligent Services in Critical Systems	Prof. Andras Pataricza, Assoc. Prof. Istvan Majzik, Assoc. Prof. Zoltan Micskei
IS31	Novel information levels in scientific discovery: sharing, refining, and fusion of complex results in federated architectures of deep learning and causal analysis	Assoc. Prof. Peter Antal, Assoc. Prof. Gabor Hullam, Dr. Bence Bolgar
IS32	Digital Forensics and Intelligent Network Security	Dr. Esmiralda Moradian, Prof. Oliver Popov
IS33	Exploiting Internet of Things and embedded systems features within high-performances architectures	Prof. Flora Amato, Dr. Giovanni Cozzolino, Prof. Giovanni Mazzeo
IS34	Internet-of-Things and Intelligent Systems	Prof. Xiangpei Hu, Assoc. Prof. Lijun Sun

Plenary Talks

Prof Dana Barry

Clarkson University, USA

STEM and ICT Education in Intelligent Environments

Abstract: This keynote talk combines information and communication technology (ICT) with a creative interdisciplinary teaching approach known as STEM education, where STEM refers to science, technology, engineering, and mathematics. Countries wanting to strengthen their national status and power need a sufficient supply of qualified STEM graduates to creatively solve challenging problems, compete globally, and provide the scientists, engineers, etc. of the future. Information and communication technology is very important for STEM education, especially since we are living in a digital age. It includes hardware such as computers and software used for videos and websites. ICT increases opportunities for STEM education and enables students and their instructors to use the Internet, audio-visual classrooms, networking, and more. The keynote talk presents and describes technologies to dominate STEM education. It also introduces Dr. Barry's National Award winning program in Creative Education and several examples of successful STEM activities carried out in a virtual world. In addition, a prediction is made about the future classroom and its technology.



Biography: Dana M. Barry is a Research Professor in Clarkson University's Department of Electrical & Computer Engineering. She is an expert in STEM and Creative Education and has more than 250 professional publications including three Springer Nature textbooks. She is a consultant, a professional tutor at the State University of New York at Canton, and a professor and scientific board president for Ansted University. She

served as a visiting professor overseas numerous times and gave keynote talks in Japan, China, Malaysia, and Slovenia. Dr. Barry has five graduate degrees including a M.S. in Science Education from the State University of New York at Potsdam, a M.S. in Chemistry from Clarkson University, and a Ph.D. in Engineering from Osaka University in Japan. She has carried out educational components of the National Aeronautics and Space Administration's Mars missions, etc. and has her name on the Mars rovers named Spirit, Opportunity, and Curiosity. She was co-producer and host for the television series "Sensational Science" and in her capacity as a musician she composed the music and wrote the lyrics for the science education music CD "Chemical Sensation." Her honors include 21 consecutive APEX Awards for Publication

Excellence from Communications Concepts in Springfield, Virginia; the exemplary 2017 Volunteer Award from the American Chemical Society (for her outstanding contributions to its Northern New York Section); two national awards from the American Chemical Society for her Creative Education program; and a Marquis Who's Who Lifetime Achievement Award presented in 2017 for her outstanding professional dedication and career. In addition, Barry is a member of the National Science Teachers Association and serves as an officer and a Chemistry Ambassador for the American Chemical Society.

Dr Carlos Toro

ARTC (Advanced Remanufacturing and Technology Centre) - A*Star (Singapore)

Smart Manufacturing coming of age

Abstract: The Factory of the future is one of the current trend topics for industry and academic researchers alike. The so called fourth industrial revolution is permeating heavily into the manufacturing landscape. National programs positioning countries in their respective regions, have been approved and put into action. In Europe, the EU Commission launched the Factories of the Future program (2008 to 2020), committing an investment of €2.35B in a public-private

partnership (PPP). The research domains include advanced manufacturing processes, digital, virtual and resource efficient factories. In the case of the Asia Pacific region, one of the most relevant efforts is Singapore's own Future of Manufacturing (FoM), led by the Agency for Science, Technology and Research (A*STAR).

In order to implement FoM, A*STAR has created the Model Factory @ ARTC. The idea is that manufacturers, technology providers and the broader industry are welcomed to the facility to:

- Learn how the technologies are implemented on manufacturing use-cases
- Test process improvements enabled by the technologies at the facility, without disrupting their own operations
- Co-develop technology solutions
- Support the adoption of solutions at their everyday industrial operation.

In this talk, we will try to elaborate on how Industry 4.0 is being implemented in the real-world scenario of the Model Factory @ARTC. It will be discussed, how the realization of the Smart Manufacturing concept is tackled in three relevant aspects:

- **Secure Connectivity and Intelligent Systems:** Involving a highly interconnected systems and architectures, hard real time data and petabyte like storage at the edge and cloud levels.
- **Real time analytics and Manufacturing Knowledge:** Providing the possibility of decentralized decision making, condition monitoring for predictive model and optimization and better monitoring of energy consumption for sustainable manufacturing.
- **Virtual Manufacturing:** involving digital twins of the physical factory and its processes, simulation for factory assets optimization and uses of augmented reality to help in operators training and machine maintenance.

Biography: Dr. Carlos Toro received both his Ph.D. And M.Sc in Computer Science from the University of the Basque Country (Spain) and his Bachelor degree in

Mechanical Engineering (with honors) from EAFIT University (Colombia). In 2003 he moved to Spain and started working in applied research focusing on Industrial and Advanced Manufacturing. At the same time he lectured at the university of the Basque Country. In 2007 he was invited researcher at the University of Newcastle (Australia) returning in 2011 with a Marie Curie research visitor grant funded by the EU Commission. Since 2017 he joined A*Star Singapore at their Advanced Remanufacturing and Technology Centre (ARTC) as lead architect and research scientist for the Factory of the Future initiative which is the effort of Singapore government for implementing a model factory that includes the concepts of the 4th industrial revolution.

Prof Katsutoshi Yada

Kansai University, Japan

Sensor Marketing and Data Mining

Abstract: Innovation in sensor technology is progressing day by day and performance and application range of the device are dramatically expanding. Due to this, the importance of marketing using sensor technologies are getting increasing more and more. Creation of new services connected to new technologies is considered as affecting the corporate competitiveness. This study helps you understand sensor technologies as a data of path-data (pathdata) from a wide point of view. I will introduce the way of data mining technique to analyze those and the latest cases of the sensor marketing.



Biography: Katsutoshi Yada is Professor of Management Information Systems in the Faculty of Business and Commerce, Kansai University and guest professor of Osaka University. He was a visiting scholar of School of Business at Columbia University from 2006 to 2007. His present research interests include data mining for business, and information strategy concerning data mining. His papers have appeared in several international journals, including Data Mining and Knowledge Discovery, Soft Computing, Decision Support Systems and others.

He received Distinguished Professor Award from Kansai University and many international and domestic awards from academic societies.

Prof Cecilia Zanni-Merk

INSA Rouen Normandie, France

On the need of an Explainable Artificial Intelligence

Abstract: Artificial Intelligence (AI) applications are increasingly present in the professional and private worlds. This is due to the success of technologies such as machine learning (and, in particular, deep learning approaches) and automatic decision-making that allow the development of increasingly robust and autonomous AI applications. Most of these applications are based on the analysis of historical data with the goal of learning models based on the experience recorded in these data to make decisions or predictions.

However, automatic decision-making by the means of Artificial Intelligence now raises new challenges in terms of human understanding of processes resulting from learning, of explanations of the decisions that are made (crucial issue when ethical or legal considerations are involved) and, also, of human-machine communication.

To meet these needs, the field of Explainable Artificial Intelligence has recently developed.

Indeed, according to the literature, the notion of intelligence can be considered under four aspects: a) the ability to perceive rich, complex and subtle information, b) the ability to learn in a particular environment or context; c) the ability to abstract, to create new meanings and d) the ability to reason, for planning and decision-making. These four skills are implemented by what is now called the “Explainable Artificial Intelligence (or XAI)” with the goal of building explanatory models, to try and overcome shortcomings of pure statistical learning by providing justifications, understandable by a human, for decisions or predictions made.

During this talk we will explore this fascinating new research field.



Biography: Cecilia Zanni-Merk is a Full Professor in Computer Science at INSA Rouen Normandie, the National Institute of Applied Sciences of Normandy (Rouen, France). She is also the head of the MIND (multi-agents, interaction, decision) research group of the LITIS (Laboratory of Computer Science, Information Processing and Systems) lab. She holds an MSc in Computer Science from National

University of La Plata (Argentina) in 1988, a PhD in Computer Science from Aix-Marseille University (France) in 2004 and she has got her Research Habilitation from Strasbourg University (France) in 2014. Professor Zanni-Merk is the French representative on the 5th Technical Committee (TC5 - Information Technology Applications) of IFIP (International Federation of Information Processing) and the French scientific coordinator of Interreg project HALFBACK.

She is the co-author of more than 20 articles in top-ranked journal papers (including Computers in Industry, Knowledge-Based Systems, Engineering Applications of Artificial Intelligence, International Journal of Web Semantics, Applied Ontology) and of more than 50 papers in important international conferences.

Her main research interests are in Knowledge Engineering, and more particularly in conceptual representation and inference processes applied to problem solving (conceptualisation, ontologies and formal models, rule-based reasoning - crisp, fuzzy, probabilistic, spatio-temporal -, case-based reasoning, knowledge and experience capitalisation).

Prof Sergey Zykov

National Research University Higher School of Economics, Russia

IT Crisisology: the New Discipline for Managing Software Development in Crisis

Abstract: This keynote talk will discuss the background and causes of crises in software development, and the emerging discipline of the IT Crisisology. Crisisology as a discipline is known for over a decade. Grant, the founder and owner of Crisisology Group Intl., coined this term in 2009. However, their initial approach still focuses on general management, financials and economics, whereas this keynote will systematically present the author's pioneering efforts of building the framework for the IT Crisisology. This IT domain is very specific as the software development lifecycle essentially differs from that of any material product. Therefore, the keynote will discuss the set of models, methods and tools for crisis management that specifically address software product development and form the basis of the IT Crisisology. The talk will embrace the best practices, patterns (and anti-patterns) of crisis responsive software development. Essential ingredients of this new discipline also include human, technology and business factors to be discussed. A set of case studies will illustrate the research outcomes.



Biography: Sergey V. Zykov holds an MSc (1994) and a PhD (2000) from the MEPhI National Nuclear Research University, and a Dr. Habil. Degree (2017) in Computer Science from the Ufa State Aviation Technical University. He has a 25-year experience in IT, including 2 years as a Vice-CIO of the ITERA International Oil & Gas Group. He also has a 25-year experience in teaching computer

science and software engineering, and holds instructor certificates from the Carnegie Mellon University and the London School of Economics. Currently, he is a Professor at the National Research University Higher School of Economics, and the MEPhI National Nuclear Research University. He is also a Research Fellow at the First Moscow State Medical University. He authored over 100 papers and 10 books including: *Crisis Management for Software Development and Knowledge Transfer* (Springer, 2016), *Managing Software Crisis: A Smart Way to Enterprise Agility* (Springer, 2018), and contributed to the *Encyclopedia of Information Science and Technology* (IGI, 2018). He serves as an Associate Editor of the *Intelligent Decision Technologies*, and of the *International Journal of Knowledge-Based and Intelligent Engineering Systems*. His primary research fields include crisis responsive software development, enterprise software systems, and data modeling.

Timetable – Tuesday 3 September

Early Registration

Drinks Reception
Danubius Hotel and Spa resort

Timetable – Wednesday 4 September

	Star Auditorium (Plenary Room)	Jazmin 1	Jazmin 2	Tobaz 1	Tobaz 2	Boroka 1	Boroka 2	Kamilla 1	Kamilla 3
8.00-9.15	Registration								
9.15-9.30	Opening Ceremony Prof Robert J Howlett & Prof Lakhmi Jain								
9.30-10.30	Keynote Speaker 1 Dr Carlos Toro ARTC (Advanced Remanufacturing and Technology Centre) - A*Star (Singapore) Smart Manufacturing coming of age Chair: Prof Robert J Howlett								
10.30-11.00	Coffee								
11.00-13.00	Sym2A: 2nd Symposium on Information Systems and Technologies for Management, Economy and Decision Making Chair: Dr Jaroslaw Watrobski	G1A: Theoretical Foundations of Intelligent Systems Chair: Prof Cecilia Zanni-Merk	G2A: Intelligent Applications Chair: Dr Carlos Toro	IS02A: Numerical Modelling and Recognition Techniques Chair: Prof. Margarita N. Favorskaya	IS01: Cyber-Physical Systems and Applications Chair: Prof Anne Hakansson	IS12A: Advances from Heuristics to Hyperheuristics: new trends and applications in hard optimization and constraint reasoning Chair: Prof. Sadok Bouamama	IS07A: Knowledge-based Information Systems Engineering in Optimizing Future Enterprise Applications Chair: Dr. Shastri L. Nimmagadda	G3A: Emergent Intelligent Technologies Chair: Prof Ron Hartung	IS05 & IS26: Knowledge Engineering in Large-Scale Systems & Immunity-Based Systems: Resilience with AI Chairs: Prof Sergey Zykov & Prof. Dr. Yoshiteru Ishida

	Star Auditorium (Plenary Room)	Jazmin 1	Jazmin 2	Tobaz 1	Tobaz 2	Boroka 1	Boroka 2	Kamilla 1	Kamilla 3
13.00-14.00	Lunch								
14.00-15.00	Keynote Speaker 2 Prof Cecilia Zanni-Merk INSA Rouen Normandie / LITIS Laboratory, France On the need of an Explainable Artificial Intelligence Chair: TBC								
15.00-15.30	Coffee								
15.30-17.30	Sym2B: 2nd Symposium on Information Systems and Technologies for Management, Economy and Decision Making Chair: Dr Jaroslaw Watrobski	G1B: Theoretical Foundations of Intelligent Systems Chair: Prof Cecilia Zanni-Merk	G2B: Intelligent Applications Chair: Dr Carlos Toro	IS02B: Numerical Modelling and Recognition Techniques Chair: Prof. Margarita N. Favorskaya	IS09: Networks for Innovation, Knowledge Creation and Sharing Chair: Prof. Shuichiro Yamamoto	IS12B: Advances from Heuristics to Hyperheuristics: new trends and applications in hard optimization and constraint reasoning Chair: Prof. Sadok Bouamama	IS07B: Knowledge-based Information Systems Engineering in Optimizing Future Enterprise Applications Chair: Dr. Shastri L. Nimmagadda	T1A: Knowledge Technology Chair: Prof Anne Hakansson	IS27: Smart Education: Active Learning using ICT and e-Learning Chair: Prof Nobuyuki Ogawa
Meet at 6:40 in hotel lobby	Networking Event Sunset Cruise of Budapest								

Timetable – Thursday 5 September

	Star Auditorium (Plenary Room)	Jazmin 1	Jazmin 2	Tobaz 1	Tobaz 2	Boroka 1	Boroka 2	Kamilla 1	Kamilla 3
8.30-9.30	Registration								
9.30-10.30	<p>Keynote Speaker 3 Prof Katsutoshi Yada Kansai University, Japan Sensor Marketing and Data Mining Chair: Prof Lakhmi Jain</p>								
10.30-11.00	Coffee								
11.00-13.00	<p>Sym2C: 2nd Symposium on Information Systems and Technologies for Management, Economy and Decision Making Chair: Dr Jarosław Watrobski</p>	<p>IS06 & IS14: Cybersecurity and Big Data & Digital Architecture and Decision Management Chair: Dr. Francesco Mercaldo & Prof. Alfred Zimmermann</p>	<p>G2C: Intelligent Applications Chair: Dr Carlos Toro</p>	<p>IS15A: Chance Discovery and Market of Data Chair: Prof. Akinori Abe</p>	<p>IS10: Collaboration in Software and System Engineering Chair: Dr Maria Spichkova</p>	<p>IS08A: Knowledge-Based Systems for e-Business Chair: Prof. Kazuhiko Tsuda</p>	<p>IS23A: New Generation Computing in Engineering, Life Science and Economy Chair: Dr Piotr Nikończuk</p>	<p>G3B: Emergent Intelligent Technologies Chair: Prof Ron Hartung</p>	<p>IS02C: Numerical Modelling and Recognition Techniques Chair: Prof. Margarita N. Favorskaya</p>

	Star Auditorium (Plenary Room)	Jazmin 1	Jazmin 2	Tobaz 1	Tobaz 2	Boroka 1	Boroka 2	Kamilla 1	Kamilla 3
13.00- 14.00	Lunch								
14.00- 15.00	Keynote Speaker 4 Prof Dana Barry Clarkson University, USA STEM and ICT Education in Intelligent Environments Chair: TBC								
15.00- 15.30	Coffee								
15.30- 17.30	Sym2D: 2nd Symposium on Information Systems and Technologies for Management, Economy and Decision Making Chair: Dr Jaroslav Watrobski	G2D: Intelligent Applications Chair: Dr Carlos Toro	G3C: Emergent Intelligent Technologies Chair: Prof Ron Hartung	IS15B: Chance Discovery and Market of Data Chair: Prof. Akinori Abe	IS04: Data Science for Big Data Chair: Prof Katsutoshi Yada	IS08B: Knowledge- Based Systems for e-Business Chair: Prof. Kazuhiko Tsuda	IS11: Bioengineering Applications Chair: Dr Milan Simic	T1B: Knowledge Technology Chair: Prof Anne Hakansson	IS24: Knowledge- based Learning and Education Support System: Design and Function Chair: Prof. Tomoko Kojiri
Meet at hotel lobby 6:15	Conference Gala Dinner Budafok Wine City								

Timetable – Friday 6 September

	Star Auditorium (Plenary Room)	Jazmin 1	Jazmin 2	Tobaz 1	Tobaz 2	Boroka 1	Boroka 2	Kamilla 1	Kamilla 3
9.00-9.30	Registration								
9.30-11.30	Sym2E: 2nd Symposium on Information Systems and Technologies for Management, Economy and Decision Making Chair: Dr Jaroslaw Watrobski	G2E: Intelligent Applications Chair: Dr Carlos Toro	T1C: Knowledge Technology Chair: Prof Anne Hakansson	G1C: Theoretical Foundations of Intelligent Systems Chair: Prof Cecilia Zanni-Merk	IS21: Skill Acquisition and Ubiquitous Human Computer Interaction Chair: Assoc. Prof. Masato Soga	IS13: Cybercrime Investigation and Digital Forensics Chair: Assoc. Prof. Da-Yu Kao	IS28: Active learning using ICT for smart education Chair: Prof. Dana M Barry	IS23B: New Generation Computing in Engineering, Life Science and Economy Chair: Dr Piotr Nikończuk	IS34A: Internet-of-Things and Intelligent Systems Chair: Prof. Xiangpei Hu
11.30-12.00	Coffee								
12.00-13.00	Keynote Speaker 5 Prof Sergey Zykov National Research University Higher School of Economics, Russia IT Crisisology: the New Discipline for Managing Software Development in Crisis Chair: TBC								
13.00-14.00	Lunch								

	Star Auditorium (Plenary Room)	Jazmin 1	Jazmin 2	Tobaz 1	Tobaz 2	Boroka 1	Boroka 2	Kamilla 1	Kamilla 3
14.00- 16.00		IS33: Exploiting Internet of Things and embedded systems features within high- performances architectures Chair: Prof. Flora Amato	IS34B: Internet-of- Things and Intelligent Systems Chair: Prof. Xiangpei Hu	IS20: Bio-Inspired Computing and Bioinformatics Chair: Prof. Victor Mitrana	IS29: Computational Intelligence System and Applications Chair: Prof. Yuji Iwahori	IS12C: Advances from Heuristics to Hyperheuristics: new trends and applications in hard optimization and constraint reasoning Chair: Prof. Sadok Bouamama	IS19: Knowledge and data engineering in medicine and health care Chair: Assist Prof. Pancerz Krzysztof	IS18: Decision modeling with and without pairwise comparisons Chair: Prof. Ryszard Janicki	
16.00- 16:15	Coffee								
16:15	Closing Ceremony								

Presentation Schedule – General Tracks

G1A: Theoretical Foundations of Intelligent Systems

Chair: Prof Cecilia Zanni-Merk

Wednesday 4 Sept: 11:00-13:00

Jazmin 1

PROSE Paper No	Paper Title / Authors
k19gen-001	DynGRAR: A dynamic approach to mining gradual relational association rules Miss, Phd Student Diana-Lucia Miholca, Prof. Dr. Gabriela Czibula
k19gen-002	SPRAR: A novel relational association rule mining classification model applied for academic performance prediction PhD student Liana Crivei, Prof. dr. Gabriela Czibula, PhD Student Andrei Mihai
k19gen-016	DynFloR : A Flow Approach for Data Delivery Optimization in Multi-Robot Network Patrolling Student Marin-Georgian Badita, Phd Gabriela Czibula, Phd Jilles Dibangoye, Phd Vlad-Sebastian Ionescu, Phd Zsuzsanna Onet-Marian, Phd Student Ioan Popescu
k19gen-017	Structural Analysis of Sparse Neural Networks M. Sc. Julian Stier, Prof. Dr. Michael Granitzer
k19gen-023	A New Undersampling Method for Learning from Imbalanced Datasets Phd Malgorzata Bach, Msc Mateusz Palt, Phd Aleksandra Werner

G1B: Theoretical Foundations of Intelligent Systems

Chair: Prof Cecilia Zanni-Merk

Wednesday 4 Sept: 15:30-17:30

Jazmin 1

PROSE Paper No	Paper Title / Authors
k19gen-037	AIM: Designing a language for AI models Phd Ionut Cristian Pistol, Phd Andrei Arusoae
k19gen-049	A quantum genetic algorithm for pickup and delivery problems with coalition formation Dr. Yara Rizk, Dr. Mariette Awad
k19gen-064	An empirical analysis of the correlation between the motifs frequency and the topological properties of complex networks Phd Student Bogdan-Eduard-Madali Mursa, Professor Anca Andreica, Professor Laura Diosan
k19gen-082	A Hybrid Simulated Annealing Approach for the Patient Bed Assignment Problem Student Khouloud Dorgham, Professor Hajer Ben Romdhan, Professor Saoussen Krichen, Professor Issam Nouaouri
k19gen-088	Greedy Best-First Search for the Optimal-Size Sorting Network Problem Ph.d. Cristian Frasinaru, Ph.d. Madalina Raschip
k19gen-090	Energy-Efficient Strategies for Multi-Agent Continuous Cooperative Patrolling Problems Ms. Lingying Wu, Prof. Toshiharu Sugawara, Mr. Ayumi Sugiyama

G1C: Theoretical Foundations of Intelligent Systems

Chair: Cecilia Zanni-Merk

Friday 6 September: 09:30-11:30

Tobaz 1

PROSE Paper No	Paper Title / Authors
k19gen-093	Implementing Industry 4.0 Asset Administrative Shells in Mini Factories Dr Alejandro Seif, Dr Humza Akhtar, Dr Carlos Toro
k19gen-111	Ontology population with deep learning-based NLP: a case study on the Biomolecular Network Ontology Dr. Ali Ayadi, Dr. François De Bertrand De Beuvron, Dr. Ahmed Samet, Prof. Cecilia Zanni-merk
k19gen-114	Knowledge-Based Architecture for Recognising Activities of Older People Dr Mohamad Bennasar, Dr Daniel Gooch, Mr Ciaran McCormick, Mr Vikram Mehta, Prof Blaine Price, Dr Avelie Stuart
k19gen-133	Discovery of closed spatio-temporal sequential patterns from event data Mr Piotr S. Maciag, Dr. Robert Bembenik, Prof. Marzena Kryszkiewicz
k19gen-136	Non-Functional Norms Specification and Verification Approach for Normative Multi-agents Systems Phd Student Ezzine Missaoui, Professor Sami Bhiri, Full Professor Vincent Hilaire, Associate Professor Belhassen Mazigh
k19gen-013	A Novel Multi-Objective Immune Memetic Algorithm for the Frequency Assignment Problem Dr. Malika Bessedik, Pr. Fatima Benbouzid-sitayeb, Engineer Mohamed Reda Keddar, Phd Abd Errahmane Kiouche

G2A: Intelligent Applications

Chair: Dr Carlos Toro

Wednesday 4 Sept: 11:00-13:00

Jazmin 2

PROSE Paper No	Paper Title / Authors
k19gen-005	On a cooperative truck-and-drone delivery system Phd Gloria Cerasela Crisan, Phd Elena Nechita
k19gen-042	Contribution of Data Augmentation for the Preventive Detection of Vocal Fold Precancerous Lesions Pr. Anis Ben Aicha
k19gen-009	Emotion Mining in Social Media Data Ms. Jaishree Ranganathan, Dr Angelina Tzacheva
k19gen-015	Towards automated joining element design M.sc. Derk Eggink, M.sc. Johannes Biedert, Prof. Dr. Marco Groll, M.sc. Christoph Knödler, Ing. Patrick Papentin, B.sc. Daniel Perez-ramirez
k19gen-020	Bach 2.0 - generating classical music using recurrent neural networks Mr. Alexandru-Ion Marinescu,
k19gen-025	Coffee Leaf Disease Recognition Based on Deep Learning and Texture Attributes Master Lucas Boa Sorte, Master Francisco Fambrini, Doctor Carolina Ferraz, Doctor Roseli Goulart, Doctor José Saito

G2B: Intelligent Applications

Chair: Dr Carlos Toro

Wednesday 4 Sept: 15:30-17:30

Jazmin 2

PROSE Paper No	Paper Title / Authors
k19gen-034	Computational Intelligence for Solving Difficult Transportation Problems Dr. Elena Nechita, Dr. Gloria Cerasela Crisan, Dr. Laszlo Barna Iantovics
k19gen-006	Using self-organizing maps for unsupervised analysis of radar data for nowcasting purposes Phd Student Andrei Mihai, Professor Gabriela Czibula, Researcher Eugen Mihulet, Student Daniel Teodorovici
k19gen-046	Iris Image Classification Using SIFT Features Dr. Anca Ignat, Mr. Ioan Pavaloi
k19gen-055	A Real-Time Lazy Eye Correction Method for Low Cost Webcams Dr. Muhammad Marwan Muhammad Fuad, Mr. Robert Kerr
k19gen-060	Fuzzy Decision Efficiency for Multiprocessor Architecture Configuration Mrs Yousra Najar, Pr Samir Ben Ahmed
k19gen-062	Bob - A General Culture Game with Voice Interaction Phd Marta Filimon, Phd Adrian Iftene, Phd Diana Trandabat

G2C: Intelligent Applications

Chair: Dr Carlos Toro

Thursday 5 September: 11:00-13:00

Jazmin 2

PROSE Paper No	Paper Title / Authors
k19gen-067	A Deep Learning-based Ranking Approach for Microblog Retrieval Ph.D. Ibtihel Ben Ltaifa, Pr. Lotfi Ben Romdhane, Dr. Lobna Hlaoua
k19gen-069	Spiking Neural Network to Extract Frequent Words from Japanese Speech Data Mr. Kenta Morita, Ph.D Hiroharu Kawanaka, Ph.D Hidehiko Kita, Ph.D Naoki Morita, Ph.D Haruhiko Takase
k19gen-081	A survey on different human-machine interactions used for controlling an electric wheelchair Dr Agnes Ghorbel, nader ben amor
k19gen-083	Layered Neural-based locomotion for biped robot movement with carrying dynamic payload Mr. Azhar Aulia Saputra, Dr. Janos Botzheim, Prof. Naoyuki Kubota, Dr. Indra Adji Sulistijono
k19gen-086	A New Method to Identify Short-Text Authors Using Combinations of Machine Learning and Natural Language Processing Techniques Dr. Muhammad Marwan Muhammad Fuad, Mr. Biveeken Vijayakumar
k19gen-089	Fair and Effective Elevator Car Dispatching Method in Elevator Group Control System using Cameras Mr. Tomoki Yamauchi, Ms. Rina Ide, Prof. Toshiharu Sugawara

G2D: Intelligent Applications

Chair: Dr Carlos Toro

Thursday 5 September: 15:30-17:30

Jazmin 1

PROSE Paper No	Paper Title / Authors
k19gen-092	Enhancing Question Retrieval in Community Question Answering using word embeddings Phd Student Nouha Othman, Professor Rim Faiz, Professor Kamel Smaili
k19gen-098	Automatic wide field registration and mosaicking of OCTA images using vascularity information Bsc Macarena Diaz, Msc Joaquim De Moura, Phd Jorge Novo, Phd Marcos Ortega
k19gen-099	In Underground Vehicular Radio Channel Characterization Dr Chehri Abdellah
k19gen-100	Overlapping Chromosome Segmentation using U-Net: Convolutional Networks with Test Time Augmentation Mrs Hariyanti Mohd Saleh, Professor Nor Ashidi Mat Isa, Mrs Nor Hidayah Saad
k19gen-115	Retinal vascular analysis in a fully automated method for the segmentation of DRT edemas using OCT images Bsc Joaquim De Moura, Phd Pablo Charlon, Phd Maria Isabel Fernandez, Phd Jorge Novo, Phd Marcos Ortega
k19gen-116	Degenerate Unmixing Estimation Technique (DUET) for Fetal ECG Blind Source Separation Assoc. Prof. Dr. Dzati Athiar Ramli, Ms Mei Ling Fong, Ms Norsalina Hassan

G2E: Intelligent Applications

Chair: Dr Carlos Toro

Friday 6 September: 9:30 - 11:30

Jazmin 1

PROSE Paper No	Paper Title / Authors
k19gen-123	Fully automatic multi-temporal land cover classification using Sentinel-2 image data Mr. Sergio Baamonde, Mr. Martiño Cabana, Dr. Manuel G. Penedo, Dr. Horacio Naveira, Dr. Jorge Novo, Dr. Neftalí Sillero
k19gen-132	Machine Learning Based Approach to Assess Denoised Speech Dr. Anis Ben Aicha
k19gen-139	Towards an Extensible Architecture for Ideation D.Sc. Hercules Prado, Ph.D. Edilson Ferneda, D.Sc. Aluizio Haenchen Filho, D.Sc. Elaine Marcial, Mrs. Roseane Salvio
k19gen-140	Dealing with Data Imbalance in Text Classification Dr. Mihaela Breaban, Phd. Student Cristian Padurariu
k19gen-145	Imbalanced Learning Techniques for Improving the Performance of Statistical Models in Automated Essay Scoring Dr Aluizio Haendchen Filho, Sr Fernando Concatto, Dr Edilson Ferneda, Sr Diego Oscar Imhof, Sr Jonathan Nau, Dr Hercules Antonio Prado
k19gen-149	Comparative Study of Arabic Stemming Algorithms for Topic Identification Dr Marwa Naili, Professor Henda Ben Ghezala, Dr Anja Habacha

G3A: Emergent Intelligent Technologies

Chair: Prof Ron Hartung

Wednesday 4 Sept: 11:00-13:00

Kamilla 1

PROSE Paper No	Paper Title / Authors
k19gen-036	Relationships among information items of meeting minutes in a minutes management system MRS Prof. Hideaki Ito, Prof. Junichi Hasegawa, Prof. Kyoko Raita, Prof. Tsuyoshi Taki
k19gen-014	Anomaly-based Behavioral Detection in Mobile Ad-Hoc Networks Phd Student Rahma Meddeb, Assistant Professor Farah Jemili, Professor Ouajdi Korbaa, Assistant Professor Bayrem Triki
k19gen-026	iAssistMe - Adaptable Assistant for Persons with Eye Disabilities Ms. Cristina Georgiana Calancea, Ms. Lenuta Alboaie, Mr. Adrian Iftene, Ms. Camelia Maria Milut
k19gen-028	Data protection in cloud computing: A Survey of the State-of-Art Doctorante Sonia Amamou, Monsieur Maher Khmakhem, Monsieur Zied Trife
k19gen-030	Interlinking RDF-based datasets: A structure-based approach Mr Pierre-henri Paris, Dr. Faycal Hamdi, Prof. Samira Si-said Cherfi
k19gen-035	A Model Based on LSTM Neural Networks to Identify Five Different Types of Malware Mr. Eduardo Andrade, Mrs. Flavia Bernardini, Mr. Joris Guerin, Mrs. Cristina Vasconcelos, Mr. Jose Viterbo

G3B: Emergent Intelligent Technologies

Chair: Prof Ron Hartung

Thursday 5 September: 11:00-13:00

Kamilla 1

PROSE Paper No	Paper Title / Authors
k19gen-004	String-based Multinomial Naïve Bayes for Emotion Detection among Facebook Diabetes Community Dr Vimala Balakrishnan, Miss Wandeep Kaur
k19gen-043	Design a Data Warehouse Schema from Document-Oriented database Phd Student Senda Bouaziz, Professor Faiez Gargouri, Assistant Professor Ahlem Nabli
k19gen-047	Feature selection on database optimization for Wi-Fi fingerprint indoor positioning Mr Guilherme Apostolo, Mr Igor Sampaio, Phd Jose Viterbo
k19gen-053	A new Transparent Ensemble Method based on Deep learning Phd Student Naziha Sendi, Associate Professor Nadia Abchiche-Mimouni, Associate Professor Farida Zehraoui
k19gen-066	A Structure Based Multiple Instance Learning Approach for Bacterial Ionizing Radiation Resistance Prediction Mrs. Manel Zoghlami, Mr. Sabeur Aridhi, Mr. Mondher Maddouri, Mr. Engelbert Mephu Nguifo
k19gen-091	Using behavioral biometric sensors of mobile phones for user authentication M. Nurhak Karakaya, Dr. Ozlem Durmaz Incel, Dr. Gulfem Isiklar Alptekin

G3C: Emergent Intelligent Technologies

Chair: Prof Ron Hartung

Thursday 5 September: 15:30-17:30

Jazmin 2

PROSE Paper No	Paper Title / Authors
k19gen-102	A New Architecture for Cognitive Internet of Things and Big Data Mr Mohamed Saifeddine Hadj Sassi, Pr Lamia Chaari Fourati, Pr Faiza Ghozzi Jedidi
k19gen-113	Visualization of Programming Skill Structure by Log-Data Analysis with Decision Tree Dr. Shinichi Oeda, Mr. Mutsumi Chieda
k19gen-122	Relational Model for Parameter Description in Automatic Semantic Web Service Composition Mr. Paul Diac, Mr. Andrei Netedu, Ms. Liana Tucur
k19gen-125	Prediction of stress levels with LSTM and passive mobile sensors Graduate Student Yasin Acikmese, Associate Professor S. Emre Alptekin
k19gen-148	A Pattern-based Approach to a Cell Tracking Ontology Dr Patryk Burek, Prof Heinrich Herre, Dr Nico Scherf

T1A: Knowledge Technology

Chair: Prof Anne Hakansson

Wednesday 4 Sept: 15:30-17:30

Kamilla 1

PROSE Paper No	Paper Title / Authors
k19gen-044	Investigating the effects of lossy compression on age, gender and alcoholic information in EEG signals Mr Binh Nguyen, Professor Chiraz Latiri, Associate Professor Chiraz Trabelsi
k19gen-056	Community detection in multi-relational social networks based on relational concept analysis Phd Student Soumaya Guesmi, Assistant Inès Hilali-Jaghdam, Postdoctoral Amira Mouakher
k19gen-061	BI-COMDET: Community Detection in Bipartite Networks Phd Haifa Gmati, Doctor Mehrez Essafi, Doctor Myriam Fakhri, Professor Chirine Ghedira, Professor Henda Hajjami Ben Ghezala, Doctor Hamad Witt
k19gen-071	A Web Service Security Governance Approach Based on Dedicated Micro-services Phd Sarra Abidi, Assistant Professeur Brahmi Zaki
k19gen-072	FCA-based Energy Aware-data Placement Strategy for Intensive Workflow in Cloud Computing. Phd Student Derouiche Rihab, Prof. Bruno Cremilleux, Dr Xin Huang
k19gen-087	Enhancing Deep Learning with Semantics: an application to manufacturing time series analysis Prof. Cecilia Zanni-merk,

T1B: Knowledge Technology

Chair: Prof Anne Hakansson

Thursday 5 September: 15:30-17:30

Kamilla 1

PROSE Paper No	Paper Title / Authors
k19gen-105	Market efficiency is truly enhanced in sub-second trading market Prof. Mieko Tanaka-yamawaki, Prof. Masanori Yamanaka
k19gen-108	Deep Learning Approach to Biogeographical Ancestry Inference Ms Yue Qu, Dr Wanli Ma, Dr Dat Tran
k19gen-110	Modular Ontology Learning with Topic Modelling over Core Ontology Phd. Student Ziwei Xu, Professor Fabrice Guillet, Associate Professor Mounira Harzallah, Associate Professor Ryutaro Ichise
k19gen-118	Abnormal Situations Interpretation in Industry 4.0 using Stream Reasoning Phd Student Franco Giustozzi, Doctor Julien Saunier, Professor Cecilia Zanni-merk
k19gen-120	An Ontology-based Approach for Failure Classification in Predictive Maintenance Using Fuzzy C-means and SWRL Rules Mr. Qiushi Cao, Mr. François De Bertrand De Beuvron, Mr. Christoph Reich, Mr. Ahmed Samet, Ms. Cecilia Zanni-merk
k19gen-127	Speech spoofing countermeasures based on source voice analysis and machine learning techniques Student Raoudha Rahmeni, Assistant Anis Ben Aicha, Maitre Conference Yassine Ben Ayed

T1C: Knowledge Technology

Chair: Prof Anne Hakansson

Friday 6 September: 9:30 - 11:30

Jazmin 2

PROSE Paper No	Paper Title / Authors
k19gen-130	Data quality in ETL process: A preliminary study Phd Student Manel Souibgui, Assistant Professor Faten Atigui, Professor Sadok Ben Yahia, Professor Samira Cherfi, Assistant Professor Saloua Zammali
k19gen-131	Hybrid System for Information Extraction from Social Media Text: Drug Abuse Case Study Ms Ferdaous Jenhani, Pr. Lamjed Ben Said, Pr. Mohamed Salah Gouider
k19gen-142	Ontology Alignment using Stable Matching Mrs Imene Ouali, Mrs Faiza Ghozzi Jedidi, Mr Mohamed Saifeddine Hadj Sassi, Mrs Raouia Taktak
k19gen-144	Specification of the data warehouse for the decision-making dimension of the Bid Process Information System Phd Manel Zekri, Professor Ben Yahia Sadok, Phd Sahbi Zahaf
k19gen-147	MBOPS: Towards A Multidimensional Business Ontology based-Premodeling System Phd Student Ouali Sonya, Pr Gargouri Faiez, Dr Mhiri Mohamed

Presentation Schedule – Invited Sessions

Sym2A: 2nd Symposium on Information Systems and Technologies for Management, Economy and Decision Making

Chair: Dr Jaroslaw Watrobski

Wednesday 4 Sept 2019: 11:00-13:00

Star Auditorium

PROSE Paper No	Paper Title / Authors
k19is-255	Comparative study of ICT and SIS measurement in Polish households using a MCDA-based approach Phd Jaroslaw Watrobski, Prof. Jaroslaw Jankowski, Msc Artur Karczmarczyk, Prof. Ewa Ziemba
k19is-243	Optimization of control system for modified configuration of a refrigeration unit Dr Piotr Nikonczuk, Dr Slawomir Jaszczak, Dr Tomasz Lokietek
k19is-242	Mini-models based on soft clustering methods Marcin Pietrzykowski
k19is-241	Defining Requirements for a Gamified Programming Exercises Format Dr Hab. Jakub Swacha, Dr Jose Paulo Leal, Mr Jose Carlos Paiva, Dr Ricardo Queiros
k19is-240	Identification of the football teams assessment model using the COMET method Phd Wojciech Salabun, Student Krzysztof Palczewski
k19is-239	Endo- and exogenous conditions of entrepreneurial process of university spin-off companies in Poland Prof. Jaroslaw Korpysa,

Sym2B: 2nd Symposium on Information Systems and Technologies for Management, Economy and Decision Making

Chair: Dr Jaroslaw Watrobski

Wednesday 4 Sept 2019: 15:30-17:30

Star Auditorium

PROSE Paper No	Paper Title / Authors
k19is-238	Relations of GDP growth and development of SMEs in Poland Prof Tomasz Bernat, Prof Joanna Duda, Dr Aleksandra Gasior, Dr Maciej Wozniak
k19is-237	Knowledge and educational capital in the process of modern society creation Prof Tomasz Bernat, Dr Patrycja zeglen, Prof Anna Barwinska-malajowicz
k19is-236	Entrepreneurial self-efficacy and intention among vietnamese students: a meta-analytic path analysis based on the theory of planned behavior Prof Tomasz Bernat, Mr Doanh Duong Cong
k19is-231	Application of VMCM method (Vector Measure Construction Methods) to estimate consumer's quality of life in EU countries - dynamic perspective Phd Jaroslaw Watróbski, Prof. Dominika Maison, Phd Mateusz Piwowarski
k19is-220	Using the AHP method to select an energy supplier for household in Poland Ph.d. Eng. Ireneusz Miciula, Ph.d. Hab. Prof. Pcz Joanna Nowakowska-grunt
k19is-219	Automatic Hazard Identification Information System (AHIIS) for decision support in inland waterway navigation Ph.d. Eng. Ireneusz Miciula, Ph.d. Henryk Wojtaszek

Sym2C: 2nd Symposium on Information Systems and Technologies for Management, Economy and Decision Making

Chair: Dr Jaroslaw Watrobski

Thursday 5 Sept 2019: 11:00-13:00

Star Auditorium

PROSE Paper No	Paper Title / Authors
k19is-218	Concept of expert system for creation of personalized, digital skills learning pathway Prof. Assoc. Przemyslaw Rózewski,
k19is-217	The fuzzy TOPSIS applications in the last decade Phd Wojciech Salabun, Student Krzysztof Palczewski
k19is-216	Parametrization of Spreading Processes Within Complex Networks with the Use of Knowledge Acquired from Network Samples Phd Jaroslaw Watrobski, Prof. Jaroslaw Jankowski, Phd Student Artur Karczmarczyk
k19is-215	Selected methodological and practical aspects of the multi-criteria method PVM Phd Wojciech Salabun, Prof Kesra Nermend, Phd Mateusz Piwowarski
k19is-211	Multi-criteria Evaluation of Recommending Interfaces towards Habituation Reduction and Limited Negative Impact on User Experience Master Of Science Kamil Bortko, Master Of Science Piotr Bartków, Dsc Jaroslaw Jankowski, Bachelor Of Engineer Damian Kuras, Phd Piotr Sulikowski
k19is-207	Environmental taxes - how public policy makers can use them in the decision-making process? Prof Magdalena Ziolo, Prof Iwona Bak, Dr Katarzyna Cheba

Sym2D: 2nd Symposium on Information Systems and Technologies for Management, Economy and Decision Making

Chair: Dr Jaroslaw Watrobski

Thursday 5 Sept 2019: 15:30-17:30

Star Auditorium

PROSE Paper No	Paper Title / Authors
k19is-206	The framework for creating a psychological assessment tool based on interactive storytelling Prof. Assoc. Przemyslaw Rozewski, Mgr Marcin Prys, Prof Matthias Ziegler
k19is-202	The method of multidimensional approach to text summarization Prof. Assoc. Przemyslaw Rozewski, Mgr Piotr Janaszkiwicz
k19is-188	Expanding an open source e-commerce with a separate ICT system Dr Grzegorz Szyjewski
k19is-187	Sustainable production network design for city multi-floor manufacturing cluster Dr Tomasz Dudek, Prof Tygran Dzhuguryan, Dr Justyna Lemke
k19is-184	Influence of various normalization methods in the PROMETHEE II: an empirical study on the selection of the airport location Phd Wojciech Salabun, Student Krzysztof Palczewski
k19is-181	Willingness of sharing personal device data for scientific research Dr Grzegorz Szyjewski,

Sym2E: 2nd Symposium on Information Systems and Technologies for Management, Economy and Decision Making

Chair: Dr Jaroslaw Watrobski

Friday 6 Sept 2019: 09:30-11:30

Star Auditorium

PROSE Paper No	Paper Title / Authors
k19is-153	On Approaches to Discretisation of Stylometric Data and Conflict Resolution in Decision Making Prof. Beata Zielosko, Dr Urszula Stanczyk
k19is-135	A multi-agent model for planning hybrid software processes Ph.D. Włodzimierz Wysocki, Prof. Cezary Orłowski
k19is-127	Ontology Supporting Green Supplier Selection Process Phd Jaroslaw Watrobski
k19is-126	Towards Knowledge Handling in Sustainable Management Domain Phd Jaroslaw Watrobski
k19is-105	Applying Multi-Criteria Analysis of Electrically Powered Vehicles Implementation in Urban Freight Transport Phd Krzysztof Malecki, Prof Stanislaw Iwan, Phd Kinga Kijewska
k19is-034	Potentials of Digital Business Models in the retail industry - Empirical Results from European Experts Prof. Dr. Ralf Haerting, B. A. Patrick Laemmle, M. Sc. Christopher Reichstein, M. Sc. Alexander Sprengel
k19is-017	Combined approach to forecasting of manufacturing system target indicators in a changing external environment Dr. Zinaida Avdeeva, Dr. Elena Grebenyuk, Ms. Svetlana Kovriga

IS01: Cyber-Physical Systems and Applications

Chair: Prof Anne Hakansson

Wednesday 4 Sept 2019:11:00-13:00

Tobaz 2

PROSE Paper No	Paper Title / Authors
k19is-212	Visual content representation and retrieval for Cognitive Cyber Physical Systems Miss Catherine Silva De Oliveira, Dr. Cesar Sanin, Professor Cognitive Cyber Phys Szczerbicki
k19is-210	Smart Virtual Product Development (SVPD) to Enhance Product Manufacturing in Industry 4.0 Mr Muhammad Bilal Ahmed, Dr Cesar Sanin, Professor Edward Szczerbicki
k19is-173	Proposition of the methodology for Data Acquisition, Analysis and Visualization in support of Industry 4.0 Dr Syed Shafiq, Dr Cesar Sanin, Prof Edward Szczerbicki

IS02A: Numerical Modelling and Recognition Techniques

Chair: Prof. Margarita N. Favorskaya

Wednesday 4 Sept 2019: 11:00-13:00

Tobaz 1

PROSE Paper No	Paper Title / Authors
k19is-170	PPCU Sam: Open-source face recognition framework Mr. Csaba Botos, Mr. Tamas Hakkel, Phd. Andras Horvath, Phd. Andras Olah, Phd. Istvan Reguly
k19is-130	Evaluation of gravitational anomalies in the areas of strongest earthquakes based on GRACE satellite measurements Phd Mikhail Kurako, Dr Alexander Matsulev, Prof Konstantin Simonov, Dr Aleksandr Zotin
k19is-089	Lung Boundary Detection for Chest X-ray Images Classification based on GLCM and Probabilistic Neural Networks Phd Mikhail Kurako, Phd Student Yousif Hamad, Prof Konstantin Simonov, Dr Aleksandr Zotin
k19is-065	Feature-based synchronization correction for multilevel watermarking of medical images Prof. Margarita Favorskaya, Mr. Konstantin Gusev, Mrs. Eugenia Savchina
k19is-057	A novel method for wave phenomena investigation Dr Alena Favorskaya

IS02B: Numerical Modelling and Recognition Techniques

Chair: Prof. Margarita N. Favorskaya

Wednesday 4 Sept 2019: 15:30-17:30

Tobaz 1

PROSE Paper No	Paper Title / Authors
k19is-053	Determination of the Turning Point of Cache Efficiency in Computer Networks with Logic Et Dr Avelino Pimenta Jr, Dr Jair Abe
k19is-052	Three Decades of Paraconsistent Annotated Logics: a Review Paper on Some Applications Dr Jair Abe, Dr Joao Da Silva Filho, Phd Kazumi Nakamatsu
k19is-043	Numerical simulation of cone object destruction under a short high-energy pulse Ms Katerina Beklemysheva, Mr Alexey Ermakov, Ms Alena Favorskaya
k19is-027	Intelligent Method of Computer-Aided Design and Checking of Real-Time Spacecraft Control Algorithms Dr. Andrey Tyugashev, Prof. Sergei Orlov
k19is-024	Frost Forecast using Machine Learning -- from association to causality Professor Liya Ding, Professor Kosuke Noborio, Mr. Kazuki Shibuya

IS02C: Numerical Modelling and Recognition Techniques

Chair: Prof. Margarita N. Favorskaya

Thursday 5 Sept 2019: 11:00-13:00

Kamilla 3

PROSE Paper No	Paper Title / Authors
k19is-016	Animal species recognition in the wildlife based on muzzle and shape features using joint CNN Prof. Margarita Favorskaya, Dr. Andrey Pakhirka
k19is-008	The influence of an ice field on the seismic exploration in the Arctic region Ms Polina Stognii, Ms Alena Favorskaya, Mr Igor Petrov
k19is-022	Analysis of Brain NMR Images for Age Estimation with Deep Learning Mr Alberto Rossi, Mr Paolo Andreini, Prof Monica Bianchini, Mr Simone Bonechi, Ms Giorgia Giacomini, Mr Gioele Vannuccini
k19is-056	Seismic Stability of High-Rising Buildings Dr Alena Favorskaya, Student Alina Breus

IS11: Bioengineering Applications

Chair: Dr Milan Simic

Thursday 5 Sept 2019: 15:30-17:30

Boroka 2

PROSE Paper No	Paper Title / Authors
k19is-253	Novel, shape optimised, TEG subsystem design Dr Milan Simic, Dr Petros Lappas, Mr Ramchandran Palaniswamy, Mr Andrew Royale, Mr Philipp Schiffer
k19is-252	Common spatial pattern for classification of left and right knee extension motor imagery in BCI applications Ms Madiha Tariq, Dr. Milan Simic, Prof Pavel Trivailo
k19is-249	Automated gathering and analysis of cannabinoids treatment data Dr Maria Spichkova, Ms Nidhi Chawla, Ms Rachita Chugh, Ms Rochelle Maria Gracias, Mr Songyan Li, Mr Jitender Padda
k19is-225	Clustering and pattern recognition in bioengineering and autonomous systems Mr Milan Todorovic, Dr Milan Simic
k19is-169	ECG Sensor for Detection of a Driver's Drowsiness Prof. Dr. Natividad Martinez Madrid, Bsc Markus Gromer, Bsc David Salb, Prof. Dr. Ralf Seepold, Msc Thomas Walzer
k19is-122	A Big-Data-Analytics Framework for Supporting the Classification of ADHD and Healthy Children via Principal Component Analysis of EEG Sleep Spindles Power Spectra Prof. Alfredo Cuzzocrea, Prof. Agostino Accardo, Dr. Milos Ajcevic, Dr. Federica De Dea, Dr. Matteo Stecca, Dr. Caterina Zanus

IS04: Data Science for Big Data

Chair: Prof Katsutoshi Yada

5 September 2019: 15:30-17:30

Tobaz 2

PROSE Paper No	Paper Title / Authors
k19is-197	Analysis of social influence on in-store purchase behavior by using ecological system of ants Dr Ken Ishibashi, Prof Katsutoshi Yada
k19is-194	The impact of self-control on search behavior Prof. Katsutoshi Yada, Mr Hongen Gu
k19is-193	When Industry 4.0 meets Process Mining Phd Cristina-Claudia Osman, Phd Ana-Maria Ghiran
k19is-186	Ontologies-Based Pupil Robot Interaction with Group Discussion Mr. Koike Kaito, Mr. Ono Hiroki, Prof. Yamaguchi Takahira, Dr. Morita Takeshi
k19is-172	A Proposal of Matching Algorithm for New Type of Advertisement Business Model Dr. Motoi Iwashita
k19is-101	Cost-benefit considerations for Data Analytics - An SME-Oriented Framework enhanced by a Management Perspective and the Process of Idea Generation Dr. Ralf Haerting, M.sc. Alexander Sprengel

IS05: Knowledge Engineering in Large-Scale Systems

Chair: Prof Sergey Zykov

Wednesday 4 Sept 2019:11:00-13:00

Kamilla 3

PROSE Paper No	Paper Title / Authors
k19is-251	A Big-Data-Analytics Framework for Supporting Logistics Problems in Smart-City Environments Prof. Alfredo Cuzzocrea, Dr. Massimiliano Nolich, Prof. Walter Ukovich
k19is-146	IT Crisisology: The New Discipline for Managing Software Development in Crisis Dr. Sergey Zykov
k19is-142	Tradeoff-based architecting of the software system for autonomous robotized open pit mining Prof. Sergey Zykov, Assistant Prof. Sergey Deryabin, Prof. Igor Temkin

IS06: Cybersecurity and Big Data

Chair: Dr. Francesco Mercaldo

Thurs 5 Sept 2019: 11:00-13:00

Jazmin 1

PROSE Paper No	Paper Title / Authors
k19is-151	Formal Modeling for Magnetic Resonance Images Tamper Mitigation Dr Francesco Mercaldo, Prof Luca Brunese, Prof Alfonso Reginelli, Prof. Antonella Santone
k19is-149	A Blockchain Based Proposal for Protecting Healthcare Systems through Formal Methods Dr Francesco Mercaldo, Prof. Luca Brunese, Prof. Alfonso Reginelli, Prof. Antonella Santone
k19is-150	Radiomic Features for Medical Images Tamper Detection by Equivalence Checking Dr Francesco Mercaldo, Prof Luca Brunese, Prof Alfonso Reginelli, Prof. Antonella Santone

IS08A: Knowledge-Based Systems for e-Business

Chair: Prof. Kazuhiko Tsuda

Thurs 5 Sept 2019: 11:00-13:00

Boroka 1

PROSE Paper No	Paper Title / Authors
k19is-185	Semantic Search Engine for Daily Work Reports Integrating Heterogeneous Ontologies Mr. Kazuki Masumura, Dr. Takeshi Morita, Mr. Kohei Suehiro, Prof. Takahira Yamaguchi
k19is-079	Feature Comparison of Hotel Reviews by Hotel Type using Dependency Graph Dr Koji Tanaka, Dr Takashi Ikoma, Prof Kazuhiko Tsuda, Dr Koichi Tsujii
k19is-078	A Method of Extracting and Classifying Local Community Problems from Citizen-Report Data using Text Mining Mr. Eiji Kano, Dr. Yoshikatsu Fujita, Dr. Kazuhiko Tsuda
k19is-077	Estimating the Supply and Demand Balance of the Market by exploring the Gross Profit Transition in E-commerce business Dr Tatsuya Ogura, Prof Kazuhiko Tsuda
k19is-076	A Detection Method for Plagiarism Reports of Students Mr. Daisuke Sakamoto, Prof. Kazuhiko Tsuda

IS08B: Knowledge-Based Systems for e-Business

Chair: Prof. Kazuhiko Tsuda

Thursday 5 Sept 2019: 15:30-17:30

Boroka 1

PROSE Paper No	Paper Title / Authors
k19is-075	A Standardization Method of Individual Rating Fluctuation Ms. Maki Johjima, Mr. Yasuto Nishiwaki, Mr. Daisuke Sakamoto, Prof. Kazuhiko Tsuda
k19is-074	A Consideration of Evaluation Method of Sentiment Analysis on Social Listening Director Yasuto Nishiwaki, Senior Director Atsushi Motoyama, Senior Engineer Takeshi Teramura, Dr. Kazuhiko Tsuda, Engineer Yuji Yoshida
k19is-071	Factors that influence casino design: Exploration of knowledge-based ideas for introducing casinos into Japan Ph.d Candidate Nozomi Komiya, Professor Jun Nakamura
k19is-070	A Novel Technique Validating for the Visualization of R&D Project Status in Proceeding R&D Project Professor Hideki Hayashida, Research Lecture Hiroki Funashima, Associate Prof. Masakazu Takahashi
k19is-069	A Method of Sentiment Polarity Identification in Financial News using Deep Learning Mr. Daisuke Katayama, Prof. Kazuhiko Tsuda, Yasunobu Kino

IS09: Networks for Innovation, Knowledge Creation and Sharing

Chair: Prof. Shuichiro Yamamoto

Wednesday 4 Sept 2019: 15:30-17:30

Tobaz 2

PROSE Paper No	Paper Title / Authors
k19is-050	Automated inspection method for an STAMP/STPA - Fallen Barrier Trap at Railroad Crossing - Mr. Pan Yang, Mr. Rin Karashima, Dr. Shinpei Ogata, Dr. Kozo Okano
k19is-040	Towards A Knowledge Base for Software Developers to Choose Suitable Traceability Techniques Prof. Kaiya Haruhiko, Prof. Hazeyama Atsuo, Prof. Washizaki Hironori, Dr. Yoshioka Nobukazu, Dr. Ogata Shinpei, Prof. Okubo Takao
k19is-021	Aspect Analysis towards ArchiMate Diagrams Professor Shuichiro Yamamoto, Phd.student Qiang Zhi, Ms Student Zhengshu Zhou
k19is-015	AI Service System Development Using Enterprise Architecture Modeling Prof. Hironori Takeuchi, Prof. Shuichiro Yamamoto
k19is-007	Verification method of reliability requirements Prof. Atsushi Ohnishi, Assoc. Prof. Takayuki Omori, Ms. Yamada Satsuki

IS07A: Knowledge-based Information Systems Engineering in Optimizing Future Enterprise Applications

Chair: Dr. Shastri L. Nimmagadda

Wednesday 4 Sept 2019: 11:00-13:00

Boroka 2

PROSE Paper No	Paper Title / Authors
k19is-091	A Large Scale System for Streaming Social Media Data Warehousing: Drug Abuse Case Study Ms Ferdaous Jenhani, Pr. Lamjed Ben Said, Pr. Mohamed Salah Gouider
k19is-055	Design Science Information System Framework for Managing the Articulations of Digital Agroecosystems Dr Shastri Nimmagadda, Mr Samson Amboge, Dr Neel Mani, Dr Torsten Reiners
k19is-054	Specification of the data warehouse for the decision-making dimension of the Bid Process Information System Phd Manel Zekri, Phd Faiez Gargouri, Phd Sahbi Zahaf
k19is-049	On Modelling Big Data Guided Supply Chains in Knowledge-Base Geographic Information Systems Dr Shastri Nimmagadda, Dr Torsten Reiners, Dr Lincoln Wood

IS07B: Knowledge-based Information Systems Engineering in Optimizing Future Enterprise Applications

Chair: Dr. Shastri L. Nimmagadda

Wednesday 4 Sept 2019: 15:30-17:30

Boroka 2

PROSE Paper No	Paper Title / Authors
k19is-048	Design of a SWOT Analysis Model and its Evaluation in Diverse Digital Business Ecosystem Contexts Ms Christine Namugenyi, Dr Shastri Nimmagadda, Dr Torsten Reiners
k19is-047	On Managing Contextual Knowledge of Digital Document Ecosystems, characterized by Alphanumeric Textual Data Dr Shastri Nimmagadda, Dr Zhu Dengya, Dr Torsten Reiners
k19is-023	Design and Development of a Real Time Vision Enhancement System using Image Fusion – an Algorithmic Approach Ms Sriswathi Nimmagadda, Dr Neel Mani, Dr Shastri Nimmagadda
k19is-011	On framework development for the dynamic prosumer coalition in a smart grid and its evaluation by analytic tools Mrs Sreenithya Sumesh, Dr Aneesh Krishna, Dr Shastri Nimmagadda, Dr Vidy Potdar

IS10: Collaboration in Software and System Engineering

Chair: Dr Maria Spichkova

Thursday 5 Sept 2019: 11:00-13:00

Tobaz 2

PROSE Paper No	Paper Title / Authors
k19is-232	Voice-activated solutions for agile retrospective sessions Dr Maria Spichkova, Mr Niraj Bohra, Ms Purwa Gaikwad, Mr Chris Theodore Jayakumar, Mr Eashan Tilve, Mr Wenfei Yu
k19is-230	The Influence of Power Distance on Requirements Engineering Activities Phd Candidate Tawfeeq Alsanoosy, Prof. James Harland, Dr. Maria Spichkova
k19is-157	Formal Verification approaches of Self-adaptive Systems: A Survey Dr Marwa Hachicha, Dr Riadh Ben Halima
k19is-094	A Refinement-based Approach for Verifying Dynamic Changes on Time-Aware Processes Phd Student Fairouz Fakhfakh

IS12A: Advances from Heuristics to Hyperheuristics: new trends and applications in hard optimization and constraint reasoning

Chair: Prof. Sadok Bouamama

Wednesday 4 Sept 2019: 11:00-13:00

Boroka 1

PROSE Paper No	Paper Title / Authors
k19is-196	A new template concept guided honey bee optimization for Max-CSPs Dr. Hajer Ben Othman, Professor Moncef Tagina
k19is-104	A New Hybrid Genetic Algorithm-based Approach for Critical Multiprocessor Real-Time Scheduling with Low Power Optimization Mr. Ibrahim Gharbi, Pr. Sadok Bouamama, Dr. Hamza Gharsellaoui
k19is-100	The dynamic reconfiguration approach for fault-tolerance web service composition based on multi-level VCSOP Phd Hela Fekih, Prof Sadok Bouamama, Doctor Sabri Mtibaa
k19is-098	Dynamically Detecting and Updating the Signature-Based Intrusion Detection System's Database Master Mutep Alyousef, Doctor Nabih Abdelmajid
k19is-085	A New Multi-Layer Distributed Approach for a Multi-objective Planning Problem Phd Student Mouna Mnif, Professor Sadok Bouamama

IS12B: Advances from Heuristics to Hyperheuristics: new trends and applications in hard optimization and constraint reasoning

Chair: Prof. Sadok Bouamama

Wednesday 4 Sept 2019: 15:30-17:30

Boroka 1

PROSE Paper No	Paper Title / Authors
k19is-080	A New Hyper-Heuristic to Generate Effective Instance GA for the Permutation Flow Shop Problem Phd Student Ahmed Bacha Sarra Zohra, Professor Benbouzid-si Tayeb Fatima, Professor Benatchba Karima, Student Belahdji Mohamed Walid
k19is-063	Application of genetic algorithms to distributed optimization problems under fuzzy constraints Application Of Genet Ghofrane Medini, Application Of Genet Sadok Bouamama
k19is-062	Edge Computing: Smart Identity Wallet Based Architecture and User Centric. Mrs Syrine SAHMIM, Pr. Sadok Bouamama, Dr. Hamza Gharsellaoui
k19is-058	A New Approach Based On the Hybridization of Simulated Annealing Algorithm and Tabu Search to Solve the Static Ambulance Routing Problem Dr Issam Zidi, Mr Karim Aldhafeeri, Mr Mohamed Al-omani
k19is-044	PSO-based Dynamic Distributed Algorithm for Automatic Task Clustering in a Robotic Swarm Lecturer Asma Ayari, Professor Sadok Bouamama

IS12C: Advances from Heuristics to Hyperheuristics: new trends and applications in hard optimization and constraint reasoning

Chair: Prof. Sadok Bouamama

Friday 6 Sept 2019: 14:00-16:00

Boroka 1

PROSE Paper No	Paper Title / Authors
k19is-018	Towards Novel Video Steganography Approach for Information Security Phd Ahlem Fatnassi, Pr. Sadok Bouamama, Dr. Hamza Gharsellaoui
k19is-001	Improvement of Watermarking-LEACH Algorithm Based on Trust for Wireless Sensor Networks Mrs Nejla Rouissi, Pr. Sadok Bouamama, Dr. Hamza Gharsellaoui
k19is-035	Genetic-based Multi-criteria Workflow Scheduling with Dynamic Resource Provisioning in Hybrid Large Scale Distributed Systems Mr. Haithem Hafs, Pr Sadok Bouamama, Dr. Hamza Gharsellaoui
k19is-083	Improving genetic algorithm using arc consistency technic Phd Student Meriem Zouita, Professor Kamel Barkaoui, Professor Sadok Bouamama

IS13: Cybercrime Investigation and Digital Forensics

Chair: Assoc. Prof. Da-Yu Kao

Wednesday 4 Sept 2019: 15:30-17:30

Kamilla 3

PROSE Paper No	Paper Title / Authors
k19is-164	Exploring drug-related crimes with social network analysis Phd Fu-ching Tsai, Mr. Chien-ta Chen, Mr. Ming-chun Hsu, Phd Da-yu Kao
k19is-163	Using Google Maps to Track Down Suspects in a Criminal Investigation Assistant Professor Chih-hung Shih, Mr. Fang-Cheng Chen, Chief Shun-wei Cheng, Associate Prof. Da-Yu Kao
k19is-161	Drone Forensic Investigation: DJI Spark drone as A Case Study Associate Professor Kao Da-yu, Officer Chen Chien-hung, Assistant Professor Tsai Fuching, Professor Lin Jsen-shung, Student Chen Min-ching, Sub-lieutenant Wu Wen-ying
k19is-158	Malware Image Classification Using One-Shot Learning with Siamese Networks Student Shou-ching Hsiao, Associate Professor Da-yu Kao, Student Zi-yuan Liu, Associate Professor Raylin Tso
k19is-138	A Smart Public Security Strategy: The New Taipei City Technology Defense Plan Student Chun-young Chang, Officer Yo-hao Chang, Teaching Assistant Lin-chien Chien, Professor Yuh-shyan Hwang, Officer En-chun Kuo
k19is-131	SEAKER: A mobile digital forensics triage device Professor Michael Soltys, Student Eric Gentry

IS14: Digital Architecture and Decision Management

Chair: Prof. Alfred Zimmermann

Thurs 5 Sept 2019: 11:00-13:00

Jazmin 1

PROSE Paper No	Paper Title / Authors
k19is-195	Model Consistency as a Tool for Digital Business Architecture Prof. Vaclav Repa, Phd Oleg Svato
k19is-192	Intelligent Decision Management for Architecting Service-Dominant Digital Products Prof. Dr. Alfred Zimmermann, Dr. Dierk Jugel, Prof. Dr. Kurt Sandkuhl, Prof. Dr. Rainer Schmidt, Prof. Dr. Alfred Zimmermann

IS15A: Chance Discovery and Market of Data

Chair: Prof. Akinori Abe

Thursday 5 Sept 2019: 11:00-13:00

Tobaz 1

PROSE Paper No	Paper Title / Authors
k19is-233	Narrative Approach for Preventing Dementia Mr. Yuki Hayashi, Prof. Akinori Abe
k19is-222	A Study on Risk Awareness and Practice of Countermeasures against Natural Disasters in Mongolia: Analysis of Questionnaire Survey Data of Hovd Citizens Prof. Yumiko Nara, Prof. Battulga Sukhee
k19is-221	Captions with Several Levels of Explanation Prof. Akinori Abe, Miss Kotone Tadaki
k19is-168	Differences of risk knowledge described in work procedures manual and that used in real field by field overseers Prof. Noriyuki Kushiro, Mr. Yusuke Aoyama, Mr. Toshihiro Mega, Mr. Koshiro Nishinaga
k19is-154	Evaluation of the Similarity of Data Using Data Jackets based on Users' Recognition Mr. Nao Uehara, Dr. Teruaki Hayashi, Prof. Yukio Ohsawa

IS15B: Chance Discovery and Market of Data

Chair: Prof. Akinori Abe

Thursday 5 Sept 2019: 15:30-17:30

Tobaz 1

PROSE Paper No	Paper Title / Authors
k19is-137	How does the computer based repository augment organizational memory of the failure learning activity in the Japanese company? Dr. Sanetake Nagayoshi, Prof. Jun Nakamura
k19is-134	The pottery skills and tacit knowledge of a maser: An analysis using eye-tracking data Professor Jun Nakamura, Professor Sanetake Nagayoshi
k19is-132	Information Retrieval System and Knowledge Base on Diseases Using Variables and Contexts in the Texts Dr. Teruaki Hayashi, Prof. Yukio Ohsawa
k19is-010	Chance Discovery and Analysis of Data via Multi-Agent Logics Professor Vladimir Rybakov

IS18: Decision modeling with and without pairwise comparisons

Chair: Prof. Ryszard Janicki

Friday 6 Sept: 14:00-16:00

Kamilla 1

PROSE Paper No	Paper Title / Authors
k19is-041	Restoring Consistency in Ontological Multidimensional Data Models via Weighted Repairs Mr. Enamul Haque, Dr. Fei Chiang
k19is-028	Comparison measures and their usage with examples Researcher Kalle Saastamoinen
k19is-013	Tournament indices of inconsistency Dr. Jacek Szybowski
k19is-012	A Predictive Workload Balancing Algorithm in Cloud Services Mr. Mahdee Jodayree, Dr. Mahmoud Abaza, Dr. Qing Tan
k19is-002	Approximating consistency in pairwise comparisons Professor Michael Soltys, Professor Konrad Kulakowski, Engineer Christopher Kuske

IS19: Knowledge and data engineering in medicine and health care

Chair: Assist Prof. Pancerz Krzysztof

Friday 6 Sept 2019: 14:00-16:00

Boroka 2

PROSE Paper No	Paper Title / Authors
k19is-200	Clustering and visualization of a high-dimensional diabetes dataset Phd Piotr Lasek
k19is-198	Tree-based generational feature selection in medical applications Assistant Professor Wieslaw Paja
k19is-081	Application of local binary patterns and cascade AdaBoost classifier for mice behavioural patterns detection and analysis Dr. Blessing Ojeme, Mr. Tobechukwu Agbele

IS20: Bio-Inspired Computing and Bioinformatics

Chair: Prof. Victor Mitrană

Friday 6 Sept 2019: 14:00-16:00

Tobaz 1

PROSE Paper No	Paper Title / Authors
k19is-166	Simulation of one dimensional staged DNA tile assembly by the signal-passing hierarchical TAM Ph.D. Gefry Barad, Ph.D. Alexandru Amarioarei, Ph.D. Eugen Czeizler, Ph.D. Mihaela Paun, Prof. Romica Trandafir, Ph.D. Iris Tusa
k19is-144	Some Remarks on the Translocation Distance Phd Candidate Maria Constantin, Phd Alexandru Popa
k19is-143	SNQ P Systems with Weights on Synapses Mr Bilbie Florin-Daniel
k19is-086	Simulating Probabilistic Networks of Polarized Evolutionary Processors Phd Student Jose Sanchez, Professor Fernando Arroyo
k19is-084	Heuristic Algorithm for Generalized Function Matching Mr. Radu Mincu
k19is-229	Bio-Inspired Routing Protocol in VANET Networks- A Case Study Mr Abdellah Chehri, Mr Tarik El Ouahmani, Mr Nadir Hakem

IS21: Skill Acquisition and Ubiquitous Human Computer Interaction

Chair: Assoc. Prof. Masato Soga

Friday 6 Sept 2019: 09:30-11:30

Tobaz 2

PROSE Paper No	Paper Title / Authors
k19is-223	Development of a support system for reviewing and learning historical events by active simulation using AR markers B.a. Hiroki Takenaka, Dr. Masato Soga
k19is-208	Analysis of Frontal Cerebral Blood Flow Changes in Hand Grip Force Adjustment Skill Learning Dr. Miura, Mr. Masahiro Hakoda, Dr. Noriyuki Matsuda, Prof. Hirokazu Taki
k19is-180	Proposal and Development of the System for private navigation with Marker-less AR B.a. Yudai Asano, M.a. Toshitaka Higashino, Dr. Masato Soga
k19is-178	Development of an Interactive Support System for Training Painting Skill on a 3D Object with AR and Haptic Interface B.a. Haruki Shima, Dr. Masato Soga
k19is-177	Research on Comparison between Model Human Processor and Readiness Potential B.a. Nanako Shimizu, M.a. Toshitaka Higashino, Dr. Masato Soga
k19is-174	Facial Expression Visualization System for Medical Interview Practice Support Mr. Daisuke Yatera, Dr. Yusuke Karouji, Dr. Tomoko Kojiri, Dr. Katsumi Nishiya

IS23A New Generation Computing in Engineering, Life Science and Economy

Chair: Dr Piotr Nikonczuk

Thursday 5 September 2019: 11:00-13:00

Boroka 2

PROSE Paper No	Paper Title / Authors
k19is-248	Finite State Machine Based Modelling of Discrete Control Algorithm in LAD Diagram Language With Use of New Generation Engineering Software Dr Hab. Inz. Prof. Tomasz Krolikowski, Dr Inz. Grzegorz Andrzejewski, Dr Inz. Kazimierz Krzywicki, Dr Inz. Wojciech Zajac
k19is-246	Thermo-mechanic tests using 3d printed elements Prof. Nadzw. Dr Hab. Tomasz Krolikowski, Mgr Inz. Remigiusz Knitter, Mgr Inz. Marta Stachnik
k19is-245	Computer modeling and testing of structural metamaterials Prof. Nadzw. Dr Hab. Tomasz Krolikowski, Dr Inz. Andrzej Blazejewski, Mgr Inz. Remigiusz Knitter
k19is-203	Application of artificial intelligence in the process of supporting the shipowner's decision in the management of ship machinery crew, in the aspect of shipping safety. Phd Dariusz Pielka, Phd Zbigniew Losiewicz, Phd Piotr Nikonczuk
k19is-141	Operational properties investigation of the Flat plate solar collector with poliuretane foam insulation Dr Hab. Inz. Prof. Tomasz Krolikowski, Dr Inz. Kazimierz Kaminski, Mgr Inz. Remigiusz Knitter, Mgr Inz. Marcin Lyczko, Mgr Inz. Pawel Znaczk

IS23B New Generation Computing in Engineering, Life Science and Economy

Chair: Dr Piotr Nikonczuk

Friday 6 September 2019: 09:30-11:30

Kamilla 1

PROSE Paper No	Paper Title / Authors
k19is-129	Methods Supporting Supplier Selection Processes - Knowledge-based Approach Phd Eng Agnieszka Konys,
k19is-128	Knowledge Repository of Ontology Learning Tools from Text Phd Eng Agnieszka Konys,
k19is-092	A Concept of a Training Project IT Management System Prof Pk Inz Tomasz Krolikowski, Dr Inz Walery Suslow
k19is-030	Dynamic Microservices to Create Scalable and Fault Tolerance Architecture Student Mihai Baboi, Associate Professor Daniela Gifu, Associate Professor Adrian Iftene
k19is-009	Introducing intents to the OODA-loop Mr Johan Silvander, Mr Lars Angelin

IS24: Knowledge-based Learning and Education Support System: Design and Function

Chair: Prof. Tomoko Kojiri

Thursday 5 Sept 2019: 15:30-17:30

Kamilla 3

PROSE Paper No	Paper Title / Authors
k19is-191	Product Design Support System Based on Embodiment of Vague Concept Using Thesaurus Ms. Nakajima Mitsuho, Dr. Kojiri Tomoko
k19is-190	Internal Self-Conversation Support System by Iteration on Reflective Thinking and Research Documentation Prof. Seta Kazuhisa, Mr. Matsuokaa Tomoki, Prof. Hayashi Yuki
k19is-183	Paper Introduction Presentation Support Environment for Reading Skill and Presentation Skill Development Mr. Keisuke Fukuhara, Dr. Tomoko Kojiri
k19is-175	Metacognitive Inference Activity Support by Visualizing Eye-Movement Graph During Critical Reading Assoc. Prof. Yuki Hayashi, Mr. Tatsuya Hashimoto, Prof. Kazuhisa Seta
k19is-171	Knowledge-aware Learning Analytics for Smart Learning Professor Weiqin Chen
k19is-133	Failure-enhanced evacuation training using a VR-based disaster simulator: A comparative experiment with simulated evacuees Dr. Hiroyuki Mitsuohara, Dr. Junko Nemoto, Prof. Masami Shishibori, Dr. Chie Tanimura
k19is-003	Deploying Health Campaign Strategies to Defend Against Social Engineering Threats Professor Michael Soltys, Student Noelle Abe

IS26: Immunity-Based Systems: Resilience with AI

Chair: Prof. Dr. Yoshiteru Ishida

Wednesday 4 Sept 2019:11:00-13:00

Kamilla 3

PROSE Paper No	Paper Title / Authors
k19is-256	Identification and features selection of elderly people based on accelerations of smartphone Dr. Yuji Watanabe, Miss Nao Yasuda
k19is-234	An EAF guard driver to prevent shellcode from removing guard pages Prof Takeshi Okamoto, Mr Shu Akabane, Mr Tomoya Miwa

IS27 Smart Education: Active Learning using ICT and e-Learning

Chair: Prof Nobuyuki Ogawa

Friday 6 Sept 2019: 09:30-11:30

Boroka 1

PROSE Paper No	Paper Title / Authors
k19is-214	Development of Android Version Active Textbook System Prof. Shin-nosuke Suzuki, Dr. Yutaro Akimoto, Dr. Katsumi Hirata, Prof. Manabu Ishihara, Mr. Ryohei Kameyama, Mr. Masaya Yamaguchi
k19is-140	Toward the Cross-Institutional Data Integration From Shibboleth Federated LMS Prof. Nobukuni Hamamoto, Prof. Masako Furukawa, Prof. Motonori Nakamura, Prof. Takeshi Nishimura, Prof. Hiroshi Ueda, Prof. Kazutsuna Yamaji
k19is-136	Visualization of Competence through Cooperative Education at NIT, Anan College Professor Takashi Matsumoto, Associate Professor Nariyuki Kawabata
k19is-045	A Study on the Improvement for a Student's Sleep-Phase with Wearable Devices Professor Toshiki Ueda, Collaborator Mika Hayashida
k19is-032	New Technologies to Learn Python Student Dan Alexandrescu, Associate Professor Daniela Gifu, Associate Professor Adrian Iftene
k19is-025	Usage of simulators to boost marine corps learning Researcher Kalle Saastamoinen, Lieutenant Riku Linnervuo, Researcher Antti Rissanen

IS28: Active learning using ICT for smart education

Chair: Prof. Dana M. Barry

Friday 6 Sept 2019: 09:30-11:30

Boroka 2

PROSE Paper No	Paper Title / Authors
k19is-250	Development and Improvement of Human Resource Development in Nuclear Engineering for National College Students in Japan Prof. Eiji Takada, Prof. Seiki Saito, Prof. Fumito Sakamoto, Prof. Yoshihide Shibata, Prof. Shigekazu Suzuki, Prof. Tomoaki Yoneda
k19is-108	Analysis of Learning Activities and Effects in the Blended Lectures Dr. Shin'nosuke Yamaguchi, Dr. Hideki Kondo, Dr. Kazunori Nishinori, Dr. Yoshimasa Ohnishi
k19is-099	Prototype Design of Playback and Search System for Lecture Video Content using Google Cloud API Mr. Yoshimasa Ohnishi, Dr. Akihiro Hayashi, Dr. Hideki Kondo, Prof. Kazunori Nishino, Mr. Yoshiki Shimoikura, Dr. Shin'nosuke Yamaguchi
k19is-097	Measurements of Eye Movement and Teachers' Concentration during the Preparation of Teaching Materials Dr. Hideyuki Kanematsu, Dr. Dana Barry, Dr. Masashi Kawaguchi, Dr. Nobuyuki Ogawa, Dr. Tatsuya Shirai, Dr. Kuniaki Yajima
k19is-059	Simulation course – A little bit something for everybody? Researcher Kalle Saastamoinen, Researcher Antti Rissanen
k19is-046	STEM activities for exploring Mars using innovative e-learning Research Professor Dana Barry, Professor Mahesh Banavar, Professor Hideyuki Kanematsu, Professor Katsuko Nakahira, Professor Nobuyuki Ogawa, Professor Seema Rivera

IS29: Computational Intelligence System and Applications

Chair: Prof. Yuji Iwahori

Friday 6 Sept 2019: 14:00-16:00

Tobaz 2

PROSE Paper No	Paper Title / Authors
k19is-114	Detecting and Removing Specular Reflectance Components Based on Image Linearization Mr. Ryosuke Nakao, Prof. Yoshinori Adachi, Prof. M. Bhuyan, Prof. Yuji Iwahori, Prof. Boonserm Kijsirikul, Dr. Aili Wang
k19is-093	Contour-Aware Residual W-Net for Nuclei Segmentation Ms. Sushmita Das, Dr. M. K. Bhuyan, Mr. Ankur Deka, Prof. Yuji Iwahori, Prof. Takashi Iwamoto, Dr. Jun Ueda
k19is-090	Generation of Road Damaged Dataset Considering Influence of Data Augmentation on Detection and Identification Accuracy Mr. Haruki Tsuchiya, Mr. Witsarut Achariyaviriya, Dr. Shinji Fukui, Prof. Yuji Iwahori, Prof. Boonserm Kijsirikul, Prof. Hayashi Yoshitsugu
k19is-006	A Method for Converting Onomatopoeic Words in Japanese Comics \\into Chinese Based on International Phonetic Alphabet Mr. Yihong Han, Dr. Yoko Nishihara, Dr. Ryosuke Yamanishi
k19is-005	Touch Panel Interface to Support Explanation of Pains by Choosing Options Mr. Yuta Okabe, Dr. Yoko Nishihara, Dr. Ryosuke Yamanishi
k19is-004	CG Utilization for Creation of Regression Model Training Data in Deep Learning Professor Tsukasa Kudo, Mr. Ren Takimoto

IS33: Exploiting Internet of Things and embedded systems features within high-performances architectures

Chair: Prof. Flora Amato

Friday 6 Sept 2019: 14:00-16:00

Jazmin 1

PROSE Paper No	Paper Title / Authors
k19is-088	Dunuen: A User-Friendly Formal Verification Tool Dr Francesco Mercaldo, Prof Giovanni Capobianco, Mr Umberto Di Giacomo, Prof Antonella Santone
k19is-066	Formal Methods for Data Anomaly Detection Dr Francesco Mercaldo, Prof Madalina Ciobanu, Prof Fausto Fasano, Prof Antonella Santone
k19is-033	Energy Consumption Metrics for Mobile Device Dynamic Malware Detection Dr Francesco Mercaldo, Prof Fausto Fasano, Dr Fabio Martinelli, Prof Antonella Santone
k19is-020	Exploiting Model Checking for Mobile Botnet Detection Dr Francesco Mercaldo, Prof Cinzia Bernardeschi, Dr Vittoria Nardone, Prof Antonella Santone

IS34A: Internet-of-Things and Intelligent Systems

Chair: Prof. Xiangpei Hu

Friday 6 Sept 2019: 09:30-11:30

Kamilla 3

PROSE Paper No	Paper Title / Authors
k19is-244	An online intelligent vehicle routing and scheduling approach for B2C e-commerce urban logistics distribution Dr. Haiyang Shi, Prof. Xiangpei Hu, Prof. Lijun Sun, Dr. Yue Teng
k19is-235	A Model Predictive Control Approach for Cholera Outbreaks with Mobile Sensing Dr. Mu Du, Dr. Nan Kong, Dr. Aditya Sai, Dr. Lindu Zhao
k19is-227	A competitive model of standardization and customization with behavior-based pricing Student Fei Qingyi, Professor Zhao Lindu
k19is-160	Intelligent Hospital Appointment System Based on Health Data Bank Phd Candidate Yixin Liang, Professor Lindu Zhao
k19is-159	Allocation rules for joint replenishment and inventory sharing via transshipment Mr Xuefei Shi, Mr Haiyan Wang, Mr Weili Xue
k19is-061	Causal reasoning of emergency cases based on Fuzzy Cognitive Map Professor Jiangnan Qiu, Doctor Wenjing Gu, Mr. Guangyuan Wang

IS34B: Internet-of-Things and Intelligent Systems

Chair: Prof. Xiangpei Hu

Friday 6 Sept 2019: 14:00-16:00

Jazmin 2

PROSE Paper No	Paper Title / Authors
k19is-156	Feedback Equilibrium for Dynamic Competitive and Cooperative Advertising Miss Shigui Ma, Dr. Ran Gu, Professor Yong He, Associate Professor Sijie Li
k19is-155	Creditworthiness-based Service Differentiation Strategy for Health Data Bank Ms. Gong Jianxia, Prof. Zhao Lindu
k19is-145	Bi-level Optimization Model of O2O Fresh Product Experience Store Location Considering Service Quality Professor Xuping Wang, Postgraduate Honghui He, Postgraduate Zhiying Zhang, Postgraduate Mingming Zhao

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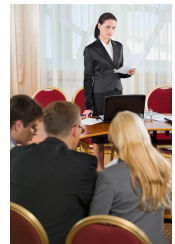
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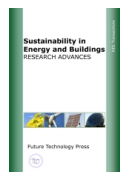
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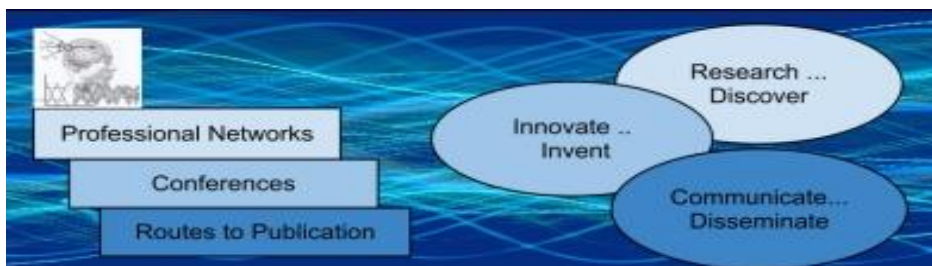
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