



# Conference Programme

# KES-2022

26th International Conference on  
Knowledge-Based and Intelligent  
Information & Engineering Systems

Verona, Italy &  
KES Virtual Conference Centre  
7 - 9 September 2022



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## Chairs' Welcome

Welcome to the 26th International Conference on Knowledge - Based and Intelligent Information & Engineering Systems (KES 2022), organised by KES International and held in Verona, Italy and also in virtual form on the KESonline virtual conference platform, 7-9 September 2022.

The consequences of the Covid-19 pandemic are still being felt for the third year in succession, the effects of conflict in some countries are being felt by many people including some of our members, and there are other continuing problems in the world. We offer condolences and sympathy to those who have sadly lost loved ones or colleagues, or continue to encounter problems due to world difficulties.

KES 2022 is the 26th 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. We are pleased to be able to hold this conference with the option for live attendance at the beautiful and historic University of Verona, Polo Santa Marta in Verona, Italy, while at the same time providing the option of virtual presentations for those that prefer to present over the KESonline platform.

This truly international conference attracted submissions from a substantial number of researchers and practitioners from all over the world, who submitted their papers to four general track sessions and 54 special sessions. 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, 483 high - quality papers were accepted for oral presentation and publication in *Procedia Computer Science*, submitted for indexing in Conference Proceedings Citation Index (CPCI), Scopus and INSPEC.

The conference chairs would like to express their gratitude to the Keynote Speakers:

Prof. Marco Montali, Free University of Bozen-Bolzano, Italy, title of talk: *"Intelligent Systems for Process Mining"*;

Prof. Dr. Gloria Phillips-Wren, Loyola University, USA, title of talk: *"The Big Data Challenge"*;

Prof. Michael Soltys, California State University, USA, title of talk: *"Data Analytics in the Cloud"*;

Prof. Kenji Suzuki, Tokyo Institute of Technology, Japan, title of talk: *"AI-aided Diagnostic Systems and Virtual AI Imaging in Medicine"*;

Prof. Juan Velasquez, University of Chile, Chile, title of talk: *“Artificial intelligence as an enabling factor for the future medicine”*.

We would like to acknowledge the Programme Co-Chairs, the General Track chairs, and 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 and the Local Organising Committee for making arrangements in Verona and making this an extraordinarily successful event.

KES International hopes and intends that KES2022 will make a significant contribution to international research collaboration and understanding, an essential task for the promotion of scientific joint work and excellence.

***Prof. Robert J. Howlett, KES International Research, UK, and ‘Aurel Vlaicu’ University of Arad, Romania.***

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### ***KES Conference Series***

KES2022 is part of the KES Conference Series.

### ***Conference Series Chairs:***

L.C.Jain and R.J.Howlett

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Prof. Edmondo Trentin	Università degli Studi di Siena, Italy
Assist. Prof. Fuching Tsai	Central Police University, Taiwan
Prof. Kazuhiko Tsuda	University of Tsukuba, Japan
Prof. Claudio Turchetti	Università Politecnica delle Marche, Italy
Assoc. Prof. Dr Roman Tyłzanowski	University of Szczecin, Poland
Prof. Dr. Andrey A. Tyugashev	Samara State Technical University, Russia
Prof. Eiji Uchino	Yamaguchi University, Japan
Prof. Dr. Hiroshi Ueda	Hosei University, Japan
Prof. Taketoshi Ushima	Kyushu University, Japan
Prof. Zeev Volkovich	ORT Braude College Karmiel, Israel
Prof. Dr. Ingrid Wakkee	Amsterdam University of Applied Science, Netherlands
Prof. Dr. Yuji Watanabe	Nagoya City University, Japan
Prof. Joanna Wisniewska	University of Szczecin, Poland
Prof. André Włodarczyk	Sorbonne University, France
Prof. Hélène Włodarczyk	Sorbonne University, France

Name	Affiliation
Prof. Robert Wolny	University of Economics in Katowice, Poland
Assoc. Prof. Agnieszka Wosiak	Lodz University of Technology, Poland
Prof. Yoshiyuki Yabuuchi	Shimonoseki City University, Japan
Prof. Kuniaki Yajima	National Institute of Technology, Sendai College, Japan
Prof. Shuichiro Yamamoto	International Professional University of Technology in Nagoya, Japan
Prof. Tsukasa Yamanaka	Ritsumeikan University, Japan
Assoc. Prof. Ryosuke Yamanishi	Kansai University, Japan
Dr. Atsuko Yamazaki	Digital Hollywood University, Japan
Dr. Chi-Chen Yang	Central Police University, Taiwan
Prof. James C.N. Yang	National Dong Hwa University, Taiwan
Prof. Oleg Zaikin	Warsaw School of Computer Science, Japan
Dr. Cecilia Zanni-Merk	INSA Rouen Normandie - LITIS Laboratory, France
Dr. Mahdi Zargayouna	Université Gustave Eiffel, France
Prof. Gian Piero Zarri	Sorbonne University, France
Dr. Laura Verde	The University of Campania Luigi Vanvitelli, Italy
Dr. Yuankai Zhang	Zhejiang University, China
Prof. Beata Zielosko	University of Silesia in Katowice, Poland
Prof. Ewa Ziemba	University of Economics in Katowice, Poland
Dr. Pawel Ziemba	University of Szczecin, Poland
Prof. Dr. Alfred Zimmermann	Reutlingen University, Germany
Prof. Dr. Sergey Zykov	Higher School of Economics, Russia

## General Track Sessions

Code	Track Title	Track Chair
<b>G01</b>	Machine Learning, Artificial Neural Networks and Deep Learning	Prof Ahmed Samet
<b>G02</b>	Knowledge Based and Expert Systems	Prof Anne Hakansson
<b>G03</b>	Intelligent Information and Engineering Systems	Prof Ron Hartung
<b>G04</b>	Industry Applications	Dr Carlos Toro

## Invited Sessions

Code	Session	Session Chair
<b>IS01</b>	IS01: Global and Constrained Optimization: Algorithms and Applications (3rd Edition)	Prof. Abdellah Chehri, Prof. Francois Rivest, Dr. Seunggil Jeon
<b>IS02</b>	Multi-Criteria Decision-Analysis Methods – Theory and their Applications	Dr. Wojciech Salabun
<b>IS03</b>	Knowledge Engineering in Large-Scale Systems	Prof. Dr. Sergey V. Zykov
<b>IS04</b>	Intelligent Digital Services and Architecture	Prof. Dr. Alfred Zimmermann, Dr. Rainer Schmidt, Dr. Yoshimasa Masuda
<b>IS05</b>	Networks for Innovation, Knowledge Creation and Sharing	Prof. Dr. Hironori Takeuchi
<b>IS06</b>	Advances in Intelligent Data Processing and its Applications	Prof. Margarita Favorskaya, Prof. Lakhmi C. Jain, Prof. Mikhail Sergeev
<b>IS07</b>	ICT Innovation as a Source of Entrepreneurship of Companies	Prof. Jaroslaw Korpysa
<b>IS08</b>	Chance Discovery and Market of Data	Prof. Akinori Abe, Prof. Yukio Ohsawa, Prof. Noriyuki Kushiro
<b>IS09</b>	LegalTech – Technology for Law and Law for Technology	Dr hab. Kinga Flaga-Gieruszynska, Dr hab. Joanna Studzińska, Dr. Wojciech Salabun
<b>IS10</b>	Bioengineering Applications	Dr. Milan Simic, Dr. Maria Spichkova
<b>IS11</b>	Symposium on Information Systems for Sustainability in Management and Logistics	Dr. Paula Bajdor, Assoc. Prof. Marta Starostka-Patyk, Dr. Arkadiusz Marchewka
<b>IS12</b>	Knowledge and Data Engineering in Medicine and Health Care	Assoc. Prof. Krzysztof Pancerz, Assist. Prof. Wiesław Paja, Assoc. Prof. Catalin Stoean, Assoc. Prof. Agnieszka Wosiak

Code	Session	Session Chair
<b>IS13</b>	Knowledge-Based Systems for e-Business	Prof. Kazuhiko Tsuda, Prof. Masakazu Takahashi, Prof. Nobuo Suzuki, Assist. Prof. Takumi Kato
<b>IS14</b>	Effect of Modern Technologies in our Lives	Prof. Dr. Lenuta Alboaie, Assoc. Prof. Adrian Iftene
<b>IS15</b>	Artificial Intelligence, Robotics and Human-Machine Systems	Prof. Rossi Setchi, Prof. Philip Morgan, Dr. Robert Deaves
<b>IS16</b>	Immunity-Based Systems: Resilient System	Prof. Dr. Yoshiteru Ishida, Prof. Dr. Takeshi Okamoto, Prof. Yuji Watanabe, Assist. Prof. Yoshikazu Hata
<b>IS17</b>	Intelligent Methods in Maritime Engineering, Transport and Logistics	Prof. Andrzej Banaszek
<b>IS18</b>	Federated Learning: Advances and Open Challenges in Distributed and Cooperative Learning Models	Dr. Fiammetta Marulli, Dr. Laura Verde
<b>IS19</b>	Information Technology and Information Systems in Accounting, Finance and Controlling	Assoc. Prof. Arkadiusz Januszewski
<b>IS21</b>	Intelligent Decision Support and Process Optimization under Uncertainty	Dr. Paweł Ziemba, Dr. Aleksandra Radomska-Zalas, Prof. Andrzej Perec
<b>IS22</b>	RAI – Robust Artificial Intelligence	Dr. Aya Saad, Prof. Anne Håkansson
<b>IS23</b>	Task Oriented Graph and Convolutional Neural Networks	Prof. Piotr Szczepaniak, Assoc. Prof. Urszula Markowska-Kaczmar, Prof. Rafał Scherer
<b>IS25</b>	Interdisciplinary Approaches in Data Science and Digital Transformation Practice (IADSDTP 2022)	Prof. Ralf-Christian Härting, Prof. Ivan Lukovic
<b>IS26</b>	Classification, Forecasting and Decision Support	Prof. Wojciech Froelich, Assist. Prof. Rafal Deja
<b>IS27</b>	Digitalization and Knowledge Management in Health Data Acquisition and Processing	Prof. Dr. Ralf Seepold, Prof. Massimo Conti

Code	Session	Session Chair
<b>IS28</b>	Cybercrime Investigation and Digital Forensics	Assist. Prof. Fuching Tsai, Dr. Francesco Mercaldo, Assist. Prof. Chih Hung Shih, Dr. Chi-Cheng Yang, Prof. Da-Yu Kao
<b>IS29</b>	Computational Intelligence System and its Application to Media Information Technology	Prof. Yuji Iwahori, Prof. Yoshinori Adachi, Prof. Nobuhiro Inuzuka, Assoc. Prof. Ryosuke Yamanishi
<b>IS30</b>	Intelligent Management Support Systems (IMSS)	Assoc. Prof. Marcin Hernes, Assoc. Prof. Artur Rot, Assist. Prof. Krzysztof Lutoslawski
<b>IS32</b>	Artificial Intelligence, Sustainability and Green Algorithms	Prof. Amparo Alonso-Betanzos, Assoc. Prof. Veronica Bolon-Canedo, Prof. Oscar Fontenla-Romero, Assoc. Prof. Bertha Guijarro-Berdinas
<b>IS33</b>	Signal Processing Algorithms and Pattern Recognition Methods for Automated Identification/Classification Systems	Dr. Paolo Crippa, Prof. Claudio Turchetti
<b>IS34</b>	Knowledge Engineering and Data Mining	Dr. Agnieszka Konys, Assoc. Prof. Agnieszka Nowak-Brzezińska
<b>IS35</b>	Data Prep-processing Strategies and Machine Learning	Prof. Ireneusz Czarnowski, Antonio J. Tallón-Ballesteros
<b>IS36</b>	Intelligent Systems in Evaluation and Performance Measurement	Prof. Iga Rudawska, Prof. Małgorzata Porada-Rochoń, Prof. Sebastian Majewski
<b>IS38</b>	Complex and Dispersed Classifiers (CDC 2022)	Dr. Małgorzata Przybyła-Kasperek, Dr. Rafał Skinderowicz
<b>IS39</b>	Innovations-Oriented Intelligent Information Processing	Assoc. Prof. Daocheng Hong
<b>IS40</b>	Aspects of Intelligent Learning Systems: e-Learning Across Various Educational Contexts	Prof. Dr. Hiroshi Ueda, Associate Prof. Dr. Mohammad Nehal Hasnine, Associate Prof. Mr. Hisashi Hatakeyama

Code	Session	Session Chair
<b>IS41</b>	The 6th Special Session on Eye Movement Data Processing and Analysis (EMDPA)	Assoc. Prof. Pawel Kasprowski, Assoc. Prof. Katarzyna Harezlak, Assoc. Prof. Jacek Matulewski
<b>IS42</b>	Recent Advances in Biometric Technology	Assoc. Prof. Dr. Dzati Athiar Ramli, Prof. Abdellah Chehri, Dr. Ng Theam Foo
<b>IS43</b>	Semantic Models for the Web of Things	Dr. José Miguel Blanco, Prof. Dr. Mouzhi Ge
<b>IS44</b>	Challenges and Solutions for Knowledge Management in Project Management	Assoc. Prof. Tadeusz A. Grzeszczyk, Assoc. Prof. Jakub Swacha
<b>IS45</b>	The Urban-Social Layer: Digital Approaches to Social Dynamics in Cities	Dr. Jesus Lopez Baeza, Prof. Dr.-Ing. Jörg Rainer Noennig
<b>IS46</b>	Applied Econometrics and Statistics	Assoc. Prof. Mariusz Doszyń
<b>IS47</b>	Machine Learning Based Applications	Dr. Hadi Saleh
<b>IS48</b>	Advanced Methods and Techniques in Information Systems, Decision Making and Project Management	Prof. Dr. Piotr Jedrzejowicz, Prof. Dr. Ireneusz Czarnowski, Prof. Dr. Dariusz Barbucha
<b>IS49</b>	Neuroscience Techniques and Quantitative Methods in Supporting Decision Making	Prof. Kesra Nermend, Prof. Waldemar Tarczyński, Prof. Małgorzata Łatuszyńska
<b>IS50</b>	New Generation Computing in Engineering, Life Science and Economy	Prof. Piotr Nikończuk, Dr. Roma Strulak-Wójcikiewicz
<b>IS51</b>	Knowledge-Aware eXplainable Artificial Intelligence	Dr. Ali Ayadi, Dr. Rabiḥ Amhaz
<b>IS53</b>	Smart Education: Learning Environment Using Technology	Prof. Nobuyuki Ogawa, Prof. Hideyuki Kanematsu, Prof. Kuniaki Yajima, Assoc. Prof. Katsuko T. Nakahira, Prof. Kazunori Nishino
<b>IS54</b>	Information, Innovation and Technology as a Basis for Sustainable Business and Society	Prof. Katarzyna Szopik-Depczynska, Prof. Joanna Wisniewska, Prof. Katarzyna Cheba, Prof. Izabela Dembinska, Prof. Angelika Kędzierska-Szczepaniak

Code	Session	Session Chair
<b>IS55</b>	Innovation Process Digitalisation – Experiences and Prospects	Ass. Prof. Dr Katarzyna Łobacz, Prof. Dr.Sue Rossano, Prof. Dr. Ingrid Wakkee, Prof. Dr Joanna Wiśniewska, Ass. Prof. Dr Roman Tylżanowski, Dr. Burcu Kor, Judith Helmer
<b>IS57</b>	Physiological and Knowledge-Based Engineering for Education and Learning	Dr. Atsuko K. Yamazaki, Assoc. Prof. Masato Soga, Prof.Tsukasa Yamanaka
<b>IS58</b>	Internet-of-Things and Intelligent Decision Making	Prof. Xiangpei Hu, Assist. Prof. Yonggang Li
<b>IS59</b>	Interactive Linguistics for Agent and Multi-agent Systems	Prof. Radosław Katarzyniak, Prof. André Włodarczyk, Prof. Hélène Włodarczyk, Prof. Velina Slavova, Prof. Yasuhiro Katagiri, Assist. Prof. Wojciech Lorkiewicz, Assist. Prof. Grzegorz Popek



## Plenary Talks

**Prof. Marco Montali**

Free University of Bozen-Bolzano, Italy

### *Intelligent Systems for Process Mining*

**Abstract:** Contemporary organisations rely more and more on operational processes to describe, analyse, and regulate their internal work. By suitably combining model-driven engineering and data science, process mining is nowadays being used by a plethora of organisations to discover, check conformance, formulate predictions, and ultimately improve operational processes based on the factual event data recorded during process execution. In this talk, we will illustrate some of the cutting-edge challenges in this field, and show how they can be effectively attacked by employing and further developing intelligent systems, in particular information systems empowered with knowledge representation and reasoning capabilities.



**Biography:** Marco Montali is Full Professor and Vice-Dean for Studies at the Faculty of Computer Science, Free University of Bozen-Bolzano, Italy, where he also coordinates the MSc Program in Computational Data Science. He investigates foundational and applied techniques grounded in artificial intelligence, formal methods, knowledge representation and reasoning, for the model- and data-driven analysis of processes. He has served as PC Chair of BPM 2018, RuleML+RR 2019, ICPM 2020, and CBI 2021, is serving as General Chair of ICPM

2022 and EDOC 2022, and is steering committee member of the IEEE task force on process mining. He is co-author of more than 200 papers, many of which in top-tier conferences and journals, and recipient of 8 best paper awards and 2 test-of-time awards. He received the “Marco Cadoli 2015” award, given by the Italian Association of Artificial Intelligence to the best under 35 Italian researcher who autonomously contributed to advance the state-of-the-art in Artificial Intelligence.

**Prof. Gloria Phillips-Wren**  
Loyola University, USA

### ***The Big Data Challenge***

**Abstract:** Big data continues to enable innovations and improve decision making with its combination of volume providing massive amounts of data, velocity with near real-time data, and variety from structured to unstructured data. Yet understanding and analyzing big data require new methods of processing and new algorithms to reveal their meaning and enable better decision making. In this presentation we discuss a big data problem involving a combination of structured numerical data and unstructured textual data that is not easily analyzed. Current methods require us to recast textual data as numerical in order to utilize current analysis methods. Limitations in the approach will be discussed in the context of current research involving COVID vaccine myths. In addition, trends in computational approaches and applications in research published by Intelligent Decision Technologies: An International Journal (IDT) over the past 16 years will be analyzed in order to encourage research in underexplored areas.



**Biography:** Prof./Dr. Gloria Phillips-Wren, Co-Editor-in-Chief, Intelligent Decision Technologies: An International Journal (IDT)

Dr. Gloria Phillips-Wren is Professor in the Department of Information Systems, Law and Operations Management at Loyola University Maryland where she was recent chair for 12 years. She is founder and co-editor-in-chief of Intelligent Decision Technologies (IDT), now in its 16th year, Associate

Editor of the Journal of Decision Systems (JDS), and an external examiner for University College Cork in Ireland. Dr. Phillips-Wren is past-chair of the Special Interest Group on Decision Support and Analytics (SIGDSA) under the Association of Information Systems (AIS), a current Board member of SIGDSA, Secretary of IFIP WG8.3 Decision Support, and leader of a focus group for Knowledge Engineering Systems (KES) International in intelligent decision technologies. She has received many awards, including the KES Outstanding Service Award, awarded to two members annually. Her research interests and publications are in decision making and support, big data analytics, business intelligence, healthcare IT, and strategic uses of technologies such as social media. She has published numerous scholarly journal articles and books along with book chapters, conference proceedings and presentations. Prior to academia, she had a career in the federal government researching advanced weapons systems and holding senior leadership positions.

**Prof. Michael Soltys**

California State University, USA

***Data Analytics in the Cloud***

**Abstract:** In this talk we are going to examine Data Analytics in the Cloud. In particular, we will demonstrate the data flow for Analytics and Machine Learning, starting with sourcing data (structured, semi-structured and unstructured), pipelining it in both batch mode and streaming, storing it in a Data Lake, and finally making it available to Machine Learning and Business Intelligence. We will illustrate this complex engineering process with examples from Amazon Web Services (AWS).



**Biography:** Michael joined California State University Channel Islands (CSUCI) in 2014 as Professor and Chair of Computer Science, Information Technology and Mechatronics Engineering. His vision is to build a world-class department where cutting edge research is put at the service of students and community. His Ph.D. is from the University of Toronto, and he was chair of Computer Science at McMaster University (2001-2014), an Ulam professor at the University of Colorado Boulder (2007-2008), a visiting scholar at UC San Diego (2013), authored two books, and published over 60 research papers.

He specializes in Algorithms, Cybersecurity and Cloud Computing.

In the field of Algorithms, Michael's Ph.D. thesis (2001) is in the area of Complexity Theory, under the supervision of Professor Stephen Cook. Michael is also the author of "An Introduction to the Analysis of Algorithms" 3rd ed. In Cybersecurity he consults with the industry, in particular the SoCal High Technology Task Force (HTTF), the Navy, through a fellowship with the Office of Naval Research, and Ventura County IT companies. In Cloud Computing he established a partnership between AWS (Amazon Web Services) and the CSU. He is also a certified instructor in AWS technology. Michael is a principal scientist and software engineering at GBL Systems Corporation where he is heading the cloud sector.

**Prof. Kenji Suzuki**

Tokyo Institute of Technology, Japan

***AI-aided Diagnostic Systems and Virtual AI Imaging in Medicine***

**Abstract:** Deep learning becomes one of the most active areas of research in many imaging fields, including medical imaging. My group has been actively studying on deep learning in medical imaging in the past 25 years, including ones of the earliest deep-learning models for image processing, semantic segmentation, object enhancement, and classification of patterns in medical imaging. In this talk, AI-aided diagnostic systems ("AI doctor") and deep-learning-based imaging for diagnosis ("Virtual AI imaging") are introduced, including 1) intelligent AI systems for cancer detection and diagnosis in medical images, and 2) virtual AI imaging systems for separation of bones from soft tissue in chest radiographs and those for radiation dose reduction in CT and mammography. Some of them have been commercialized via FDA approval in the U.S., including the first FDA-approved deep-learning product.



**Biography:** Kenji Suzuki, Ph.D. is a Professor (Tenured) & Director of Biomedical AI Research Unit, Institute of Innovative Research, Tokyo Institute of Technology, Japan. Prior faculty experiences include Assistant Professor at University of Chicago and Associate Professor at Illinois Institute of Technology. He published more than 340 papers (including 115 peer-reviewed journal papers). He has been actively researching on deep learning in medical imaging and AI-aided diagnosis in the past 25 years, especially his early deep-

learning model was proposed in early 1990s. His papers were cited 14,000 times, and his h-index is 54. He is inventor on 36 patents (including ones of earliest deep-learning patents), which were licensed to several companies and commercialized (via FDA approval). He published 14 books and edited 12 journal special issues. He has been awarded numerous grants including NIH, NEDO, and JST grants, totaling a dozen M dollars. He served as Editors of 40 leading international journals including Pattern Recognition. He chaired 100 international conferences and gave 130 keynote/invited talks. He received 21 awards, including 3 Best Paper Awards in leading journals and MEXT Award for Science and Technology.

**Prof. Juan Velasquez**  
University of Chile, Chile

### ***Artificial intelligence as an enabling factor for the future medicine***

**Abstract:** Since its origins, medicine has been more linked to the cure of diseases than to their prevention. This is due to multiple factors, training of health professionals aimed at curing diseases, lack of quality data, processing capacity, poor multidisciplinary approach, etc. However, this paradigm is changing, focusing on maintaining the health of individuals to avoid diseases, improving social welfare. To achieve this, the new approach proposes that medicine must be Preventive, Participatory, Predictive, and Personalized (4P Medicine). In this talk, we will analyze how artificial intelligence can convincingly contribute to the construction of 4P Medicine, through the processing of key data such as DNA, electronic medical records and environmental variables to which people have been exposed. Here we can find complex data such as computed Tomography images, electroencephalograms, free text in electronic medical records, pharmacological data, etc.

These data have grown exponentially and efforts to improve their quality are already paying off. However, it is no longer possible for a health professional to analyze them to provide a better diagnosis or carry out preventive work on diseases, requiring the formation of multidisciplinary teams to find new solutions to ancient problems, such as health care, where data processing, knowledge extraction and its subsequent parameterization in support systems for medical decision-making are vital to save lives. In this sense, artificial intelligence, together with new methods for processing complex data and computational resources to process massive data, may be the key to face the current and future challenges to preserve the humanity health.



**Biography:** Dr. Juan D. Velásquez is Full Professor with the Industrial Engineering Department at University of Chile. During his academic life, he has been an adviser for more than 120 reports and theses (master and doctorate), has written more than 150 scientific publications and book chapters, is the author of the book *Adaptive Web Site: A Knowledge Extraction from Web Data Approach* published by IOS Press in 2008, and is editor-in-chief of the books series *Advanced Techniques in Web Intelligence* part 1 and 2,

published by Springer-Verlang in September, 2010 and 2012. He has been post-doctoral fellow at the Computing Laboratory, University of Oxford, UK, visiting professor at the Center for Collaborative Research, University of Tokyo, Japan and the VSB Ostrava Technical University, Czech Republic, as well as being a guest lecturer in more than 10 countries. In 2009, he was the General Chair of the International Knowledge Engineering System (KES) Conference and in 2018 was General Chair of the

International Conference on Web Intelligence held in Santiago de Chile. His research lines are health engineering, data science, web mining and artificial intelligence.

# Welcome Drinks Reception and Early Registration

Tuesday 6 September	
17:30 CET	Welcome Drinks Reception and Registration at the Villa Brasavola De Massa, Verona

## Timetable – Wednesday 7 September

	Room 1	Room 2	Room 3	Room 4	Room 5
Room Type	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)
9:00 - 9:15 CET	Opening Ceremony Prof Robert J Howlett & Prof Lakhmi Jain				
9:15 - 10:15 CET	Keynote Speaker 1 Prof. Dr. Gloria Phillips-Wren Loyola University, USA The Big Data Challenge				
10:15-10:30 CET	Networking Break				



	Room 1	Room 2	Room 3	Room 4	Room 5
Room Type	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)
10:30 - 12:30 CET	G04-A Industry Applications Chair: Prof. Carlos Toro	G02-A Knowledge-Based and Expert Systems Chair: Prof. Anne Hakansson	G01-A Machine Learning, Artificial Neural Networks and Deep Learning Chair: Prof. Ahmed Samet	IS11-A Symposium on Information Systems for Sustainability in Management and Logistics Chair: Dr. Paula Bajdor	IS05 Networks for Innovation, Knowledge Creation and Sharing Chair: Prof. Hironori Takeuchi
12:30 - 13:30 CET	Lunch Break				

	Room 1	Room 2	Room 3	Room 4	Room 5
Room Type	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)
13:30 - 14:30 CET	<p>Keynote Speaker 2</p> <p>Prof. Kenji Suzuki</p> <p>Tokyo Institute of Technology, Japan</p> <p>AI-aided Diagnostic Systems and Virtual AI Imaging in Medicine</p>				
14:30-14:45 CET	Networking Break				

	Room 1	Room 2	Room 3	Room 4	Room 5
Room Type	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)
14:45 - 17:00 CET	G01-B Machine Learning, Artificial Neural Networks and Deep Learning Chair: Prof. Ahmed Samet	G02-B Knowledge-Based and Expert Systems Chair: Prof. Anne Hakansson	G03-B Intelligent Information and Engineering Systems Chair: Prof. Ron Hartung	IS11-B Symposium on Information Systems for Sustainability in Management and Logistics Chair: Dr. Paula	IS03 Knowledge Engineering in Large-Scale Systems Chari: Prof. Sergey Zykov
Time -TBC	Evening Social Walking Tour of Verona				

	Room 6	Room 7	Room 8	Room 9	Room 10
Room Type	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)
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10:15-10:30 CET	Networking Break				

	Room 6	Room 7	Room 8	Room 9	Room 10
Room Type	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)
10:30 - 12:30 CET	IS07-A ICT Innovation as a Source of Entrepreneurship of Companies Chair: Prof. Jaroslaw Korpysa	IS14 Effect of Modern Technologies in our Lives Prof. Lenuta Alboaie	G03-A Intelligent Information and Engineering Systems Chair: Prof. Ron Hartung	IS17 Intelligent Methods in Maritime Engineering, Transport and Logistics Chair: Prof. Andrzej Banaszek	IS13-A Knowledge-Based Systems for e- Business Chair: Prof. Kazuhiko Tsuda
12:30 - 13:30 CET	Lunch Break				

	Room 6	Room 7	Room 8	Room 9	Room 10
Room Type	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)
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14:30-14:45 CET	Networking Break				

	Room 6	Room 7	Room 8	Room 9	Room 10
Room Type	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)
14:45 - 17:00 CET	IS09 LegalTech - Technology for Law and Law for Technology Chair: Prof. Kinga Flaga-Gieruszynska	IS12 Knowledge and Data Engineering in Medicine and Health Care Chair: Prof. Krzysztof Pancerz	G04-B Industry Applications Chair: Prof. Carlos Toro	IS07-B ICT Innovation as a Source of Entrepreneurship of Companies Chair: Prof. Jaroslaw Korpysa	IS13-B Knowledge-Based Systems for e- Business Chair: Prof. Kazuhiko Tsuda
Time -TBC	Evening Social Walking Tour of Verona				

	Room 11	Room 12	Room 13	Room 14	Room 15
Room Type	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)
9:00 - 9:15 CET	Opening Ceremony Prof Robert J Howlett & Prof Lakhmi Jain				
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10:15-10:30 CET	Networking Break				



	Room 11	Room 12	Room 13	Room 14	Room 15
Room Type	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)
10:30 - 12:30 CET	IS39 / IS16 Innovations- Oriented Intelligent Information Processing Chair: Prof. Daocheng Hong	IS46-A Applied Econometrics and Statistics Chair: Assoc. Prof. Mariusz Doszyn	IS06 / IS23 Advances in Intelligent Data Processing and its Applications Chair: Prof. Margarita Favorskaya	IS19 Information Technology and Information Systems in Accounting, Finance and Controlling Chair: Prof. Arkadiusz Januszewski	IS04 / IS43 / IS59 IS04 / IS43 / IS59 Chairs: Prof. Alfred Zimmermann Dr. José Miguel Blanco Prof. Radosław Katarzyniak
12:30 - 13:30 CET	Lunch Break				

	Room 11	Room 12	Room 13	Room 14	Room 15
Room Type	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)
13:30 - 14:30 CET	<p>Keynote Speaker 2 Prof. Kenji Suzuki Tokyo Institute of Technology, Japan AI-aided Diagnostic Systems and Virtual AI Imaging in Medicine</p>				
14:30-14:45 CET	Networking Break				
14:45 - 17:00 CET	<p>IS50-A New Generation Computing in Engineering, Life Science and Economy Chair: Prof. Piotr Nikonczuk</p>	<p>IS46-B Applied Econometrics and Statistics Chair: Assoc. Prof. Mariusz Doszyn</p>	<p>IS01 Global and Constrained Optimization: Algorithms and Applications (3rd Edition) Chair: Prof. Abdellah Chehri</p>	<p>IS28 Cybercrime Investigation and Digital Forensics Chairs: Prof. Fuching Tsai Dr. Francesco Mercaldo</p>	<p>IS10 / IS42 / IS51 IS10 / IS42 / IS51 Chairs: Dr. Milan Simic Prof. Dzati Athiar Ramli Dr. Ali Ayadi</p>

	Room 11	Room 12	Room 13	Room 14	Room 15
Room Type	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)
Time -TBC	Evening Social Walking Tour of Verona				

# Timetable – Thursday 8 September

	Room 1	Room 2	Room 3	Room 4	Room 5
Room Type	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)
9:00 - 10:00 CET	<div> <div>Keynote Speaker 3</div> <div>Prof. Juan Velasquez</div> <div>University of Chile, Chile</div> <div>Artificial intelligence as an enabling factor for the future medicine</div> </div>				
10:00-10:15 CET	Networking Break				

		Room 1	Room 2	Room 3	Room 4	Room 5
Room Type		ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)
10:15 - 12:30 CET		G01-C Machine Learning, Artificial Neural Networks and Deep Learning Chair: Prof. Ahmed Samet	IS02-A Multi-Criteria Decision-Analysis Methods – Theory and their Applications  Chair: Dr. Wojciech Salabun	IS13-C Knowledge-Based Systems for e- Business Chair: Prof. Kazuhiko Tsuda	IS15-A Artificial Intelligence, Robotics and Human-Machine Systems Chair: Prof. Rossi Setchi	IS46-C Applied Econometrics and Statistics Chair: Assoc. Prof. Mariusz Doszyn
12:30-13:30 CET		Lunch Break				

	Room 1	Room 2	Room 3	Room 4	Room 5
Room Type	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)
13:30 - 14:30 CET	Keynote Speaker 4 Prof. Michael Soltys California State University, USA Data Analytics in the Cloud				
14:30-14:45 CET	Networking Break				

Room 1		Room 2		Room 3		Room 4		Room 5	
Room Type	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)
14:45 - 17:00 CET	IS32 / IS33 Chairs: Prof. Amparo Alonso-Betanzos Dr. Paolo Crippa	IS02-B Multi-Criteria Decision-Analysis Methods – Theory and their Applications  Chair: Dr. Wojciech Salabun	IS22 RAI - Robust Artificial Intelligence Chair: Dr. Aya Saad	IS15-B Aritifical Intelligence, Robotics and Human-Machine Systems Chair: Prof. Rossi Setchi	IS27-B Digitalization and Knowledge Management in Health Data Acquisition and Processing Chair: Prof. Ralf Seepold				
Time -TBC	Gala Dinner								

	Room 6	Room 7	Room 8	Room 9	Room 10
Room Type	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)
9:00 - 10:00 CET	<p>Keynote Speaker 3  Prof. Juan Velasquez  University of Chile, Chile  Artificial intelligence as an enabling factor for the future medicine</p>				
10:00-10:15 CET	Networking Break				



	Room 6	Room 7	Room 8	Room 9	Room 10
Room Type	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)
10:15 - 12:30 CET	IS50-B New Generation Computing in Engineering, Life Science and Economy Chair: Prof. Piotr Nikonczuk	IS30-A Intelligent Management Support Systems (IMSS) Chair: Prof. Marcin Hernes	G01-D Machine Learning, Artificial Neural Networks and Deep Learning Chair: Prof. Cecilia Zanni-Merk	G02-C Knowledge-Based and Expert Systems Chair: Prof. Anne Hakansson	G03-C Intelligent Information and Engineering Systems Chair: Prof. Ron Hartung
12:30-13:30 CET	Lunch Break				

	Room 6	Room 7	Room 8	Room 9	Room 10
Room Type	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)
13:30 - 14:30 CET	<p>Keynote Speaker 4  Prof. Michael Soltys  California State University, USA  Data Analytics in the Cloud</p>				
14:30-14:45 CET	<p>Networking Break</p>				

	Room 6	Room 7	Room 8	Room 9	Room 10
Room Type	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)
14:45 - 17:00 CET	IS50-C New Generation Computing in Engineering, Life Science and Economy Chair: Prof. Piotr Nikonczuk	IS30-B Intelligent Management Support Systems (IMSS) Chair: Prof. Marcin Hernes	G01-E Machine Learning, Artificial Neural Networks and Deep Learning Chair: Prof. Ahmed Samet	G02-D Knowledge-Based and Expert Systems Chair: Prof. Anne Hakansson	G03-D Intelligent Information and Engineering Systems Chair: Prof. Ron Hartung
Time -TBC	Gala Dinner				

	Room 11	Room 12	Room 13	Room 14	Room 15
Room Type	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)
9:00 - 10:00 CET	<p>Keynote Speaker 3  Prof. Juan Velasquez  University of Chile, Chile  Artificial intelligence as an enabling factor for the future medicine</p>				
10:00-10:15 CET	Networking Break				
10:15 - 12:30 CET	IS53-A Smart Education: Learning Environment Using Technology Chair: Prof. Nobuyuki Ogawa	IS26-A Classification, Forecasting and Decision Support Chair: Assist. Prof. Rafal Deja	IS47 Machine Learning Based Applications Chairs: Dr. Hadi Saleh	IS27-A Digitalization and Knowledge Management in Health Data Acquisition and Processing Chair: Prof. Ralf Seepold	IS08 Chance Discovery and Market of Data Chair: Prof. Akinori Abe

	Room 11	Room 12	Room 13	Room 14	Room 15
Room Type	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)
12:30-13:30 CET	Lunch Break				
13:30 - 14:30 CET	Keynote Speaker 4 Prof. Michael Soltys California State University, USA Data Analytics in the Cloud				
14:30-14:45 CET	Networking Break				

	Room 11	Room 12	Room 13	Room 14	Room 15
Room Type	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)
14:45 - 17:00 CET	IS21-A Intelligent Decision Support and Process Optimization under Uncertainty Chair: Dr. Pawel Ziemba	IS26-B Classification, Forecasting and Decision Support Chair: Assist. Prof. Rafal Deja	IS18 Federated Learning: Advances and Open Challenges in Distributed and Cooperative Learning Models Chair: Dr. Fiammetta Marulli	IS55 Innovation Process Digitalisation – Experiences and Prospects  Chair: Assist. Prof. Katarzyna Lobacz	IS36-A Intelligent Systems in Evaluation and Performance Measurement Chair: Prof. Iga Rudawska
Time -TBC	Gala Dinner				

# Timetable – Friday 9 September

Room Type	Room 1	Room 2	Room 3	Room 4	Room 5
	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)
9:00 - 10:00 CET	<div> <div>Keynote Speaker 5</div> <div>Prof. Marco Montali</div> <div>Free University of Bozen-Bolzano, Italy</div> <div>Intelligent Systems for Process Mining</div> </div>				
10:00-10:15 CET	Networking Break				

Room Type	Room 1	Room 2	Room 3	Room 4	Room 5
	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)
10:15 - 12:30 CET	IS36-B Intelligent Systems in Evaluation and Performance Measurement Chair: Prof. Iga Rudawska	IS25-A Interdisciplinary Approaches in Data Science and Digital Transformation Practice (IADSDTP 2022) Chairs: Prof. Ralf- Christian Haerting & Prof. Ivan Lukovic	IS34-A Knowledge Engineering and Data Mining Chair: Dr. Agnieszka Konys	IS35 Data Prep- processing Strategies and Machine Learning Chair: Prof. Ireneusz Czarnowski	IS41 The 6th Special Session on Eye Movement Data Processing and Analysis (EMDPA) Chair: Prof. Pawel Kasprowski
12:30-13:45 CET	Lunch Break				



Room Type	Room 1	Room 2	Room 3	Room 4	Room 5
	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)
13:45 - 16:00 CET	IS45 The Urban-Social Layer: Digital Approaches to Social Dynamics in Cities Chair: Dr. Jesus Lopez Baeza	IS54-B Information, Innovation and Technology as a Basis for Sustainable Business and Society Chair: Prof. Katarzyna Szopik- Depczynska	IS40 Aspects of Intelligent Learning Systems: e-Learning Across Various Educational Contexts Chair: Prof. Hiroshi Ueda	IS29 Computational Intelligence System and its Application to Media Information Technology Chair: Prof. Yuji Iwahori	IS49-B Neuroscience Techniques and Quantitative Methods in Supporting Decision Making Prof. Waldemar Tarczyński
16:00 - 16:15 CET	Closing Ceremony				

	Room 6	Room 7	Room 8	Room 9	Room 10
Room Type	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)
9:00 - 10:00 CET	<p>Keynote Speaker 5</p> <p>Prof. Marco Montali</p> <p>Free University of Bozen-Bolzano, Italy</p> <p>Intelligent Systems for Process Mining</p>				
10:00-10:15 CET	Networking Break				

	Room 6	Room 7	Room 8	Room 9	Room 10
Room Type	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)
10:15 - 12:30 CET	IS50-D New Generation Computing in Engineering, Life Science and Economy Chair: Prof. Piotr Nikonczuk	IS30-C Intelligent Management Support Systems (IMSS) Chair: Prof. Marcin Hernes	G01-F Machine Learning, Artificial Neural Networks and Deep Learning Chair: Prof. Ahmed Samet	IS49-A Neuroscience Techniques and Quantitative Methods in Supporting Decision Making Prof. Kesra Nermend	IS53-B Smart Education: Learning Environment Using Technology Chair: Prof. Nobuyuki Ogawa
12:30-13:45 CET	Lunch Break				

	Room 6	Room 7	Room 8	Room 9	Room 10
Room Type	ON SITE ROOM (Also accessible virtually via KES ONLINE)	ON SITE ROOM (Also accessible virtually via KES ONLINE)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)
13:45 - 16:00 CET	IS50-E New Generation Computing in Engineering, Life Science and Economy Chair: Prof. Piotr Nikonczuk	IS30-D Intelligent Management Support Systems (IMSS) Chair: Prof. Marcin Hernes	G01-G Machine Learning, Artificial Neural Networks and Deep Learning Chair: Prof. Ahmed Samet	IS25-B Interdisciplinary Approaches in Data Science and Digital Transformation Practice (IADSDTP 2022) Chairs: Prof. Ralf- Christian Haerting & Prof. Ivan Lukovic	IS21-B Intelligent Decision Support and Process Optimization under Uncertainty Chair: Dr. Pawel Ziemba
16:00 - 16:15 CET	Closing Ceremony				

	Room 11	Room 12	Room 13	Room 14	Room 15
Room Type	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)
9:00 - 10:00 CET	<p>Keynote Speaker 5  Prof. Marco Montali  Free University of Bozen-Bolzano, Italy  Intelligent Systems for Process Mining</p>				
10:00-10:15 CET	<p>Networking Break</p>				

	Room 11	Room 12	Room 13	Room 14	Room 15
Room Type	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)
10:15 - 12:30 CET	IS54-A Information, Innovation and Technology as a Basis for Sustainable Business and Society Chair: Prof. Katarzyna Szopik-Depczynska	IS26-C Classification, Forecasting and Decision Support Chair: Assist. Prof. Rafal Deja	IS57 Physiological and Knowledge-Based Engineering for Education and Learning Chair: Dr. Atsuko Yamazaki	IS58 Internet-of-Things and Intelligent Decision Making Chair: Prof. Xiangpei Hu	IS02-C Multi-Criteria Decision-Analysis Methods – Theory and their Applications  Chair: Dr. Wojciech Salabun
12:30-13:45 CET	Lunch Break				

	Room 11	Room 12	Room 13	Room 14	Room 15
Room Type	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)	VIRTUAL ROOM (Run via KES Online)
13:45 - 16:00 CET	IS36-C Intelligent Systems in Evaluation and Performance Measurement Chair: Prof. Iga Rudawska	IS48 Advanced Methods and Techniques in Information Systems, Decision Making and Project Management Chair: Prof. Piotr Jedrzejowicz	IS34-B Knowledge Engineering and Data Mining Chair: Dr. Agnieszka Konys	IS38 Complex and Dispersed Classifiers (CDC 2022) Chair: Prof. Malgorzata Przybyla-Kasperek	IS44 Challenges and Solutions for Knowledge Management in Project Management Chair: Assoc. Prof. Tadeusz Grzeszczyk
16:00 - 16:15 CET	Closing Ceremony				

## Presentation Schedule – General Tracks

### ***G01-A: Machine Learning, Artificial Neural Networks and Deep Learning***

Chair: Prof. Ahmed Samet

Wednesday 7 September: 10:30 - 12:30 CET

Room 3

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-068</b>	Neural Network-based Model for Traffic Prediction in the City of Valencia Prof. Carlos Calafate, Prof. Juan-carlos Cano, Prof. Francisco Martínez, Prof. Eva Onaindia, Student Cristian Villarroja
<b>k22-070</b>	The Influence of Environmental Factors on the Spread of COVID-19 in Italy Phd Andrea Loreggia, Dott.ssa Anna Passarelli, Prof. Maria Silvia Pini
<b>k22-088</b>	Deep Sentimental Analysis of the Arabic Medieval Documents Prof. Zeev Volkovich, Dr. Renata Avros
<b>k22-090</b>	Fully automatic segmentation of the choroid in non-EDI OCT images of patients with multiple sclerosis Mr Emilio López Varela, Ms Noelia Barreira, Ms Emma Garcia Ben, Mr Manuel Francisco González Penedo, Ms Nuria Olivier Pascual, Ms Sara Rubio Cid
<b>k22-094</b>	Combining FastText and Glove Word Embedding for Offensive and Hate speech Text Detection Phd Nabil Badri, Professor Anja HABACHA CHAIBI, Doctor Ferihane KBOUBI



**G01-B: Machine Learning, Artificial Neural Networks and Deep Learning**

Chair: Prof. Ahmed Samet

Wednesday 7 September: 14:45 - 17:00 CET

Room 1

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-114</b>	Surface Quality Augmentation for Metalworking Industry with Pix2Pix M.sc. Dirk Hölscher, Professor Nathan Clarke, Dr. Frank Gut, Dr. Martin Knahl, Dr. Christoph Reich
<b>k22-124</b>	Local Random Feature Approximations of the Gaussian Kernel Mr. Jonas Wacker, Prof. Maurizio Filippone
<b>k22-145</b>	Improved design of experiments method for machine-learning-based modelling of gearbox efficiency in a test rig environment Mr. Lukas Bauer, Mr. Patrick Beck, Professor Wilhelm Kleppmann, Professor Markus Kley, Mr. Leon Stütz
<b>k22-156</b>	Variational Bootstrap for Classification Mr. Bogdan Kozyrskiy, Professor Maurizio Filippone, Doctor Dimitrios Milios
<b>k22-157</b>	Machine Learning models for predicting short-long length of stay of COVID-19 patients Mr. Matteo Olivato, Mr. Mattia Chiari, Prof. Alfonso Gerevini, Dr. Luca Putelli, Mr. Nicholas Rossetti, Prof. Ivan Serina

***G01-C: Machine Learning, Artificial Neural Networks and Deep Learning***

Chair: Prof. Ahmed Samet

Thursday 8 September: 10:15 - 12:30 CET

Room 1

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-169</b>	Machine learning techniques for MRI feature-based detection of frontotemporal lobar degeneration Phd Candidate Tatiana Pilipenko, Researcher Alessandro Gnutti, Prof. Riccardo Leonardi, Prof. Ivan Serina, Mr. Andrea Silvestri
<b>k22-221</b>	Routine mining on location sequences Miss Yujin Yan, Dr. Arnaud Knippel, Dr. Alexandre Pauchet
<b>k22-330</b>	A Deep Learning Model for Opinion mining in Twitter Combining Text and Emojis Phd. Student Chaima Messaoudi, Professor Lotfi Ben Romdhane, Associate Professor Zahia Guessoum
<b>k22-342</b>	Locally Smoothed Gaussian Process Regression Mr Davit Gogolashvili, Prof Maurizio Filippone, Mr Bogdan Kozyrskiy

**G01-D: Machine Learning, Artificial Neural Networks and Deep Learning**

Chair: Prof. Cecilia Zanni-Merk

Thursday 8 September: 10:15 - 12:30 CET

Room 8

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-031</b>	Catch Me If You Can: Online Classification for Near Real-Time Anomaly Detection in Business Process Event Streams Mr. Philippe Krajsic, Prof. Dr. Bogdan Franczyk
<b>k22-057</b>	Finding Cooperation in the N-Player Iterated Prisoner's Dilemma with Deep Reinforcement Learning Over Dynamic Complex Networks Ph.d. Student Imre Gergely Mali
<b>k22-076</b>	Modelling Multi-relations for Convolutional-based Knowledge Graph Embedding Miss Sirui Li, Prof. Chun Che Fung, Prof. Kok Wai Wong, Dr. Dengya Zhu
<b>k22-083</b>	Medical Named Entity Recognition using Surrounding Sequences Matching Mr Mohamed Yassine Landolsi, Pr Lotfi Ben Romdhane, Dr Lobna Hlaoua
<b>k22-089</b>	SoftId: An autoencoder-based one-class classification model for software authorship identification Phd Mihaiela Lupea, Phd Student Anamaria Briciu, Professor, Phd Istvan Gergely Czibula, Professor, Phd Gabriela Czibula
<b>k22-097</b>	Local search reinforcement learning for solving constrained combinatorial optimization problems Mr. Yuanhang Shao, Dr. Alan Kuhnle, Mr. Nikola Vuckovic

**G01-E: Machine Learning, Artificial Neural Networks and Deep Learning**

Chair: Prof. Ahmed Samet

Thursday 8 September: 14:45 - 17:00 CET

Room 8

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-105</b>	Software failure time series prediction with RBF, GRNN, and LSTM neural networks Prof Vitaliy Yakovyna, Prof Natalya Shakhovska
<b>k22-116</b>	Fuzzy Isolation Forest for Anomaly Detection Asst. Prof. Meriem Chater, Prof. Amel Borgi, Mr Mohamed-iheb Landoulsi, Mr Karem Sfar-gandoura, Mr Mohamed-taieb Slama
<b>k22-147</b>	AI-backed OCR in Healthcare CS II PhD Daniela Gifu
<b>k22-236</b>	Automatic Evaluation of French Research Projects in the Acquisition Process of Research Tax Credit (CIR) Data Scientist Joachim Carvallo, Data Scientist Rodriguez Aurélien, Data Scientist Zahra Ramezanpanah
<b>k22-254</b>	An Approach for Predicting Protein-Protein Interactions using Supervised Autoencoders Phd Student Alexandra-ioana Albu
<b>k22-300</b>	A Novel Spatial-Temporal Analysis Approach to Pedestrian Groups Detection Phd Claudia Cavallaro, Phd Giuseppe Vizzari

**G01-F: Machine Learning, Artificial Neural Networks and Deep Learning**

Chair: Prof. Ahmed Samet

Friday 9 September: 10:15 - 12:30 CET

Room 8

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-304</b>	Research Roadmap for Designing a Virtual Competence Assistant (VCA) for the European Labour Market Mr Markko Liutkevicius, Mr Sadok Ben Yahia
<b>k22-329</b>	Search queries related to COVID-19 based on keyword extraction Mgr Livia Kelebercová, Prof Michal Munk
<b>k22-332</b>	Prediction of University Students' Subjective Well-Being with Sleep and Physical Activity Data using Classification Algorithms Akif Can Kiliç, Assoc. Prof. S. Emre Alptekin, Ahmet Karakus
<b>k22-335</b>	Using the E-Learning Gamification Tool Kahoot! to Learn Chemistry Principles in the Classroom Phd Student Entisar Al Ghawail, Professor Sadok Ben Yahia
<b>k22-338</b>	Evaluation of weakly-supervised methods for aspect extraction Researcher Mohamed Ettaleb, Researcher Amira Barhoumi, Associate Professor Nathalie Camelin, Associate Professor Nicola Dugué

**G01-G: Machine Learning, Artificial Neural Networks and Deep Learning**

Chair: Prof. Ahmed Samet

Friday 9 September: 13:45 - 16:00 CET

Room 8

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-339</b>	G2L: A Global to Local Alignment Method for Unsupervised Domain Adaptive Semantic Segmentation Mr Viet-manh Nguyen, Mr Viet-sang Dinh, Mr Dang-nam Kieu, Ms Thi-oanh Nguyen
<b>k22-349</b>	Explainable Artificial Intelligent as a solution approach to the Duck Curve problem Mr Henri Joel Azemena, Dr Ali Ayadi, Dr Ahmed Samet
<b>k22-359</b>	Leveraging Artificial Intelligence Techniques for Smart Palm Tree Detection: A Decade Systematic Review Mrs Yosra Hajjaji, Dr Wadii Boulila, Prf Imed Riadh Farah
<b>k22-360</b>	Towards an ontology-based approach to enhance the mobile blood collection process Phd Student Ikram Ghernaout, Associate Professor Linda Elmhadhbi, Professor Mohamed Hedi Karray, Professor Sidi Mohamed Meliani, Postdoctoral Resear Arkopaul Sarkar
<b>k22-365</b>	Multiple Models Fusion for Multi-label Classification in Speech Emotion Recognition Systems Mr. Anwer Slimi, Mr. Nafaa Haffar, Pr. Henri Nicolas, Pr. Mounir Zrigui
<b>k22-376</b>	MixingWord Embeddings and RoBERTa for Spatial Role Labeling Phd Student Alaeddine Moussa, Pr. Bernard Espinasse, Pr. Sami Faiz, Phd Sebastien Fournier, Phd Khaoula Mahmoudi

**G02-A: Knowledge Based and Expert Systems**

Chair: Prof. Anne Hakansson

Wednesday 7 September: 10:30 - 12:30 CET

Room 2

**PROSE      Paper Title / Authors**  
**Paper No**

<b>k22-072</b>	Ontology Adaptation for Opinion Mining in French Corpora Dr. Valentina Dragos, Mr. Adrien Legros
<b>k22-154</b>	New method for intelligent controlling of traffic signals Dr Mahmud Abdulla Mohammad, Mr Akam Aziz Abdalrahman, Mr Taib Shamsadin Abdulsamad, Dr Abdulbasit K. Faeq Al-talabani, Mr Kamaran Hussein Manguri
<b>k22-212</b>	An Operational Architecture for Knowledge Graph-Based Systems Phd Student Matthias Sesboüé, Associate Professor Nicolas Delestre, Intern Ali Khudiyev, Associate Professor Jean-philippe Kotowicz, Professor Cecilia Zanni-merk
<b>k22-244</b>	Avoiding the Overspecialization of Recommender Systems in Tourism with Semantic Trajectories, Initial Thoughts Phd. Mathieu Bourgeois, M. Nadir Alizada, M. Rauf Fatali, Prof. Cecilia Zanni-merk

***G02-B: Knowledge Based and Expert Systems***

Chair: Prof. Anne Hakansson

Wednesday 7 September: 14:45 - 17:00 CET

Room 2

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-303</b>	Combining an explainable model based on ontologies with an explanation interface to classify images Mr Matthieu Bellucci, Dr Nicolas Delestre, Dr Nicolas Malandain, Prof Cecilia Zanni-merk
<b>k22-325</b>	A Context-Specific Modularization for Ontology Change Management Mr Muhammad Raza Naqvi, Asst Prof Linda El Mhadhbi, Prof Mohamed Hedi Karray, Dr Arkopaul Sakar
<b>k22-366</b>	Detecting Offensive Language in Romanian Social Media Ms Diana Trandabat, Ms Daniela Gifu, Mr Adrian Plesescu
<b>k22-369</b>	Identifying The Key Resources and Missing Elements to Build a Knowledge Graph Dedicated For Spatial Dataset Search Mr Mehdi Zrhal, Dr Bénédicte Bucher, Dr Fayçal Hamdi, Mrs Marie-dominique Van Damme



***G02-C: Knowledge Based and Expert Systems***

Chair: Prof. Anne Hakansson

Thursday 8 September: 10:15 - 12:30 CET

Room 9

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-023</b>	Augmented Reality for Scene Text Recognition, Visualization and Reading to Assist Visually Impaired People Dr. Imene Ouali, Pr. Mohamed Behalima, Pr. Ali Wali
<b>k22-038</b>	Inheriting and Fusing Beliefs of Logically Heterogeneous Objects Professor Andrzej Szalas
<b>k22-065</b>	Experience-based Intelligence Augmentation with Decisional DNA: Upcoming Direction Prof Edward Szczerbicki
<b>k22-075</b>	Averaging Solution of Differential Equations as Value for Argumentation Graph with Similarity Researcher Yamaguchi Kazunori, Associate Professor Matsuda Yoshitatsu, Student Morinaga Yuya
<b>k22-128</b>	To Medical Ontology Fuzzification Purpose: COVID-19 Study Case Dr. Akremi Houda, Dr. Ayadi Mouhamed Gaith, Dr. Zghal Sami

***G02-D: Knowledge Based and Expert Systems***

Chair: Prof. Anne Hakansson

Thursday 8 September: 14:45 - 17:00 CET

Room 9

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-172</b>	Human-Generated Web Data Disentanglement for Complex Event Processing Dr Jose Miguel Blanco, Professor Mouzhi Ge, Professor Tomas Pitner
<b>k22-237</b>	A knowledge-driven activity recognition framework for learning unknown activities Ms. Roua Jabla, Mr. Félix Buendia, Mr. Sami Faiz, Ms. Maha Khemaja
<b>k22-251</b>	Latent State Estimation Method for Students Using Knowledge Tracing Combining with IRT Dr. Shinichi Oeda, Mr. Toma Kakizaki
<b>k22-333</b>	Weight matching via pairwise comparison for Max-SAT Dr Radoslaw Klimek
<b>k22-379</b>	Extending BPMN 2.0 Models with Sensitive Business Process Aspects Phd Student Mariam Ben Hassen, Professor Mariam Ben Hassen, Professor Mohamed turki

**G03-A: Intelligent Information and Engineering Systems**

Chair: Prof. Ron Hartung

Wednesday 7 September: 10:30 - 12:30 CET

Room 8

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-058</b>	Temporal Multi-Agents' Logics Modelling Dynamic Temporal Accessibility Relations Professor Vladimir Rybakov
<b>k22-084</b>	Improvement of multilingual emotion recognition method based on normalized acoustic features using CRNN Prof. Motoyuki Suzuki, Mr. Jinhai Qi
<b>k22-096</b>	Using Topic Modeling and Word Embedding for Topic Extraction in Twitter Student Amna Meddeb, Professor Lotfi Ben Romdhane
<b>k22-255</b>	Image time series vectorization for material debond characterization using laser spot thermography Phd Bogdan Belean, Phd Stefan Gergely, Phd Robert Gutt, Phd Mihaela Streza
<b>k22-264</b>	An Unsupervised Threshold-based GrowCut Algorithm for Mammography Lesion Detection Ms Cristiana Moroz-Dubenco, Phd Anca Andreica, Ms Adél Bajcsi, Phd Camelia Chira

**G03-B: Intelligent Information and Engineering Systems**

Chair: Prof. Ron Hartung

Wednesday 7 September: 14:45 - 17:00 CET

Room 3

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-104</b>	An Approach For Word Sense Alignment For Romanian Language PhD. Scutelnicu Liviu Andrei
<b>k22-120</b>	Development of a knowledge-based and collaborative engineering design agent M. Eng. Stefan Plappert, Dr.-ing. Paul Christoph Gembarski, Prof. Dr.-ing. Roland Lachmayer
<b>k22-121</b>	A comparative study by separating and combining swarm-based algorithms into modules Dr. Ryo Takano
<b>k22-126</b>	Vision-based gesture modeling for signed expressions recognition Phd Tomasz Kapuscinski, Msc Krzysztof Ingłot
<b>k22-139</b>	Machine learning applied to acoustic-based road traffic monitoring Phd Karolina Marciniuk, Prof. Bozena Kostek
<b>k22-198</b>	Deadlock-Free Method for Multi-Agent Pickup and Delivery Problem Using Priority Inheritance with Temporary Priority Mr. Yukita Fujitani, Dr. Yuki Miyashita, Prof. Toshiharu Sugawara, Mr. Tomoki Yamauchi
<b>k22-321</b>	A comparative analysis of pose estimation models as enablers for a smart-mirror physical rehabilitation system Ms Cristina Bolaños, Mr Henry Agustín, Mr Javier Dorado, Mr Jesús Fernández-bermejo, Ms María José Santofimia, Mr Félix Jesús Villanueva

**G03-C: Intelligent Information and Engineering Systems**

Chair: Prof. Ron Hartung

Thursday 8 September: 10:15 - 12:30 CET

Room 10

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-292</b>	Performance Analysis of CNN Models for Mobile Device Eye Tracking with Edge Computing Mr Nishan Gunawardena, A/prof. Anupama Ginige, A/prof. Bahman Javadi, Dr Gough Lui
<b>k22-297</b>	Effect of Denoising on Performance of Deep Convolutional Neural Network For Mammogram Images Classification Phd Student Hana Mechria, Professor Mohamed Salah Gouider, Assistant Professor Khaled Hassine
<b>k22-305</b>	An Overview on Designs and Applications of Context-Aware Automation Systems Ms. Nada Sahlab, Dr. Ing Nasser Jazdi, Prof. Dr.Ing Dr. h.c Michael Weyrich
<b>k22-317</b>	Common Decision Trees, Rules, and Tests (Reducts) for Dispersed Decision Tables Prof. Mikhail Moshkov
<b>k22-246</b>	Detection of outlier information using linguistically quantified statements - the state of the art Phd, Dsc Agnieszka Duraj, Prof Piotr S. Szczepaniak
<b>k22-289</b>	Supporting the identification of promising candidates in the recruitment for IT jobs Eng Patryk Amsolik, Phd Lukasz Chomatek

**G03-D: Intelligent Information and Engineering Systems**

Chair: Prof. Ron Hartung

Thursday 8 September: 14:45 - 17:00 CET

Room 10

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-319</b>	Permutation Flowshop Scheduling Problem Considering Learning, Deteriorating Effects and Flexible Maintenance Phd Candidate Nesrine Touafek, Dr Riyadh Baghdadi, Pr Fatima Benbouzid-si Tayeb, Student Alaeddine Dahamni, Dr Asma Ladj
<b>k22-331</b>	Validating Event-B models using PDDL Dr Farah Fourati, Pr Tahar Bhiri, Pr Riadh Robbana
<b>k22-337</b>	Automatic Data Clustering Using Hybrid Chaos Game Optimization with Particle Swarm Optimization Algorithm. Phd Mohamed Wajdi Ouertani, Dr Ghaith Manita, Prof Korbaa Ouajdi
<b>k22-352</b>	A spatiotemporal datamining approach for road profile estimation using low-cost device Miss Taktak Mariem, Mr. Triki Slim
<b>k22-355</b>	A Multiobjective Crystal Optimization-based association rule mining enhanced with TOPSIS for predictive maintenance analysis. Msc Salma Yacoubi, Prof Ouajdi Korbaa, Dr Ghaith Manita

**G04-A: Industry Applications**

Chair: Dr. Carlos Toro

Wednesday 7 September: 10:30 - 12:30 CET

Room 1

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-136</b>	Data modelling and Remaining Useful Life estimation of rolls in a steel making cold rolling process Dr. Kayal Lakshmanan, Prof. Arnold Beckmann, Dr. Borghini Eugenio, Dr. Cinzia Giannetti, Prof. Cameron Pleydell-pearce
<b>k22-265</b>	Decentralised Agent-Based Medical Image Reconstruction Dr. Armin Stranjak, Dr. Swen Campagna
<b>k22-293</b>	Predicting Yarn Breaks in Textile Fabrics: A Machine Learning Approach Mr André Pilastrri, Mr Joao Azevedo, Dr Paulo Cortez, Dr Luis Matos, Mr Rui Ribeiro, Mr Rui Sousa
<b>k22-581</b>	DoReMi Steering Wheel: Proposal for a Driving Assist System with Sound Display Depending on the Rotation Angle of Steering Wheel Ms. Sayuri Matsuda, Ms. Yukina Funazaki, Prof. Takanori Komatsu, Mr. Naoto Matsuyama, Ms. Yuki Nakagawa, Prof. Satoshi Nakamura
<b>k22-492</b>	Impact Logic: Reasoning with resources and losses Prof Matteo Cristani, Dr Francesco Olivieri, Mr Luca Pasetto, Dr Claudio Tomazzoli, Mr Tewabe Chekole Workneh

**G04-B: Industry Applications**

Chair: Dr. Carlos Toro

Wednesday 7 September: 14:45 - 17:00 CET

Room 8

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-069</b>	Autoencoder with Adaptive Loss Function for Supervised Anomaly Detection Mr. Yasuhiro Kanishima, Dr. Takashi Sudo, Mr. Hiroyuki Yanagihashi
<b>k22-268</b>	The effect of the supply chain in the quick response manufacturing (QRM) environment in the automotive industry Mr. Mohd Yusrizal Mohd Yusoof, Mr. Muhammad Mirza Mustapah, Mrs Nelfiyanti Nelfiyanti, Ap Dr. Ir. Nik Zuki Nik Mohamed
<b>k22-286</b>	Evaluation of the efficiency of state-of-the-art Speech Recognition engines Dr Asma Trabelsi, Mr Yassine Ajaaoun, Miss Séverine Soussilane, Mr Sébastien Warichet
<b>k22-291</b>	Data Preprocessing with IRM for skill extraction using NMF Dr. Shinichi Oeda, Mr. Shunsuke Iizumi
<b>k22-314</b>	Predictive maintenance in mining industry: grinding mill case study Phd Student Ayoub Rihi, Supervisor Salah Baïna, Co-supervisor Essaid Elbachari, Co-supervisor Mhamed Guerboub, Co-supervisor Fatima-zahra Mhada, Co-supervisor Hicham Tagemouati
<b>k22-326</b>	Decentralisation of IoT-aware business processes optimising reliability Msc Pedro Cardoso, Professor Dulce Domingos, Professor Ana Respício



## Presentation Schedule – Invited Sessions

### *IS01: Global and Constrained Optimization: Algorithms and Applications (3rd Edition)*

Chair: Prof. Abdellah Chehri

Wednesday 7 September: 14:45 - 17:00 CET

Room 13

PROSE Paper No	Paper Title / Authors
<b>k22-200</b>	Official document identification and data extraction using templates and OCR Mr. Cosmin-Iulian Irimia, Mr. Florin Harbuzariu, Mr. Ionut Hazi, Mr. Adrian Iftene
<b>k22-189</b>	Data Analysis for IoT System Using 6LoWPAN and Constrained Application Protocol for Environmental Monitoring Mr. Dhia Jenzeri, Prof. Abdellah Chehri
<b>k22-202</b>	Deep Learning based Currency Exchange Volatility Classifier for Best Trading Time Recommendation Pr. Smail Tigani, Pr. Hasnae Chaibi, Pr. Abdellah Chehri, Pr. Rachid Saadane, Pr. Khawla Tadist
<b>k22-486</b>	A fast solution approach to solve the generator maintenance scheduling and hydropower production problems simultaneously Ph.d. Student Geoffrey Glangine, M.sc. Kenjy Demeester, Professor Sara Séguin
<b>k22-523</b>	User Sentiment Analysis in Conversational Systems Based on Augmentation and Attention-based BiLSTM Phd Candidate Mourad Jbene, Professor Abdellah Chehri, Phd Candidate Mourad Raif, Professor Rachid Saadane, Professor Smail Tigani
<b>k22-524</b>	Reconfigurable Intelligent Surfaces improved Spectrum Sensing in Cognitive Radio Networks Dr Mohammed Saber, Pes Abdellah Chehri, Pa Yassine El Hafid, Ph Abdessamad El Rharras, Ph Hatim Kharraz Aroussi, Pes Rachid Saadane
<b>k22-525</b>	Data Architecture and Drones employment in Smart City, Big Data Based Analytics Dr El Mehdi Ouafiq, Pr Abdellah Chehri, Dr Mourad Raif, Pr Rachid Saadane

## ***IS02-A: Multi-Criteria Decision-Analysis Methods – Theory and their Applications***

Chair: Dr. Wojciech Salabun

Thursday 8 September: 10:15 - 12:30 CET

Room 2

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-063</b>	Some Notes on the Similarity of Priority Vectors Derived by the Eigenvalue Method and the Geometric Mean Method Phd Konrad Kulakowski, Phd Sebastian Ernst, Phd Jiri Mazurek, Msc Michal Strada
<b>k22-271</b>	Evaluation of importance for condition attributes based on quality of decision reducts Dr Urszula Stanczyk
<b>k22-320</b>	On heterogeneity or sub-classes aspect in construction of stylometric input datasets Dr Urszula Stanczyk, Dr Grzegorz Baron
<b>k22-559</b>	Keeping the secrecy aspect in mass e-voting Dr Grzegorz Szyjewski
<b>k22-562</b>	Towards the Identification of Continuous Decisional Model: the Accuracy Testing in the SITCOM Approach Mr. Bartłomiej Kizielewicz
<b>k22-583</b>	The Application of the New Pythagorean Fuzzy Entropy to Decision-Making using Linguistic Terms Dr Wojciech Salabun, Miss Kaczynska Aleksandra, Dr Neeraj Gandotra, Dr Namita Saini, Dr Parul Thakur

## ***IS02-B: Multi-Criteria Decision-Analysis Methods – Theory and their Applications***

Chair: Dr. Wojciech Salabun

Thursday 8 September: 14:45 - 17:00 CET

Room 2

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-584</b>	Rule-based expert system supporting Individual Education-and-Therapeutic Program composition in SYSABA Dr Joanna Kolodziejczyk, Dr Nela Grzegorzczuk-dluciak, Dr Ewa Kuliga
<b>k22-585</b>	A new approach to dealing with interval data in the TOPSIS method Dr Wojciech Salabun, Dr Neeraj Gandotra, Miss Aleksandra Kaczynska
<b>k22-586</b>	Decision-Making Process Customization by using Expected Solution Point Mr. Andrii Shekhovtsov
<b>k22-588</b>	Accuracy of the TOPSIS Method with Different Input Data Mr. Jakub Wieckowski, Mr. Robert Król, Prof Jaroslaw Watróbski
<b>k22-589</b>	Towards robust results in Multi-Criteria Decision Analysis: ranking reversal free methods case study Mr. Jaroslaw Wieckowski, Mr Robert Król, Prof Jaroslaw Watróbski
<b>k22-597</b>	A Multi-Criteria Approach to Sustainable Energy Management Evaluation Focusing on Renewable Energy Sources Phd Student Aleksandra Bacziewicz, Professor Jaroslaw Watróbski

## ***IS02-C: Multi-Criteria Decision-Analysis Methods – Theory and their Applications***

Chair: Dr. Wojciech Salabun

Friday 9 September: 10:15 -12:30 CET

Room 15

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-561</b>	Covid-19 Pandemic as Sustainability Determinant of e-Commerce in the Creation of Information Society Professor Witold Chmielarz, Professor Mesut Atasever, Master Of Arts Justyna Szpakowska, Professor Jin Xuetao, Doctor Marek Zborowski
<b>k22-569</b>	Multi-Criteria Temporal Assessment of Affordable and Clean Energy Systems in European Countries Using the DARIA-TOPSIS Method Phd Student Aleksandra Baczkiewicz, Prof. Jaroslaw Watróbski
<b>k22-572</b>	Determinants of Internet use regarding shopping preferences, COVID-19 pandemic occurrence, perception of security and Internet marketing - a case study of Poland Professor Witold Chmielarz, Doctor Alicja Fandrejewska, Doctor Robert Nowacki, Doctor Marek Zborowski
<b>k22-587</b>	Practical Study of Selected Multi-Criteria Methods Comparison Mr. Jakub Wieckowski, Prof. Zdzislaw Szyjewski
<b>k22-590</b>	Comparison of mutli-criteria decision making methods in the study case of a supplier selection Mr. Bartosz Paradowski, Prof. Zdzislaw Szyjewski
<b>k22-592</b>	Common Association Rules for Dispersed Information Systems Prof Mikhail Moshkov, Msc Evans Tetteh, Dr Beata Zielosko
<b>k22-599</b>	Comparative analyses of digital payment methods from the pre and post COVID-19 perspective Dr Oskar Szumski,

***IS03: Knowledge Engineering in Large-Scale Systems***

Chair: Prof. Sergey Zykov

Wednesday 7 September: 14:45 - 17:00 CET

Room 5

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-447</b>	A Proposal of a Situational Approach for Enterprise Architecture Frameworks: Application to TOGAF Dr. Elena Kornyshova, Dr. Rébecca Deneckère
<b>k22-149</b>	TransModE: Translational Knowledge Graph Embedding Using Modular Arithmetic Mr Hussein Baalbaki, Dr Rafael Angarita, Dr Hassan Harb, Dr Hussein Hazimeh
<b>k22-541</b>	Assessment of static type checking compliance of EOLANG Mr Vadim Piven,
<b>k22-556</b>	Development of an object library for the EO programming language Student Dmitry Yakuba, Professor Sergey Zykov

***IS04: Intelligent Digital Services and Architecture***

Chairs: Prof. Alfred Zimmermann

Wednesday 7 September: 10:30 - 12:30 CET

Room 15

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-358</b>	A Knowledge Graph-Based Method for Automating Systematic Literature Reviews Ms. Nada Sahlab, Dr.ing. Nasser Jazdi, Mr. Hesham Kahoul, Prof.dr.ing.dr.h.c. Michael Weyrich

***IS05: Networks for Innovation, Knowledge Creation and Sharing***

Chair: Prof. Hironori Takeuchi

Wednesday 7 September: 10:30 - 12:30 CET

Room 5

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-052</b>	Method for Constructing Machine Learning Project Canvas Based on Enterprise Architecture Modeling Prof. Hironori Takeuchi, Ms. Yu Ito, Prof. Shuichiro Yamamoto
<b>k22-054</b>	Efficient secure DevOps using process mining and Attack Defense Trees Dr. Takao Okubo, Dr. Haruhiko Kaiya
<b>k22-067</b>	A Proposal to Find Mutually Contributable Business or Life Activities Using Conformance Checking Prof. Haruhiko Kaiya, Mr. Tomoya Misawa, Dr. Hiroyuki Nakagawa, Dr. Shinpei Ogata, Dr. Shinobu Saito, Prof. Hironori Takeuchi
<b>k22-064</b>	Analysis of Smart City Reference Architecture by ArchiMate Professor Shuichiro Yamamoto
<b>k22-066</b>	A Bounded Model Checker for Timed Automata and Its Application to LTL Properties Prof. Kozo Okano, Prof. Shinpei Ogata, Prof. Keishi Okamoto, Miss Maiko Onishi, Mr. Jo Otsuka, Prof. Toshifusa Sekizawa
<b>k22-074</b>	Case Analysis of Software Package Introduction Process based on modularization and Organizational Capability Prof Yuko Tahara, Dr Shuichiro Yamamoto

***IS06: Advances in Intelligent Data Processing and its Applications***

Chair: Prof. Margarita Favorskaya

Wednesday 7 September: 10:30 - 12:30 CET

Room 13

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-168</b>	Deep learning for a swift non-invasive recognition and delineation of corrosive iron compounds present on the surface of unrestored archaeological artefacts Dr. Ruxandra Stoean, Dr. Nebojsa Bacanin, Drd. Leonard Ionescu, Dr. Catalin Stoean
<b>k22-201</b>	Obfuscation of documents using randomly generated steps Mr. Cosmin-iulian Irimia, Mr. Adrian Iftene, Mr. Silviu Ilas, Ms. Roxana Irimia, Mr. Robert Milea, Ms. Ana Vasiliu
<b>k22-028</b>	Monocular depth-based visual tracker for gait recognition Prof. Margarita Favorskaya, Dr. Vladimir Buryachenko
<b>k22-176</b>	Modeling of wave responses from fracture zones with a given distribution of their characteristics Dr.sci. Alena Favorskaya, Dr. Vasily Golubev, Student Nikita Maslov
<b>k22-179</b>	Grid-characteristic method on Chimera meshes using a single background grid with varying elastic properties Dr.sci. Alena Favorskaya, Dr. Nikolay Khokhlov, Student Evgeniy Pesnya
<b>k22-501</b>	Microservices for Data Analytics in IoT Applications: Current Solutions, Open Challenges, and Future Research Directions Mrs. Safa Ben Atitallah, Dr. Henda Ben Ghzela, Dr. Maha Driss

***IS07-A: ICT Innovation as a Source of Entrepreneurship of Companies***

Chair: Prof. Jaroslaw Korpysa

Wednesday 7 September: 10:30 - 12:30 CET

Room 6

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-223</b>	Business Intelligence Systems for Innovative Development of Organizations Prof, Phd Celina Olszak
<b>k22-527</b>	Value of Sustainable Business Model in Mining Company: A Case Study Msc Puti Sinansari, Msc Anandita Ade Putri, Msc Agnieszka Lopatka
<b>k22-535</b>	The importance of investment in the development of enterprises in Poland in 2009-2019 Msc Agnieszka Lopatka, Student Karol Fedorowicz
<b>k22-542</b>	90 Days to Achieve Monetization: Implementing Design Thinking in a YouTube Channel Msc Waluyohadi Waluyohadi, Msc Agnieszka Lopatka
<b>k22-566</b>	Project supply chain management and fintech startups - relationship Professor Jaroslaw Korpysa



***IS07-B: ICT Innovation as a Source of Entrepreneurship of Companies***

Chair: Prof. Jaroslaw Korpysa

Wednesday 7 September: 14:45 - 17:00 CET

Room 9

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-002</b>	Dynamic capabilities of IT as a factor shaping servant leadership influence on organizational performance Prof. Katarzyna Tworek, Dr Kamila Ludwikowska
<b>k22-059</b>	Cloud Adoption Framework Mr. Martin Zboril, Mrs. Vlasta Svata
<b>k22-159</b>	Covid 19 vs. start-ups. Have corporations modified their attitudes towards co-operation with start-ups? Ph.d Michal Banka, Ph.d Maria Kukurba, Ph.d Aneta Waszkiewicz
<b>k22-163</b>	The Impact of the Covid-19 Pandemic on Start-ups' Collaboration with Corporations Ph.d. Michal Banka, Ph.d. Maria Kukurba, Ph.d. Aneta Waszkiewicz
<b>k22-457</b>	Use of modern technologies by public transport passengers during the COVID-19 pandemic Prof. Dr Hab. Grazyna Rosa
<b>k22-460</b>	Public transport or a short-term car rental - the new social practices perspectives Professor Mirosława Pluta-Olearnik, Professor Ryszard Kleczek, Professor Anetta Pukas

**IS08: Chance Discovery and Market of Data**

Chair: Prof. Akinori Abe

Thursday 8 September: 10:15 -12:30 CET

Room 15

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-391</b>	Expanding Export Control-related Data for Expert System Mr. Akihiko Obayashi, Dr. Rafal Rzepka
<b>k22-085</b>	What can a line of sight tell us? Working with a gantry crane at 50 m above ground level Professor Jun Nakamura, Professor Sanetake Nagayoshi
<b>k22-217</b>	Models of Exchanged Datasets and Interactions of Buyers in the Data Market: Toward Multi-Agent Simulators for System Design Dr. Teruaki Hayashi, Dr. Yoshiaki Fukami, Dr. Hiroyasu Matsushima, Dr. Hiroki Sakaji, Dr. Takumi Shimizu
<b>k22-380</b>	Tools for Visualizing Logical Schemes among Sentences on Similarity Professor Noriyuki Kushiro, Dr. Yusuke Aoyama, Mr. Yusuke Ogata
<b>k22-390</b>	Regional Workshop for Policy Implementation Based on the Stay with Your Community Principles Prof. Yukio Ohsawa, Prof. Sae Kondo
<b>k22-509</b>	What Kind of Influence Can Be Obtained during Groupwork in Art Appreciation Mr. Shunsei Tokida, Prof. Akinori Abe
<b>k22-557</b>	What is the co-creative research environment that fosters creativity in the new behavioral society? Ms. Sae Kondo, Mr. Kei Akiyama, Mr. Kosuke Fukushima, Mr. Yutaka Ogasawara, Ms. Mana Ohtaka, Mr. Hiroyuki Sekikawa

**IS09: LegalTech – Technology for Law and Law for Technology**

Chair: Dr. Kinga Flaga-Gieruszynska

Wednesday 7 September: 14:45 - 17:00 CET

Room 6

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-471</b>	The use of artificial intelligence in psychiatric treatment and the protection of patients' privacy Dr Hab. Prof. Us Kinga Flaga-gieruszynska
<b>k22-550</b>	Request for information as an auxiliary measure in intellectual property litigation concerning electronic works and the protection of personal data Prof. Of Kozminski Joanna Studzinska
<b>k22-573</b>	The impact of COVID-19 on the functioning of legal clinics in Poland Dr Aleksandra Klich
<b>k22-363</b>	NLP Based Retrieval Of Semantically Similar Private Tax Rulings Dr Hab. Prof. Us Tomasz Strak, Dr Michal Tuszyński
<b>k22-456</b>	The importance of sureties and guarantees granted by the State Treasury in implementing new technical or technological solutions - an analysis from the financial law perspective Phd Wojciech Bozek
<b>k22-464</b>	The use of artificial intelligence in migration-related procedures in the European Union - opportunities and threats Mrs. Agata Szwed

***IS10: Bioengineering Applications***

Chair: Dr. Milan Simic

Wednesday 7 September: 14:45 - 17:00 CET

Room 15

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-177</b>	Interpretable machine learning models to support differential diagnosis between Ischemic Heart Disease and Dilated Cardiomyopathy Meng. Katerina Iskra, Prof. Agostino Accardo, Dr. Milos Ajcevic, Prof. Marco Merlo, Dr. Aleksandar Miladinovic, Md Luca Restivo
<b>k22-362</b>	Deep Cardiac Telemonitoring for Clinical Cloud Healthcare Applications Dr Samir Belaid, Dr Hela Haj Mohamed, Dr Jamel Hattay, Research Master Rim Rezgui

## ***IS11-A: Symposium on Information Systems for Sustainability in Management and Logistics***

Chair: Dr. Paula Bajdor

Wednesday 7 September: 10:30 -12:30 CET

Room 4

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-211</b>	Towards sustainable health - detection of tumor changes in breast histopathological images using deep learning Prof. Marcin Hernes, Mr Bartosz Lowicki, Prof. Artur Rot
<b>k22-311</b>	The transformation of global value chains in the age of Covid-19 and Digitization Prof. Dr. Ralf Haerting, M.A. Sopiko Gakharia, M.A. Anna-lena Rösch
<b>k22-396</b>	Key preferences of IT system users in the context of prosumer attitudes Dr Ewa Walaszczyk, Dr Karol Lopacinski, Dr Michal Nadolny
<b>k22-424</b>	Interoperability standards for circular manufacturing in cyber-physical ecosystems: a survey Mr. João Barata, Mr. Alberto Cardoso, Mrs. Mona Chaure, Mr. Jochen Haenisch
<b>k22-253</b>	Relevance of modern technologies for sustainability-focused road freight transport service management in a competitive market Eng. Ph.d. Marta Kadlubek,
<b>k22-429</b>	Comparative analysis of sustainability factors in supply chain links. Evidence of empirical research Phd Eng. Tomasz Wisniewski, Prof. Blanka Tundys

## ***IS11-B: Symposium on Information Systems for Sustainability in Management and Logistics***

Chair: Dr. Paula Bajdor

Wednesday 7 September: 14:45 -17:00 CET

Room 4

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-511</b>	Information and knowledge as factors contributing to sustainable entrepreneurship Ph.d. Eng. Tomasz Lis, Ph.d. Aleksandra Ptak
<b>k22-512</b>	Sustainable innovation of Polish enterprises Ph.d. Aleksandra Ptak, Ph.d. Eng. Tomasz Lis
<b>k22-513</b>	Sustainable development of education - attitudes of Polish academics towards OER initiatives Mr Dariusz Dudek
<b>k22-543</b>	Barriers to the Application of Spatial Information Systems in the SmartCity Dynamic Management Ph. D Tomasz Turek, Ph. D Cezary Stepniak
<b>k22-563</b>	Future ICT trends as the opportunity for reverse logistics support Assoc. Prof. Marta Starostka-patyk, Mrs. Paulina Grunt
<b>k22-274</b>	Self-Organizing Map algorithm as a tool for outlier detection Phd.dsc.,assoc.prof. Agnieszka Nowak-brzezinska, Msc. Czeslaw Horyn

**IS12: Knowledge and Data Engineering in Medicine and Health Care**

Chair: Prof. Krzysztof Pancerz

Wednesday 7 September: 14:45 - 17:00 CET

Room 7

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-276</b>	Tracing and analyzing COVID-19 dissemination using knowledge graphs Phd Student Gabriel Medeiros, Mr Ramiz Hagverdiyev, Phd Lina Soualmia, Professor Cecilia Zanni-merk
<b>k22-393</b>	Semantic segmentation of fetal heart components in second trimester echocardiography Dr. Catalin Stoean, Dr. Nebojsa Bacanin, Dr. Dominic Iliescu, Dr. Wieslaw Paja, Dr. Ciprian Patru, Dr. Ruxandra Stoean
<b>k22-394</b>	Unsupervised emotional state recognition based on clustering of EEG features Dr. Agnieszka Wosiak, Mgr. Aleksandra Dura
<b>k22-549</b>	COVID-19 antibody level analysis with feature selection approach Assistant Professor Wieslaw Paja, Associate Professor Krzysztof Pancerz, Associate Professor Catalin Stoean
<b>k22-155</b>	Evaluation of Deep Machine Learning Methods for Analysis of ECG Stream Data Phd Dsc Agnieszka Duraj, Mr Marcin Jaworski, Prof. Piotr S. Szczepaniak
<b>k22-183</b>	Prediction of Late Intrauterine Growth Restriction using Machine Learning Models Dr. Vincent Peter Magboo, Prof. Ma. Sheila Magboo
<b>k22-241</b>	Analysis and classification of melanocytic skin lesion images Dr Lukasz Piatek, Dr Teresa Mroczek

***IS13-A: Knowledge-Based Systems for e-Business***

Chair: Prof. Kazuhiko Tsuda

Wednesday 7 September: 10:30 - 12:30 CET

Room 10

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-043</b>	Three Cs detection method using Wi-Fi radio wave statistics Prof. Nobuo Suzuki, Ms. Miyu Sato, Mr. Kentaro Tajiri
<b>k22-044</b>	Utilization of Questionnaire Results Using Aspect-based Sentiment Analysis Assoc. Prof. Kyoko Kabasawa, Prof. Kazuhiko Tsuda
<b>k22-086</b>	Does bluish-white make a product less attractive? Empirical study on the exterior design of automobiles Dr. Takumi Kato,
<b>k22-186</b>	Differences on Topics between the Awarded and Non-Awarded Integrated Reports using Text Mining Mr. Ryohsuke Tanaka, Prof. Kazuhiko Tsuda
<b>k22-187</b>	Proposal for method to generate knowledge on Japanese subconscious toward casino legalization Assistant Prof. Komiya Nozomi,
<b>k22-190</b>	A Method of Ambiguity Detection in Requirement Specifications by Using a Knowledge Dictionary Mr. Toshiharu Kato, Prof. Kazuhiko Tsuda



***IS13-B: Knowledge-Based Systems for e-Business***

Chair: Prof. Kazuhiko Tsuda

Wednesday 7 September: 14:45 - 17:00 CET

Room 10

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-192</b>	A Study on Analysis Model for Influence of Expressions from Others on Taste Expressions in Word-of-Mouth Data of Cooking Recipe Website Ph.d. Student Shinichi Tachibana, Prof. Kazuhiko Tsuda
<b>k22-199</b>	Learning Status Report Tool for Programming Learning Services Associate Professor Keiichi Takahashi, Professor Nobuo Suzuki
<b>k22-206</b>	Analyzing the impact of digital technologies on the productivity of road maintenance operations Dr. Eiji Kano, Mr Shinichi Tachibana, Prof. Kazuhiko Tsuda
<b>k22-226</b>	Knowledge of Time-bin Data Selection using Gini Index based Type Classification in GitHub Dr. Ayako Masuda, Dr. Tohru Matsuodani
<b>k22-382</b>	Knowledge Learning of Early Adopters Using Word-of-Mouth Data Dr. Yuko Taniguchi, Mr. Masanari Kageyuki, Mr. Ryo Tanaka, Prof. Kazuhiko Tsuda

***IS13-C: Knowledge-Based Systems for e-Business***

Chair: Prof. Kazuhiko Tsuda

Thursday 8 September: 10:15 -12:30 CET

Room 3

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-047</b>	Concept Drift in Japanese COVID-19 Infection Data Dr. Takumi Uchida, Prof. Kenichi Yoshida
<b>k22-080</b>	Automated retention time prediction of new psychoactive substances in gas chromatography Ph.d. Yoshiyuki Kobayashi, Professor Kenichi Yoshida
<b>k22-082</b>	Cost estimates for modern e-business systems Student Tomohisa Aoshima, Professor Kenichi Yoshida
<b>k22-191</b>	Discovering Novel Methods of Improving Middle Management Training through Text Mining. Ms. Kyoko Hayashi, Prof. Kazuhiko Tsuda
<b>k22-218</b>	Network Analysis of Research and Development Project in a Firm Professor Hideki Hayashida, Professor Hiroki Funashima, Professor Masakazu Takahashi

***IS14: Effect of Modern Technologies in our Lives***

Chair: Prof. Lenuta Alboaie

Wednesday 7 September: 10:30 - 12:30 CET

Room 7

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-138</b>	Qloud - a storage and communication system with enhanced confidentiality, access control, and integrity capabilities Mr. Andrei Panu, Mr. Matei Ciobanu Morogan, Mr. Nicu Ursache
<b>k22-150</b>	Safety Navigation using a Conversational User Interface For Visually Impaired People Mr. Madalin Andrei Matei, Mrs. Lenuta Alboaie, Mr. Adrian Iftene
<b>k22-478</b>	Atrial Fibrillation Detection Based on Deep Learning Models Mr Adrian Iftene, Mr Alexandru Burlacu, Mrs Daniela Gifu
<b>k22-152</b>	Can keypoint descriptors be used in outdoor image classification? Dr. Anca Ignat, Mrs. Camelia Lazar, Mr. Ioan Pavaloi
<b>k22-351</b>	More with Less: ZeroQA and Relevant Subset Selection for AI2 Reasoning Challenge Eng Cristian Bogdan Patrascu, Eng George Sebastian Pirtoaca, Assoc.prof. Traian Rebedea, Dr Stefan Ruseti

***IS15-A: Artificial Intelligence, Robotics and Human-Machine Systems***

Chair: Prof. Rossi Setchi

Thursday 8 September: 10:15 -12:30 CET

Room 4

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-295</b>	Context-Sensitive Personalities and Behaviors for Robots Mr. Francisco Munguia Galeano, Professor Rossitza Setchi
<b>k22-449</b>	Using Simulation-software-generated Animations to Investigate Attitudes Towards Autonomous Vehicles Accidents Dr Qiyuan Zhang, Prof Dylan Jones, Prof Phillip Morgan, Dr Christopher Wallbridge
<b>k22-458</b>	XAI & I: Self-explanatory AI facilitating mutual understanding between AI and human experts Dr Jacques Grange, Ms Aissa Amadou-dioffo, Dr Yulia Hicks, Mr Theodor Kozlowski, Mr Henrijs Princis, Dr Jing Wu
<b>k22-178</b>	Feature Importance Measures as Explanation for Classification Applied to Hospital Readmission Prediction Prof. Ma. Sheila Magboo, Dr. Vincent Peter Magboo
<b>k22-262</b>	Problems solved during AEROBOT-2021 UAV Challenge Mr. Alexander Abdulov, Mr. Alexander Abramenkov, Mr. Konstantin Rusakov, Mr. Andrey Shevlyakov

***IS15-B: Artificial Intelligence, Robotics and Human-Machine Systems***

Chair: Prof. Rossi Setchi

Thursday 8 September: 14:45 -17:00 CET

Room 4

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-465</b>	Modelling Uncertainties in Human-Robot Industrial Collaborations Miss Xiaodan Wang, Dr. Abdullah Mohammed, Prof. Rossitza Setchi
<b>k22-489</b>	Context change and triggers for human intention recognition Mr Tong Tong, Dr. Yulia Hicks, Professor Rossitza Setchi
<b>k22-495</b>	Towards a Unified Evaluation Framework for XAI: An Experimental Study Prof Phillip Morgan, Mr Vedran Galetic, Dr Jacques Grange, Mr Mark Hall, Dr Mark Johansen, Dr Qiyuan Zhang
<b>k22-296</b>	Coordination and path planning of a heterogeneous multi-robot system for sheet metal drilling Dr. Satheeshkumar Veeramani, Prof. Sreekumar Muthuswamy, Prof. Rossitza Setchi

***IS16: Immunity-Based Systems: Resilient System***

Chair: Prof. Yoshiteru Ishida

Wednesday 7 September: 10:30 - 12:30 CET

Room 11

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-224</b>	Prevention of DoS Attacks on Use-After-Free Vulnerabilities in Mosquitto Prof. Takeshi Okamoto,

***IS17: Intelligent Methods in Maritime Engineering, Transport and Logistics***

Chair: Prof. Andrzej Banaszek

Wednesday 7 September: 10:30 - 12:30 CET

Room 9

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-048</b>	Advanced methodology for multi-way transmission of ship data treatment from mechanical-navigational technical state sensors with using computational neural network computer systems Professor Zut Andrzej Banaszek, Dr Andrzej Lisaj
<b>k22-049</b>	The Concept of Intelligent Radiocommunication System for Support Decision of Yacht Captains in distress situations with use of neural network computer systems Professor Zut Andrzej Banaszek, Dr Andrzej Lisaj
<b>k22-404</b>	Transport safety: GNSS spoofing detection using the single-antenna receiver and the speedometer of a vehicle PhD Lukasz Lemieszewski,
<b>k22-455</b>	Energy-efficient maritime transport of refrigerated containers Prof. Ludmila Filina-dawidowicz, Prof. Sergiy Filin, Pawel Grzelak, Dawid Milek, Laura Wojnicz

## ***IS18: Federated Learning: Advances and Open Challenges in Distributed and Cooperative Learning Models***

Chair: Dr. Fiammetta Marulli

Thursday 8 September: 14:45 -17:00 CET

Room 13

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-148</b>	Challenges and Trends in Federated Learning for Well-being and Healthcare Dr. Fiammetta Marulli, Dr. Lelio Campanile, Prof. Stefano Marrone, Dr. Laura Verde
<b>k22-452</b>	Application of Federated Learning Approaches for Time-Series Classification in eHealth Domain Ph.d Giovanni Paragliola
<b>k22-021</b>	On the Resilience of Shallow Machine Learning Classification in Image-based Malware Detection Dr Francesco Mercaldo, Mrs Rosangela Casolare, Mr Giovanni Ciamarella, Mr Giacomo Iadarola, Dr Fabio Martinelli, Mr Michele Tommasone
<b>k22-041</b>	A Method for Intrusion Detection in Smart Grid Dr Francesco Mercaldo, Dr Fabio Martinelli, Prof Antonella Santone
<b>k22-207</b>	High Grade Brain Cancer Segmentation by means of Deep Learning Dr Marcello Di Giammarco, Dr Fabio Martinelli, Dr Francesco Mercaldo, Prof Antonella Santone
<b>k22-250</b>	A Model Checking-based Approach to Malicious Family Detection in iOS Environment Mr Giovanni Ciamarella, Mr Giacomo Iadarola, Prof Fabio Martinelli, Prof Francesco Mercaldo, Prof Antonella Santone

## ***IS19: Information Technology and Information Systems in Accounting, Finance and Controlling***

Chair: Prof. Arkadiusz Januszewski

Wednesday 7 September: 10:30 - 12:30 CET

Room 14

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-204</b>	The intensity of the use of management accounting systems under Industry 4.0 conditions. Confirmation from Poland Associate Professor Andrzej Piosik
<b>k22-302</b>	The challenges for tax compliance in multinationals within the SAP environment Phd Andrzej Palys, Ms Marcin Palys
<b>k22-001</b>	IT dynamic capabilities as a factor influencing Controlling Effectiveness Prof. Katarzyna Tworek, Prof. Agnieszka Bienkowska
<b>k22-029</b>	Online Managerial Accounting education during the COVID-19 pandemic: A case study from Poland Assoc. Prof. Arkadiusz Januszewski, M.s. Natalia Buchalska-sugajskaa
<b>k22-453</b>	Multi-criteria evaluation of financial and accounting systems intended for small and medium-sized enterprises Dr. Pawel Ziemba, Dr Jaroslaw Becker, Dr Aneta Becker, Mgr Teresa Krassowska
<b>k22-519</b>	Business Intelligence in Balanced Scorecard: Bibliometric Analysis Dr Dariusz Zoltowski



## ***IS21-A: Intelligent Decision Support and Process Optimization under Uncertainty***

Chair: Dr. Pawel Ziembra

Thursday 8 September: 14:45 -17:00 CET

Room 11

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-036</b>	Personalizing Consumer Interventions Through Leveraging Behavioral Economics Dr. Pierre Huyn, Mr. Amit Kumar, Mr. Shouchun Peng
<b>k22-055</b>	The AHP method in the optimization of the epoxidation of allylic alcohols Dr Aleksandra Radomska-zalas
<b>k22-099</b>	The use of the desire function analysis (DFA) of selected unit processes in chemical technology Phd Anna Fajdek-bieda
<b>k22-101</b>	Optimization of the organic compounds synthesis Dr. Andrzej Perec, Dr. Andrzej Fajdek-bieda
<b>k22-141</b>	The optimization methods for the thickness of the layer estimation using reflected waves Phd Jerzy Jerzy Podhajecki, Phd Elzbieta Kawecka

## ***IS21-B: Intelligent Decision Support and Process Optimization under Uncertainty***

Chair: Dr. Pawel Ziemba

Friday 9 September: 13:45 - 16:00 CET

Room 10

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-153</b>	WASPAS Optimization in Advanced Manufacturing Dr. Andrzej Perec, Dr. Aleksandra Radomska-zalas
<b>k22-434</b>	Assessment of ERP systems for the needs of small and medium-sized enterprises based on a hierarchical structure of criteria Dr Inz. Pawel Ziemba, Mgr Inz. Izabela Gago
<b>k22-451</b>	Analysis and evaluation of socio-economic development of coastal municipalities in the West Pomeranian Voivodeship Phd Marta Szaja
<b>k22-454</b>	The digitization of the society of the European Union in 2018 and 2021 Dr Inz. Pawel Ziemba, Dr Aneta Becker, Dr Jaroslaw Becker
<b>k22-544</b>	A SERM based framework for defining and processing rules supporting the verification of data consistency and integrity Dr Inz. Pawel Ziemba, Dr Magdalena Krakowiak

**IS22: RAI – Robust Artificial Intelligence**

Chair: Dr. Aya Saad

Thursday 8 September: 14:45 -17:00 CET

Room 3

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-440</b>	Towards Improved Visualization and Optimization of Aquaculture Production Process Dr. Aya Saad, Dr. Finn Olav Bjørnson, Eng. Espen Eilertsen, Eng. Tore Norheim Hagtun, Eng. Oscar Nissen, Dr. Sveinung Johan Ohrem
<b>k22-466</b>	RAMARL: Robustness Analysis with Multi-Agent Reinforcement Learning - Robust Reasoning in Autonomous Cyber-Physical Systems Dr. Aya Saad, Prof. Anne Håkansson
<b>k22-470</b>	The Handie system: Hand signs interaction with autonomous mobile cyber-physical systems Professor Anne Håkansson, Mr Mayuresh Shankar Amberkar

**IS23: Task Oriented Graph and Convolutional Neural Networks**

Chair: Prof. Piotr Szczepaniak

Wednesday 7 September: 10:30 - 12:30 CET

Room 13

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-340</b>	Convexity aware Signed Graph Convolutional Neural Network for 3D Object Retrieval PhD Hela Haj Mohamed, Assistant Professor Samir Belaid, Professor Wady Naanaa

## ***IS25-A: Interdisciplinary Approaches in Data Science and Digital Transformation Practice (IADSDTP 2022)***

Chairs: Prof. Ralf-Christian Haerting & Prof. Ivan Lukovic

Friday 9 September: 10:15 - 12:30 CET

Room 2

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-160</b>	Content queries and in-depth analysis on version-controlled software Mr. Jannek Squar, Ms. Anna Fuchs, Jun.-prof. Michael Kuhn, Prof Thomas Ludwig, Mr. Niclas Schroeter
<b>k22-272</b>	Success Factors of Web Portals for Financial Forecasting Dr. Christopher Reichstein, B.sc. Lena Bühler, B.sc. Anna Gugel, Prof. Dr. Ralf Härting, B.sc. Katharina Winter
<b>k22-299</b>	Agile management to secure competitiveness in times of digital transformation in medium-sized businesses Dr. Christopher Reichstein, Prof. Dr. Ralf Härting, M.a. Michael Pressl, M.a. Diana Marie Wiechmann
<b>k22-306</b>	Semantic Enrichment of Taxonomy for BI Applications using Multifaceted data sources through NLP techniques Dr. Muhammad Arslan, Professor Christophe Cruz

## ***IS25-B: Interdisciplinary Approaches in Data Science and Digital Transformation Practice (IADSDTP 2022)***

Chairs: Prof. Ralf-Christian Haerting & Prof. Ivan Lukovic

Friday 9 September: 13:45 - 16:00 CET

Room 9

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-078</b>	Generation of synthetic data with low-dimensional features for condition monitoring utilizing Generative Adversarial Networks M. Sc. Fabian Wagner, M. Sc. Moritz Benninger, Prof. Dr.-ing. Markus Kley, M. Eng. Timo König, Prof. Dr.-ing. Marcus Liebschner
<b>k22-115</b>	A Literature Review on the Impact of Modern Technologies on Management Reporting Prof. Dr. Patrick Ulrich, Prof. Dr. Wolfgang Becker, Prof. Dr. Ricardo Büttner, M.sc. Vanessa Frank
<b>k22-288</b>	Noise added on Interpolation as a Simple Novel Method for Imputing Missing Data from Household's Electricity Consumption Mr Arman Aghaei Attar, Prof. Dr. Martina Hofmann, Mr Florian Schirle
<b>k22-421</b>	Identification of Important Web Sources of Information on Wikipedia across various Topics and Languages Dr. Lewoniewski Wlodzimierz

**IS26-A: Classification, Forecasting and Decision Support**

Chair: Assist. Prof. Rafal Deja

Thursday 8 September: 10:15 -12:30 CET

Room 12

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-328</b>	Copula-based risk measures in non-life insurance portfolio Prof. Alicja Wolny-Dominiak, Prof. Tomasz Zadło
<b>k22-005</b>	Detection of abnormal traffic and network intrusions based on multiple fuzzy rules Dr. Ruslana Ziubina, Dr. Ivan Parkhomenko, Prof. Stanislaw Rajba, Prof. Serhii Toliupa, Ms Olga Veselska, Dr. Kornel Warwas
<b>k22-006</b>	Cryptographic encoding in modern symmetric and asymmetric encryption Dr. Ruslana Ziubina, Mr. Lukasz Hamera, Prof. Oleksandr Korchenko, Ms Nataliia Lada, Prof. Volodymyr Rudnytskyi, Dr. Lukasz Wieclaw
<b>k22-012</b>	Steady state visual evoked potential classification by modified KNN method Prof. Roman Kochan, Dr. Mykhailo Fryz, Dr. Valerii Muzh, Dr. Joanna Nikodem, Dr. Mariia Stadnyk, Dr. Natalia Zagorodna
<b>k22-013</b>	Residual classes based mathematical model of the computer system's reliability Dr. Roman Kochan, Dr. Tomasz Gancarczyk, Dr. Victor Krasnobayev, Dr. Alexandr Kuznetsov, Dr. Yelyzaveta Kuznetsova
<b>k22-017</b>	Analysis of modern cloud services to ensure cybersecurity Phd, Eng. Daniel Jancarczyk, Phd, Eng. Yevheniia Ivanchenko, Phd, Eng. Ihor Ivanchenko, Senior Lecturer Iryna Lozova, Assistant Professor Yevhenii Pedchenko, Msc Pawel Sawicki

**IS26-B: Classification, Forecasting and Decision Support**

Chair: Assist. Prof. Rafal Deja

Thursday 8 September: 14:45 -17:00 CET

Room 12

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-018</b>	Concept of cybernetic ability estimation of a human-operator for next generation aircraft "fly-by-wireless" Phd, Eng. Daniel Jancarczyk, Phd Marcin Bernas, Phd Evgenia Ivanchenko, Phd Sergii Polishchuk
<b>k22-019</b>	Methods of crypto-stable symmetric encryption in the residual number system Phd, Eng. Daniel Jancarczyk, Phd Igor Iakymenko, Phd Mykhailo Kasianchuk, Professor Stanislaw Zawislak
<b>k22-020</b>	Forecasting Basal Insulin for the Clinical Therapy of Juvenile Diabetes at Onset Prof. Wojciech Froelich, Dr Rafal Deja
<b>k22-024</b>	Detection of data drift in a two-dimensional stream using the Kolmogorov-Smirnov test Prof. Piotr Porwik, Phd Student Benjamin Dadzie
<b>k22-040</b>	Selection a group of features based on machine learning algorithms to simplify psycho-technical examination PhD (eng) Rafal Deja, Prof Wojciech Froelich
<b>k22-279</b>	Codes for Multiple-Access Asynchronous Techniques Dr Ruslana Ziubina, Dr Mykhaylo Bagmut, Prof. Alexandr Kuznetsov, Ms Olga Peshkova, Prof. Stanislaw Rajba, Ms Olga Veselska

***IS26-C: Classification, Forecasting and Decision Support***

Chair: Assist. Prof. Rafal Deja

Friday 9 September: 10:15 - 12:30 CET

Room 12

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-385</b>	Efficient Augmentation of Human Action Recognition Datasets with Warped Windows Dr. Mariusz Oszust, Dr. Dawid Warchol
<b>k22-413</b>	Non-destructive egg fertility detection in incubation using SVM classifier based on GLCM parameters Prof. Rafal Drezewski, Mr. Shoffan Saifullah
<b>k22-423</b>	System Supporting Poetry Generation Using Text Generation and Style Transfer Methods Prof. Rafal Drezewski, Mrs. Magdalena Badura, Mr. Michal Lampert
<b>k22-436</b>	New Undersampling Method Based on the kNN Approach Dr Inz. Malgorzata Bach
<b>k22-437</b>	Diagnosing Parkinson's disease using features of hand-drawn spirals Dr Krzysztof Wrobel, Dr Rafal Doroz



## ***IS27-A: Digitalization and Knowledge Management in Health Data Acquisition and Processing***

Chair: Prof. Ralf Seepold

Thursday 8 September: 10:15 -12:30 CET

Room 14

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-284</b>	Evaluation of a prototype for early active patient mobilization Msc Akhmadbek Asadov, Msc Andrei Boiko, Msc Maksym Gaiduk, Prof. D. Natividad Martínez Madrid, Msc Daniel Scherz, Prof. D. Ralf Seepold
<b>k22-387</b>	Main requirements of end-to-end deep learning models for biomedical time series classification in healthcare environments Msc Angel Serrano Alarcón, Prof. Dr. Habil. Natividad Martínez Madrid, Prof. Dr. Habil. Juan Antonio Ortega Ramirez, Prof. Dr. Habil. Ralf Seepold
<b>k22-438</b>	Embedded AM-FM Signal Decomposition Algorithm for Continuous Human Activity Monitoring Prof. Paolo Crippa, Dr. Michele Alessandrini, Dr. Giorgio Biagetti, Mr. Dario Bocchini, Dr. Laura Falaschetti, Prof. Claudio Turchetti
<b>k22-445</b>	ECG-Based Arrhythmia Classification using Recurrent Neural Networks in Embedded Systems Dr. Laura Falaschetti, Dr. Michele Alessandrini, Dr. Giorgio Biagetti, Prof. Paolo Crippa, Prof. Claudio Turchetti

## ***IS27-B: Digitalization and Knowledge Management in Health Data Acquisition and Processing***

Chair: Prof. Ralf Seepold

Thursday 8 September: 14:45 -17:00 CET

Room 5

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-371</b>	Explainable machine learning for sleep apnea prediction Mrs Angela Del Robledo Troncoso García, Dr Francisco Martínez Álvarez, Dr María Martínez Ballesteros, Dr Alicia Troncoso Lora
<b>k22-384</b>	Assistive health systems for home-dwelling elderly: connecting training and monitoring technologies to a data integration platform Professor Dr. Petra Friedrich, M.sc. Maksym Gaiduk, Professor Dr. Natividad Martinez Madrid, M.sc. Daniel Scherz, Professor Dr. Ralf Seepold, M.sc. Ángel Serrano Alarcón
<b>k22-432</b>	Initial evaluation of substituting a sleep diary by smartwatch measurement Mr. Maksym Gaiduk, Prof.dr. Massimo Conti, Prof.dr. Natividad Martínez Madrid, Prof.dr. Simone Orcioni, Prof.dr. Juan Antonio Ortega, Prof.dr. Ralf Seepold
<b>k22-477</b>	Citizen-centered health platform concept for EU cross-border regions Prof. Dr. Ralf Seepold, Prof. Dr. Natividad Martinez Madrid

***IS28: Cybercrime Investigation and Digital Forensics***

Chairs: Prof. Fuching Tsai &amp; Dr. Francesco Mercaldo

Wednesday 7 September: 14:45 - 17:00 CET

Room 14

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-372</b>	The threat of industrial espionage to SMEs in the age of digitalization Prof. Dr. Ralf Härting, M.a Lena Bühler, M.a. Anna Gugel, M.a. Katharina Winter
<b>k22-109</b>	Looking for criminal intents in JavaScript obfuscated code Mr. Federico Cerutti, Mr. Daniele Barattieri Di San Pietro, Prof. Francesco Gringoli, Prof. Gianfranco Lamperti
<b>k22-309</b>	The Proposed PDCA Model to Counter Money Laundering Professor Chi-cheng Yang, Student Hsuan Chuang, Professor Da-yu Kao
<b>k22-368</b>	The Study on Illegal Online Gambling Investigation in Taiwan Director Ren-Tsung Huang, Professor Tsan-Chang Lin, Director Wen-Yu Lin, Associate Professor Chih-Hung Shih
<b>k22-402</b>	A Systematic Review of Internet Public Opinion Manipulation Mr. Hao Tien Chang
<b>k22-408</b>	A Systematic Review of Detecting Illicit Bitcoin Transactions Mr. Chang-yi Lin, Mr. Hsiang-kai Liao, Dr. Fu-ching Tsai
<b>k22-462</b>	A Systematic Literature Review of Law Enforcement Image Recognition Methods based on Generative Adversarial Networks Framework Ms. Zi-cheng Weng

## ***IS29: Computational Intelligence System and its Application to Media Information Technology***

Chair: Prof. Yuji Iwahori

Friday 9 September: 13:45 - 16:00 CET

Room 4

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-042</b>	Applying Existing Datasets as a Pseudo Corpus for Sentiment Representation on Social Media Assoc. Prof. Ryosuke Yamanishi, Prof. Yoko Nishihara, Dr. Tomoko Ohsuga, Prof. Keizo Oyama, Mr. Hoshu Takemoto, Assoc. Prof. Mitsuo Yoshida
<b>k22-045</b>	Three-Step Master Data Creation Method from Big Data: Scraping, Semi-Structuring, and Extraction Professor Tsukasa Kudo, Mr. Tomoki Watanabe, Mr. Takehiro Yamamoto
<b>k22-229</b>	A Method to Success of "Oshigatari" Recommendation Talk by Asking to Create Search Queries While Listening Ms. Yukina Funazaki, Mr. Satoshi Nakamura
<b>k22-051</b>	Improvement of Polyp Detection using MUNIT for Image Generation Prof. Yuji Iwahori, Prof. M. Bhuyan, Dr. Shinji Fukui, Mr. Tsubasa Ooto, Dr. Hiroyasu Usami, Dr. Aili Wang
<b>k22-071</b>	Lymph-node Detection and Metastasis Classification from CT Images using a Single U-Net Model Prof. Yuji Iwahori, Prof. M. Bhuyan, Dr. Kenji Funahashi, Dr. Akira Ouchi, Dr. Yasuhiro Shimizu, Mr. Kosuke Suzuki
<b>k22-316</b>	Musical instrument recognition with a convolutional neural network and staged training B.sc. Dominika Szeliga, D.sc. Bartłomiej Stasiak, Prof. Piotr Szczepaniak, M.sc. Pawel Tarasiuk

**IS30-A: Intelligent Management Support Systems (IMSS)**

Chair: Prof. Marcin Hernes

Thursday 8 September: 10:15 -12:30 CET

Room 7

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-027</b>	Heuristics for shelf space allocation problem with vertical and horizontal product categorization Msc. Kateryna Czerniachowska, Professor Marcin Fojcik, Ph.d., Doctor Of Eng Krzysztof Lutoslawski
<b>k22-046</b>	Linearization technique for transformation non-linear shelf space allocation problem into a linear one Msc. Kateryna Czerniachowska, Ph.d., Doctor Of Eng Krzysztof Lutoslawski
<b>k22-174</b>	Machine learning in the enrolment management process: a case study of using GANs in postgraduate students' structure prediction Dr Ewa Walaszczyk, Dr Zdzislaw Kes, Dr Robert Król, Prof Bartłomiej Nita, Prof Krzysztof Nowosielski, Dr Tomasz Turek
<b>k22-193</b>	The improvements propositions for players' engagement and sustainable behaviors in managerial games Msc Eng Biercewicz Konrad, PhD Eng Letycja Soloducho-Pelc, Phd Eng Adam Sulich
<b>k22-231</b>	How perceived skills and risk attitude influence decision making regarding insurable losses - results of computer-based incentivised experiment Phd Maria Forlicz
<b>k22-233</b>	Between deep learning and alternative costs: bibliometric analysis Msc Agata Kozina, Phd Eng Adam Sulich, Msc Tomasz Zema

***IS30-B: Intelligent Management Support Systems (IMSS)***

Chair: Prof. Marcin Hernes

Thursday 8 September: 14:45 -17:00 CET

Room 7

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-240</b>	Backtesting comparison of machine learning algorithms with different random seed M.sc. Klaudia Kaczmarczyk, M. Sc. Karolina Mialkowska
<b>k22-278</b>	Use of computer simulation to assess measures of variation of deviation in budget control Phd Zdzislaw Kes, Associate Professor Sandra Cereola, Phd Joanna Dynowaka
<b>k22-301</b>	Determinants of the use of predictive models in the management of investment portfolios, on the example of KGHM Polska Miedź S.A. Mr Maciej Wach, Professor Iwona Chomiak-orsa
<b>k22-377</b>	Deep learning and forecasting in practice: an alternative costs case Msc Tomasz Zema, Msc Agata Kozina, Msc Ingolf Römer, Msc Martin Schieck, Phd Eng Adam Sulich
<b>k22-388</b>	Feature Selection for financial data - comparison Msceng Karolina Mialkowska, Prof. Mykola Dyvak, Prof. Marcin Hernes, Msceng Klaudia Kaczmarczyk

**IS30-C: Intelligent Management Support Systems (IMSS)**

Chair: Prof. Marcin Hernes

Friday 9 September: 10:15 - 12:30 CET

Room 7

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-461</b>	Open Data for simulation to determine the efficient management of parking spaces in Smart City Dr Krzysztof Hauke, Dr Kotwica Artur, Prof. Dr Hab. Chomiak-orsa Iwona, Prof. Dr Hab. Kazimierz Perechuda, Dr Maciej Pondel, Mgr Grzelak Wojciech
<b>k22-467</b>	Modeling of legal knowledge management system based on ontology Prof. UE dr hab. Iwona Chomiak-orsa, Masters Andrzej Grenczuk
<b>k22-472</b>	On Controlling Drones for Disaster Relief Dr. Rattikorn Hewett, Ms. Supadchaya Puangpontip
<b>k22-476</b>	On Using Deep Learning for Business Analytics: At what cost? Ms. Supadchaya Puangpontip, Dr. Rattikorn Hewett

***IS30-D: Intelligent Management Support Systems (IMSS)***

Chair: Prof. Marcin Hernes

Friday 9 September: 13:45 - 16:00 CET

Room 7

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-483</b>	Perception and evaluation of selected cloud computing factors in the light of conducted research among small and medium-sized enterprises Phd Paula Bajdor
<b>k22-485</b>	A note on the affective computing systems and machines: a classification and appraisal Dr Pawel Weichbroth, Msc Wiktor Sroka
<b>k22-490</b>	ARIMA vs LSTM on NASDAQ stock exchange data Dr Pawel Weichbroth, Bsc Dariusz Kobiela, Bsc Dawid Krefta, Bsc Weronika Król
<b>k22-494</b>	Business computer simulation supporting competencies. Potential areas of application and barriers Prof. Emeritus Mieczyslaw Owoc, Dr Aleksander Binsztok, Dr Beata Butryn, Phd Student Katarzyna Holowinska, Dr Malgorzata Sobinska
<b>k22-520</b>	Machine Learning for Environmental Life Cycle Costing Msc Maria Culjak, Phd Anna Chojnacka-komorowska, Phd Malgorzata Krzywonos, Msc Aleksandra Markowska, Msc Karolina Mialkowska, Phd Ewa Walaszczyk



***IS32: Artificial Intelligence, Sustainability and Green Algorithms***

Chairs: Prof. Amparo Alonso-Betanzos

Thursday 8 September: 14:45 -17:00 CET

Room 1

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-112</b>	Reduced precision discretization based on information theory Dr. Veronica Bolon-canedo, Mr. Brais Ares, Dr. Laura Moran-fernandez
<b>k22-127</b>	Sustainable Personalisation and Explainability in Dyadic Data Systems Bsc Jorge Paz-ruza, Phd Amparo Alonso-betanzos, Phd Carlos Eiras-franco, Phd Berta Guijarro-berdiñas
<b>k22-322</b>	How Agent-based modeling can help to foster sustainability projects PhD Noelia Sánchez-maróño, PhD Amparo Alonso-betanzos, PhD Adina Dumitru, PhD Bertha Guijarro-berdiñas, PhD Isabel Lema-Blanco, PhD candidate Alejandro Rodríguez-arias

***IS33: Signal Processing Algorithms and Pattern Recognition Methods for Automated Identification/Classification Systems***

Chairs: Dr. Paolo Crippa

Thursday 8 September: 14:45 -17:00 CET

Room 1

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-269</b>	Aortic Enlargement Detection using Chest X-rays to Identify Potential Marfan Syndrome Prof. Miri Weiss Cohen, Miss Ronit Lain, Mr Tom Rosenwasser
<b>k22-310</b>	Hybrid texture synthesis and interpolated structure image completion Dr. Rafal Zdunek
<b>k22-502</b>	A Lightweight CNN-Based Vision System for Concrete Crack Detection on a Low-Power Embedded Microcontroller Platform Dr. Laura Falaschetti, Dr. Michele Alessandrini, Student Mattia Beccerica, Dr. Giorgio Biagetti, Prof. Paolo Crippa, Prof. Claudio Turchetti

**IS34-A: Knowledge Engineering and Data Mining**

Chair: Assoc. Prof. Agnieszka Nowak – Brzezińska

Friday 9 September: 10:15 - 12:30 CET

Room 3

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-039</b>	An ontology and neural networks based platform for improving impact policy assessment Ms Laura-maria Cornei, Prof. Dr. Lenuta Alboaie
<b>k22-092</b>	Iterative knowledge discovery for fault detection in manufacturing systems Phd Student Mahmoud Ferhat, Engineer Nicolas Le Du, Professor Philippe Leray, Dr Mathieu Ritou
<b>k22-151</b>	Imperfections of Ant Sleeping Model in Clustering Problems. Critical Analysis Prof. Urszula Boryczka, Prof. Mariusz Boryczka, Msc Rafal Frelas
<b>k22-270</b>	Comparison of Shapley-Shubik and Banzhaf-Coleman power indices applied to aggregation of predictions obtained based on dispersed data by k-nearest neighbors classifiers Dr Hab. Malgorzata Przybyla-kasperek, Filip Smyczek
<b>k22-283</b>	Collaborative Rank Aggregation in Recommendation Systems Msc Michal Balchanowski, Professor Urszula Boryczka
<b>k22-418</b>	Application of selected heuristics in associative classification task Dr Hab. Beata Zielosko, Mgr Evans Teiko Tetteh

**IS34-B: Knowledge Engineering and Data Mining**

Chair: Assoc. Prof. Agnieszka Nowak – Brzezińska

Friday 9 September: 13:45 - 16:00 CET

Room 13

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-132</b>	A New Approach to Constructing Maximal Consistent Blocks for Mining Incomplete Data Ph.d. Teresa Mroczek, Msc Ruoting Zheng
<b>k22-232</b>	Rough-Granular Approach in Imbalanced Bankruptcy Data Analysis Msc Katarzyna Borowska, Prof. Jaroslaw Stepaniuk
<b>k22-285</b>	Multi-Agent Surveillance System Of Fake News Spreading In Scale-Free Networks Assoc. Prof. Krzysztof Malecki, Student Sergiusz Puscian
<b>k22-318</b>	Distributed Sampling of Social Networks: A New Approach Based on Node's Importance Dr. Jaouadi Myriam, Professor Ben Romdhane Lotfi
<b>k22-345</b>	Towards an Efficient FAIRification Approach of Tabular Data with Knowledge Graph Models Phd. Student Wiem Baazouzi, Pr Sami Faiz, Dr Marouen Kachroudi

***IS35: Data Prep-processing Strategies and Machine Learning***

Chair: Prof. Ireneusz Czarnowski

Friday 9 September: 10:15 - 12:30 CET

Room 4

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-032</b>	Bicriteria Oversampling for Imbalanced Data Classification Prof.dr Joanna Jedrzejowicz, Prof.dr Piotr Jedrzejowicz
<b>k22-130</b>	Attributes regrouping by genetic algorithm in fuzzy inference systems Phd Student Maroua Lejmi, Dr Illef Ben Slima, Prof Amel Borgi
<b>k22-346</b>	Ranking of attributes' comparative study based on data from stylometric domain Dr Hab. Beata Zielosko, Mgr Krzysztof Zabinski, Dr Urszula Stanczyk
<b>k22-560</b>	A framework for clustering and categorization of the CISA reports Prof. Ireneusz Czarnowski

***IS36-A: Intelligent Systems in Evaluation and Performance Measurement***

Chair: Prof. Iga Rudawska

Thursday 8 September: 14:45 -17:00 CET

Room 15

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-026</b>	Measuring crowdfunding attribute values on the example of the USA Prof. Dr Hab. Agnieszka Szewczyk
<b>k22-210</b>	An Evaluation of Economic Efficiency of Health Care Entities Using the Taxonomic Measure of Development (TMD) Mgr Joanna Kowalik, Dr Hab., Prof. Us Iwona Markowicz
<b>k22-213</b>	Digitization in the insurance sector - challenges in the face of the Covid-19 pandemic Dr. Dariusz Pauch, Prof. Anna Bera
<b>k22-216</b>	New EU members on the market of industrial robots - analysis of post-accession developments Mr. Marcin Gryczka

***IS36-B: Intelligent Systems in Evaluation and Performance Measurement***

Chair: Prof. Iga Rudawska

Friday 9 September: 10:15 - 12:30 CET

Room 1

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-137</b>	Automated performance analysis tools framework for HPC programs Mr. Frederic Voigt, Ms. Anna Fuchs, Mr. Maximilian Keiff, Jun.-prof. Dr. Michael Kuhn, Prof. Dr. Thomas Ludwig, Mr. Jannek Squar
<b>k22-182</b>	A Deterministic Model of Corporate Cash Flow Doctor Edyta Mioduchowska-jaroszewicz
<b>k22-194</b>	Can eHealth Support Managing an Integrated Health Service Delivery? A Case Study of an Integrated Care Program in Poland Prof. Iga Rudawska
<b>k22-219</b>	Behavioral portfolio as a tool supporting investment decisions Prof. Sebastian Majewski, Ms Aleksandra Majewska
<b>k22-220</b>	E-health information as a support of health information technology systems - patients attitudes Dr Magdalena Sobon
<b>k22-260</b>	Are social media matter for the football club finance? Prof. Agnieszka Majewska, Ms Aleksandra Majewska
<b>k22-399</b>	Tackling Unemployment under COVID-19 Conditions (States of Emergency or Crisis) Associate Prof. Malgorzata Porada - Rochon, Associate Prof. Przemyslaw Banasik, Dr Malgorzata Godlewska, Associate Prof. Barbara Kryk, Associate Prof. Sylwia Morawska, Prof. Iga Rudawska

***IS36-C: Intelligent Systems in Evaluation and Performance Measurement***

Chair: Prof. Iga Rudawska

Friday 9 September: 13:45 - 16:00 CET

Room 11

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-259</b>	Sentiment analysis towards listed companies in the energy sector on the example of the WIG-Energia index on the WSE Dr Grzegorz Wojarnik
<b>k22-386</b>	Enhancing Customer Engagement in Social Media with AI - a Higher Education case study Assistant Professor Edyta Golab-andrzejak
<b>k22-412</b>	Economic vulnerability assessment of EU countries to the impact of COVID-19 pandemic with the revised CEV index Dr Joanna Brzyska, Dr Izabela Szamrej-Baran
<b>k22-493</b>	Price, volume and level of economic development as determinants of export value in countries and regions Dr Hab. Renata Knap, Prof. Jerzy Dudzinski

***IS38: Complex and Dispersed Classifiers (CDC 2022)***

Chair: Dr. Malgorzata Przybyla-Kasperek

Friday 9 September: 13:45 - 16:00 CET

Room 14

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-307</b>	Comparative Study of Twoing and Entropy Criterion for Decision Tree Classification of Dispersed Data M.sc. Samuel Aning, Dr Hab. Malgorzata Przybyla-kasperek
<b>k22-435</b>	New Voting Schemas for Heterogeneous Ensemble of Classifiers in the Problem of Football Results Prediction Mgr Szymon Glowania, Dr Przemyslaw Juszczuk, Prof. Jan Kozak
<b>k22-410</b>	Radial basis function network for aggregating predictions of k-nearest neighbors local models generated based on independent data sets M.sc. Kwabena Marfo, Dr Hab. Malgorzata Przybyla-kasperek
<b>k22-442</b>	Clustering of scientific articles using natural language processing Ph.d Barbara Probiez, M.sc. Anita Hrabia, Prof. Jan Kozak
<b>k22-459</b>	Distance Profile Chart As A Method Of Assessing The Neighborhood Of Groups Dr Kornel Chrominski, Dr Magdalena Tkacz

***IS39: Innovations-Oriented Intelligent Information Processing***

Chair: Prof. Daocheng Hong

Wednesday 7 September: 10:30 - 12:30 CET

Room 11

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-015</b>	Informed Graph Convolution Networks for Multilingual Short Text Understanding Miss Yaru Sun, Prof. Ying Yang, Mr Dawei Yang
<b>k22-016</b>	Empower Keywords Generation for Short Texts with Graph-to-Sequence Learning Prof. Ying Yang, Doc Guang Mei, Miss Yaru Sun, Doc Zhihong Wang, Mr Dawei Yang
<b>k22-140</b>	The Deep Learning-Based Framework for Automated Predicting COVID-19 Severity Score Mr. Yongchang Zheng, Prof. Hongwei Dong
<b>k22-481</b>	Parental expectation, cognitive development, and family function: a moderating inverted-U model Mrs Jianqiong Huang, Professor Yuqing Zhang
<b>k22-518</b>	An Exploratory Approach to Intelligent Quiz Question Recommendation Mr. Kejie Mao, Prof. Dr. Qiwen Dong, Prof. Dr. Daocheng Hong, Prof. Dr. Ye Wang



## ***IS40: Aspects of Intelligent Learning Systems: e-Learning Across Various Educational Contexts***

Chair: Prof. Hiroshi Ueda

Friday 9 September: 13:45 - 16:00 CET

Room 3

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-409</b>	Adaptation of AL-TST active learning model in hybrid classroom: Findings from teaching during COVID-19 pandemic in Egypt Dr. Mohammad Nehal Hasnine, Dr. Mahmoud Mohamed Hussien Ahmed, Dr. Hiroshi Ueda
<b>k22-425</b>	Applying NoSQL Data Adapter with the Learning Paths mechanism for better knowledge transfer in the age of distance learning Dr Aleksandra Werner
<b>k22-488</b>	Discovering the effects of learning analytics dashboard on students' behavioral patterns using differential sequence mining Dr. Gökhan Akçapinar, Dr. Mohammad Nehal Hasnine
<b>k22-007</b>	Use of a mobile learning application in the process of foreign vocabulary learning Dr. Petra Polakova
<b>k22-308</b>	Using Behavioral Primitives to Model Students' Digital Behavior Researcher Oriane Dermay, Professor Anne Boyer, Lecturer Azim Roussanaly
<b>k22-591</b>	Tendency Analysis of Python Programming Classes for Junior and Senior High School Students Dr. Ryouta Kozakai, Mr. Toshiki Kobayashi, Prof. Yuji Watanabe, Mr. Zhang Wenxuan

## ***IS41: The 6th Special Session on Eye Movement Data Processing and Analysis (EMDPA)***

Chair: Prof. Pawel Kasprowski

Friday 9 September: 10:15 - 12:30 CET

Room 5

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-171</b>	Toward a Real-Time Index of Pupillary Activity as an Indicator of Cognitive Load Ms. Gavindya Jayawardena, Dr. Deepak Akkil, Dr. Jonas Högström, Dr. Sampath Jayarathna, Mr. Yasith Jayawardena, Dr. Thomas Papa
<b>k22-196</b>	Gaze Buttons Revisited. Looking for an Effective Way of "Clicking" without the Mouse Mr. Pawel Drojecki, Prof. Jacek Matulewski, Mr. Wojciech Sobczuk
<b>k22-209</b>	3D Gaze in Virtual Reality: Vergence Calibration, Event Detection Professor Andrew Duchowski, Ms. Marta Brescia-zapata, Dr. Chris Hughes, Dr. Krzysztof Krejtz, Dr. Pilar Orero, Dr. Matias Volonte
<b>k22-428</b>	Side Keyboard - the New Approach for Eye-typing Associate Professor Katarzyna Harezlak, B. Sc. Pawel Basek, Associate Professor Pawel Kasprowski

***IS42: Recent Advances in Biometric Technology***

Chair: Assoc. Prof. Dzati Athiar Ramli &amp; Dr. Ali Ayadi

Wednesday 7 September: 14:45 - 17:00 CET

Room 15

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-222</b>	An Efficient Smart Streamlet Management System Using Internet of Thing Dr Abdullah Khan, Dr Javed Iqbal Bangash, Dr Athiar Ramli Dzati, Dr Shafiullah khan, Dr Asfandyar Khan, Mr Junaid Ur Rahman
<b>k22-443</b>	Stacking Classifier with Random Forest functioning as a Meta Classifier for Diabetes Diseases Classification Dr Saima Anwar Lashari, Ms Maria Ali, Mr Muhammad Nasim Haider, Dr Abdullah Khan, Dr Dzati Athiar Ramli, Dr Wareesa Sharif
<b>k22-528</b>	A Review of RFID-based Internet of Things in healthcare area, the New Horizon of RFID Phd. Student Bouhassoune Ibtissame, Phd Chehri Abdellah, Phd Student Chaibi Hasna, Phd Saadane Rachid

***IS43: Semantic Models for the Web of Things***

Chairs: Dr. José Miguel Blanco

Wednesday 7 September: 10:30 - 12:30 CET

Room 15

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-125</b>	Web of Things Semantic Interoperability in Smart Buildings Dr Amir Laadhar, Pr Torben Bach Pedersen, Dr Junior Dongo, Dr Soren Enevoldsen, Pr Dominique Gabioud, Pr Frédéric Revaz
<b>k22-357</b>	A Survey of Middlewares for self-adaptation and context-aware in Cloud of Things environment Research Scientist Olfa Souki, Professor Sèdes Florence, Professor Amous Ikram, Maître De Conférence Ben Djemaa Raoudha

## ***IS44: Challenges and Solutions for Knowledge Management in Project Management***

Chair: Assoc. Prof. Tadeusz Grzeszczyk

Friday 9 September: 13:45 - 16:00 CET

Room 15

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-025</b>	Knowledge-Intensive Business Service Projects - Characteristics and Implications for Project Management - a Preliminary Study Dr Hab. Prof Ug Przemyslaw Lech
<b>k22-098</b>	Barriers of knowledge management in virtual project teams: a TISM model Phd Hanna Soroka-potrzebna
<b>k22-245</b>	Agile elements in the design of buildings and structures Dr Malgorzata Waszkiewicz,
<b>k22-448</b>	Measuring communication management performance in virtual project teams PhD Karolina Muszynska
<b>k22-538</b>	Human personality in IT projects Msc Martyna Wybraniak-kujawa, Msc Pawel Bratek, Professor Pawel Gepner

**IS45: The Urban-Social Layer: Digital Approaches to Social Dynamics in Cities**

Chair: Dr. Jesus Lopez Baeza

Friday 9 September: 13:45 - 16:00 CET

Room 1

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-111</b>	Social dynamics in cities: analysis through LBSN data Dr Almudena Nolasco-Cirugeda, Dr Clara García-Mayor
<b>k22-188</b>	The Science of Tooling Prof. Dr.-ing. Jörg Noennig
<b>k22-205</b>	A method for assessing the credibility of Volunteered Geographic Information in cases of flood crisis M.sc. Qasem Safarallahkheili, Professor Mohammad Reza Malek
<b>k22-227</b>	Approximations to the sustainable take-up of digital planning tools for decision making processes, according to its user. The case of TOSCA in two contexts. M.sc. Maria Moleiro, M.sc. Arjama Mukherjee
<b>k22-430</b>	Synthetic Pedestrian Routes Generation: Exploring Mobility Behavior of Citizens through Multi-Agent Reinforcement Learning Dr. Ayse Glass,
<b>k22-582</b>	Digitization of urban bicycling data Dr. Rafael Milani Medeiros, Ms.c. Andre Landwehr, Ms.c. Catherine Vadermeulen
<b>k22-242</b>	Levels of Public Trust as the driver of Citizens' Perceptions of Smart Cities: the Case of Hong Kong Mr. Ming Tsun Lai, Prof. Alistair Cole

**IS46-A: Applied Econometrics and Statistics**

Chair: Assoc. Prof. Marisuz Doszyn

Wednesday 7 September: 10:30 - 12:30 CET

Room 12

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-234</b>	Selected Mathematical - Economic Theoretical Models of the Static Equilibrium of the Demand-Supply Type Ph.d Henryk Kowgier
<b>k22-239</b>	To disclose or not to disclose? To what extent information about business combinations matters on example of Polish companies Dr Magdalena Janowicz
<b>k22-258</b>	The impact of the COVID-19 pandemic on the residential real estate market on the example of Szczecin, Poland M.sc. Marcin Bas
<b>k22-290</b>	The application of Granger's causality to the study of the impact of stock exchange indexes on the food sector listed on the Warsaw Stock Exchang Mr Rafik Nafkha, Mrs Dorota Zebrowska-Suchodolska, Mr Andrzej Karpio

***IS46-B: Applied Econometrics and Statistics***

Chair: Assoc. Prof. Marisuz Doszyn

Wednesday 7 September: 14:45 - 17:00 CET

Room 12

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-033</b>	Approximate entropy and sample entropy algorithms in financial time series analyses Prof. Joanna Olbrys, Dr Elzbieta Majewska
<b>k22-060</b>	A method for estimating the number of short-lived births of businesses based on a stochastic model Dr. Masao Takahashi
<b>k22-095</b>	Improving the Quality of Modeling the Efficiency of Managing Portfolios of Polish Open-ended Investment Funds in 2018-2021 Mr Rafik Nafkha, Mrs Dorota Zebrowska - Suchodolska, Mr Andrzej Karpio
<b>k22-170</b>	Changes in subjective quality of life in Poland during the COVID-19 pandemic Assoc. Prof. Anna Saczewska-Piotrowska

**IS46-C: Applied Econometrics and Statistics**

Chair: Assoc. Prof. Marisuz Doszyn

Thursday 8 September: 10:15 -12:30 CET

Room 5

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-053</b>	Machine learning in house price analysis: regression models versus neural networks D.sc, Prof. Iwona Forys
<b>k22-079</b>	Biasedness of forecast errors: an intermittent demand perspective Prof. Mariusz Doszyn
<b>k22-238</b>	The influence of discretization of the flat's area on its selling time PhD Anna Gdakowicz, Phd Ewa Putek-szelag
<b>k22-256</b>	Convergence of residential property prices in the Szczecin agglomeration in the context of the COVID-19 pandemic Dr Sebastian Gnat

**IS47: Machine Learning Based Applications**

Chair: Dr. Hadi Saleh

Thursday 8 September: 10:15 - 12:30 CET

Room 13

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-091</b>	Federated Learning for Digital Pathology: A Pilot Study Dr Kok Wai Wong, Ms Geetu Mol Babu, Dr Jeremy Parry
<b>k22-107</b>	Drone audio recognition based on ML Techniques Post Doc Giovanni Lacava, Prof. Fabio Martinelli, Prof. Francesco Mercaldo, Junior Eng. Mario Pizzi, Prof. Antonella Santone
<b>k22-324</b>	A benchmark comparison of Gaussian process regression, support vector machines, and ANFIS for man-hour prediction in power transformers manufacturing Mr. Kamil Isik, Dr. S. Emre Alptekin



## ***IS48: Advanced Methods and Techniques in Information Systems, Decision Making and Project Management***

Chair: Prof. Piotr Jedrzejowicz

Friday 9 September: 13:45 - 16:00 CET

Room 12

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-037</b>	Implementation of the Mushroom Picking Framework for Solving Flexible Job Shop Scheduling Problems in Parallel Prof. Piotr Jedrzejowicz, M.sc Izabela Wierzbowska
<b>k22-364</b>	Sustainable Knowledge Sharing Model for IT Agile Projects Mr Rodrigo Oliveira De Castro, Dr Andrew Levula, Dr Cesar Sannin, Dr Edward Szczerbicki
<b>k22-422</b>	A-Team Solving Multi-Skill Resource-Constrained Project Scheduling Problem Assoc. Prof. Ewa Ratajczak-ropel, Prof. Piotr Jedrzejowicz
<b>k22-504</b>	Application of Analytic Hierarchy Process in Selecting a State-Made Electronic Documentation Management System for Polish Municipalities Mgr Oskar Sek, Prof Ireneusz Czarnowski
<b>k22-510</b>	Link prediction in organizational social network based on e-mail communication Msc Pawel Szyman, Prof. Dr. Dariusz Barbucha

## ***IS49-A: Neuroscience Techniques and Quantitative Methods in Supporting Decision Making***

Chair: Prof. Kesra Nermend

Friday 9 September: 10:15 - 12:30 CET

Room 9

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-247</b>	An evaluation of decision on paradigm shift in higher education by digital transformation Dr. Uma Shankar Singh, Dr. Malgorzata Nermend, Dr. Swapnil Singh
<b>k22-248</b>	Decision analysis of e-learning in bridging digital divide for education dissemination Dr. Uma Shankar Singh, Dr. Malgorzata Nermend, Dr. Swapnil Singh
<b>k22-395</b>	Travel decisions in Poland during the COVID-19 pandemic Prof. Dr Hab. Grazyna Rosa
<b>k22-398</b>	Applying TOPSIS to evaluate labour market resources as a factor of regional investment attractiveness dr Arkadiusz Marchewka
<b>k22-500</b>	The use of the finite element method to locate the places of damage occurrence in elements of technological equipment in carburizing furnaces Phd Eng. Mariusz Sowa, Phd Eng. Katarzyna Kedzierska, Phd Eng. Joanna Tuleja
<b>k22-507</b>	Supply chain decision making with use of game theory Phd Andrzej Rzeczycki
<b>k22-514</b>	The concept of decision support system to increase the level of sustainable warehousing Phd. Eng. Magdalena Malinowska

## ***IS49-B: Neuroscience Techniques and Quantitative Methods in Supporting Decision Making***

Chair: Prof. Waldemar Tarczyński

Friday 9 September: 13:45 - 16:00 CET

Room 5

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-533</b>	Issues of multi-criteria methods applicability supporting complex business process decision-making in management Prof. Kesra Nermend, Dr Inz. Mateusz Piwowski
<b>k22-558</b>	Assessment of portfolio investment effectiveness during the covid-19 pandemic - multivariate fundamental approach Dr Hab. Prof. Us Malgorzata Tarczynska-luniewska,
<b>k22-505</b>	Combining System Dynamics and Agent-Based Simulation to Study the Effects of Public Interventions on Poverty Prof. Malgorzata Latuszynska, Dr Shivan Fate
<b>k22-536</b>	The usability of eye tracking in the design of digital training materials M.sc. Patryk Wlekly, Phd Mateusz Piwowski
<b>k22-552</b>	Factors disrupting the effectiveness of facial expression analysis in automated emotion detection M.sc. Eng. Patryk Wlekly, Phd Eng. Mateusz Piwowski
<b>k22-564</b>	Integrated AHP and TOPSIS Method in the Comparative Analysis of the Internet Activities Ph.d. Piotr Ogonowski
<b>k22-598</b>	Educational background as decision criteria in selection of private sector healthcare service providers Dr. Uma Shankar Singh, Dr. Malgorzata Nermend, Dr. Swapnil Singh

**IS50-A: New Generation Computing in Engineering, Life Science and Economy**

Chair: Prof. Piotr Nikonczuk

Wednesday 7 September: 14:45 - 17:00 CET

Room 11

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-118</b>	Design of ship course-keeping system via adaptive control techniques Prof. Zenon Zwierzewicz, Dr Lech Dorobczynski, Dr Slawomir Jaszczak, Dr Mariusz Sosnowski
<b>k22-414</b>	Decision rules in survival analysis of patients with hematologic diseases Mrs Malgorzata Zdrodowska, Prof. Agnieszka Dardzinska-Glebocka
<b>k22-479</b>	Approximate Co-Location-Resistant VM Placement Strategy With Low Energy Consumption Mss Marwa Thabet, Dr Mouhebeddine Berrima, Dr Brahim Hnich
<b>k22-496</b>	Application of the logistic regression model to assess the likelihood of making tangible investments by agricultural enterprises Dr. Ewa Szafraniec-Siluta, Dr. Agnieszka Strzelecka, Prof. Danuta Zawadzka
<b>k22-498</b>	Application of linear mixed models to evaluate the determinants of effectiveness of commodity funds Msc Agnieszka Moskal, Dr. Agnieszka Strzelecka, Prof. Danuta Zawadzka
<b>k22-499</b>	Examples of the use of Data Envelopment Analysis (DEA) to assess the financial effectiveness of insurance companies Msc Karolina Smetek, Dr. Agnieszka Strzelecka, Prof. Danuta Zawadzka

***IS50-B: New Generation Computing in Engineering, Life Science and Economy***

Chair: Prof. Piotr Nikonczuk

Thursday 8 September: 10:15 -12:30 CET

Room 6

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-164</b>	Modelin and simulation of Vibro-isolator Rapid Prototyping using additive manufacturing Dr Hab. Inz Prof Pk Tomasz Krolikowski, Dr Inz. Andrzej Blazejewski, Mgr Inz. Remigiusz Knitter
<b>k22-175</b>	Passenger rover model in Matlab-SimMechanics environment Dr Hab. Inz Prof Pk Tomasz Krolikowski, Dr Inz. Andrzej Blazejewski, Mgr Inz. Damian Katafiasz, Dr Inz Sebastian Pecolt
<b>k22-184</b>	Hall effect diameter sensor integration in DIY filament extruder Dr Hab. Inz Prof Pk Tomasz Krolikowski, inz Sebastian Banucha, Mgr Inz Lukasz Bazych, Mgr Inz Aleksandra Janisiak, Dr Inz. Marcin Walczak, Mgr Inz. Piotr Zmuda Trzebiatowski
<b>k22-195</b>	Modeling and simulation of composite materials used for permanent dental fillings Dr Hab. Inz Prof Pk Tomasz Krolikowski, Mgr Inz Anna Czajkowska, Dr Hab. Inz. Prof Pk Tomasz Rydzkowski
<b>k22-548</b>	A concept for an IT platform to assess the impact of transport infrastructure investments on ecological safety and security Dr Inz. Roma Strulak-wójcikiewicz, Dr Inz. Agnieszka Deja

**IS50-C: New Generation Computing in Engineering, Life Science and Economy**

Chair: Prof. Piotr Nikonczuk

Thursday 8 September: 14:45 -17:00 CET

Room 6

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-381</b>	Application of AR/VR Technology in Industry 4.0 Dr Hab. Inz Prof. Pk Tomasz Krolikowski, Dr Hab. Inz. Prof Pk Norbert Gliszczynski-chamier, Mgr Inz. Szymon Machala
<b>k22-401</b>	The Management of Digital Data Using Innovative Technologies Dr Hab. Inz Prof Pk Tomasz Krolikowski, Dr Hab. Inz Prof Pk Norbert Chamier Gliszczynski, Mgr Inz Roman Stryjski, Mgr Inz Andrzej Szajna, Dr Inz Waldemar Wozniak
<b>k22-571</b>	The method of route optimization of electric vehicle Phd Piotr Nikonczuk, Msc Norbert Lech
<b>k22-420</b>	How profitable is it to apply Industry 4.0 solutions in blister factories? Dr Hab. Inz Prof. Pk Tomasz Krolikowski, Dr Hab. Inz Prof. Pk Mariusz Kostrzewski, Mgr Inz. Kacper Sompolski
<b>k22-491</b>	Conversion of bioelectric sEMG signals into analog form for the BLDC motors control Dr Hab. Inz Prof. Pk Tomasz Krolikowski, Dr Inz. Andrzej Blazejewski, Mgr Inz. Bartlomiej Mlynski, Dr Inz. Sebastian Pecolt

***IS50-D: New Generation Computing in Engineering, Life Science and Economy***

Chair: Prof. Piotr Nikonczuk

Friday 9 September: 10:15 - 12:30 CET

Room 6

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-522</b>	Influence of Programmable Logic Controller Program Structure to Digital Inputs Reaction Time Dr Hab. Inz Prof Pk Tomasz Krolikowski, Dr Inz Grzegorz Andrzejewski, Dr Inz. Artur Karasinski, Dr Inz. Wojciech Zajac
<b>k22-158</b>	Building a cybersecurity culture of public administration system in Poland Dr Hab. Inz Prof Tomasz Krolikowski, Dr Hab. Inz. Prof Zu Agnieszka Ubowska
<b>k22-162</b>	Current trends of intelligent, smart packagings in new medical applications Dr Hab. Inz Prof Pk Tomasz Krolikowski, Dr Hab. Inz Prof Pk Tomasz Rydzkowski, Mgr Vijay Kumar Thakur, Mgr inż Jolanta Wroblewska-Kresztul
<b>k22-594</b>	Optimizing the air source heat pump's working time in the context of increasing the energy efficiency ratio Phd Wojciech Tuchowski, Phd Karolina Kurtz - Orecka, Phd Piotr Nikonczuk
<b>k22-596</b>	Method of optimizing the operation of a water source heat pump Phd Wojciech Tuchowski, Phd Piotr Nikonczuk, Student Aleksandra Pych, Student Laura Wojnicz

**IS50-E: New Generation Computing in Engineering, Life Science and Economy**

Chair: Prof. Piotr Nikonczuk

Friday 9 September: 13:45 - 16:00 CET

Room 6

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-030</b>	Multi-body Model Simulating Biodynamic Response of the Seated Human under Whole-Body Vibration Dr Hab. Inz Prof. Pk Tomasz Krolikowski, Dr Inz. Andrzej Blazejewski, Dr Hab. Inz Prof. Pk Igor Maciejewski, Dr Inz. Sebastian Pecolt
<b>k22-035</b>	Multi-segment, spatial biomechanical model of a human body Dr Hab. Inz. Prof Pk Tomasz Krolikowski, Dr Inz. Andrzej Blazejewski, Inz. Damian Katafiasz, Dr Inz. Sebastian Pecolt
<b>k22-108</b>	Modeling and simulation of the horizontal seat suspension system under random vibration Dr Hab. Inz. Prof Pk Tomasz Krolikowski, Mgr Inz. Bartosz Jereczek, Pro. Dr Hab. Inz. Tomasz Krzyzynski, Dr Hab. Inz. Prof. P Igor Macielewski
<b>k22-356</b>	Efficient Resource Allocation using a Multi-criteria approach and nodes Clustering for Heterogeneous Hadoop Cluster Phd Student Emna Hosni, Prof Ghedira Khaled, Dr Kolsi Nader, Prof Chaari Wided



***IS51: Knowledge-Aware eXplainable Artificial Intelligence***

Chair: Dr. Ali Ayadi

Wednesday 7 September: 14:45 - 17:00 CET

Room 15

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-228</b>	Presence Variations for E&E Transitions Explainability Phd Student Alexandre Bettinger, Pr Anne Boyer, Hdr Armelle Brun

***IS53-A: Smart Education: Learning Environment Using Technology***

Chair: Prof. Nobuyuki Ogawa

Thursday 8 September: 10:15 - 12:30 CET

Room 11

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-050</b>	Virtual Reality Enhances Active Student Learning Professor Dana Barry, Professor Hideyuki Kanematsu
<b>k22-122</b>	Brightness and Saturation Enhancement by Using Color Vector on Equi-Hue Plane in RGB Color Space Dr. Shota Furukawa
<b>k22-123</b>	Design of Question-and-Answer Interface using Moodle DATABASE Function Dr. Shin'nosuke Yamaguchi, Dr. Hideki Kondo, Dr. Kazunori Nishino, Dr. Yoshimasa Ohnishi
<b>k22-252</b>	Learner comments-based Recommendation system Dr. Manar Hazar, Dr. Mohsen Maraoui, Prof Mounir Zrigui
<b>k22-323</b>	Reasonable Setting Values for Anonymization Algorithms for Online Educational Data Analysis Support System Dr. Osamu Takaki, Professor Kento Aida, Dr. Nobukuni Hamamoto, Professor Atsuko Takefusa, Dr. Shigetoshi Yokoyama

***IS53-B: Smart Education: Learning Environment Using Technology***

Chair: Prof. Nobuyuki Ogawa

Friday 9 September: 10:15 - 12:30 CET

Room 10

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-180</b>	Development of Contents Maker for mobile terminals in Active Textbook System and examination of cloud-based content server Prof. Shin-nosuke Suzuki, Prof. Katsumi Hirata, N/a Ryohei Kameyama, N/a Yasuhiro Kobayashi, N/a Akira Okada, N/a Masaya Yamaguchi
<b>k22-243</b>	Architecture PBL for designing and constructing on-campus facilities by technical college students using digital twins Dr. Yutaka Tada, Dr. Nariyuki Kawabata, Dr. Takashi Mastumoto
<b>k22-551</b>	Three Dimensional Experiences by a Commercial Integrated Stand-alone Head-Mounted Display and Applicability to Education Prof. Hideyuki Kanematsu, Prof. Dana Barry, Prof. Katsuko Nakahira T., Prof. Nobuyuki Ogawa, Prof. Tatsuya Shirai, Prof. Kuniaki Yajim
<b>k22-567</b>	Virtual Experiences of Metaverse Using Mobile Type Head-Mounted Display and Their Applicability Prof. Hideyuki Kanematsu, Prof. Dana M. Barry, Prof. Katsuko T. Nakahira, Prof. Nobuyuki Ogawa, Prof. Tatsuya Shirai, Prof. Kuniaki Yajima

## ***IS54-A: Information, Innovation and Technology as a Basis for Sustainable Business and Society***

Chair: Prof. Katarzyna Szopik-Depczynska

Friday 9 September: 10:15 - 12:30 CET

Room 11

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-034</b>	Digitalisation as a driving force for land grabbing in the Global South Associate Professor Izabela Bludnik,
<b>k22-263</b>	Innovations of Enterprises with Chinese Capital in Poland. LiuGong Dressta Machinery - case study Associate Prof. Joanna Wisniewska, Associate Prof. Krzysztof Janasz, Associate Prof. Dariusz Nowak, Phd Katarzyna Piotrowska
<b>k22-294</b>	Eco-innovations in rail transport Mr. Piotr Niedzielski, Mrs. Joanna Markiewicz
<b>k22-367</b>	Assessment of students' skills in visual communication of information Dr Hab. Prof. Us Ewa Krok
<b>k22-370</b>	Crowdfunding as an innovative source of financing business initiatives in Poland Dr Wojciech Leonski
<b>k22-392</b>	Regional planning of distributed energy Phd Marcin Rabe
<b>k22-405</b>	Clusters as networking organizations supporting the digital development of companies Ms Magdalena Lawicka

## ***IS54-B: Information, Innovation and Technology as a Basis for Sustainable Business and Society***

Chair: Prof. Katarzyna Szopik-Depczynska

Friday 9 September: 13:45 - 16:00 CET

Room 2

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-400</b>	Barriers to innovative activity of enterprises in the sustain development in times of crisis Dr Karolina Beyer
<b>k22-406</b>	Innovation strategies used by companies in Poland during the pandemic Prof. Katarzyna Koziol-nadolna
<b>k22-503</b>	The development of communications infrastructure and its importance on e-commerce in Poland Msc Michal Orzol, Prof. Katarzyna Szopik-depczynska
<b>k22-497</b>	Machine learning in exploration the decoupling paradigm in transport Dr. Elzbieta Szaruga, Prof. Dr. Elzbieta Zaloga
<b>k22-553</b>	The assessment of product groups and efficiency in the use of raw materials and waste management towards sustainable development – case study of the steel manufacturing company in Poland Mr Radoslaw Depczynski
<b>k22-554</b>	Content marketing as an innovative solution for crowdfunding platforms - the example of Patronite platform Dr Hab. Angelika Kedzierska-szczepaniak, Mgr Zuzanna Minga
<b>k22-579</b>	Implementing modern management orientation with the use of IT technologies in public administration in Poland Phd Barbara Czerniachowicz

***IS55: Innovation Process Digitalisation – Experiences and Prospects***

Chair: Assist. Prof. Katarzyna Lobacz

Thursday 8 September: 14:45 -17:00 CET

Room 14

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-093</b>	Probabilistic Properties of Deterministic and Randomized Quantizers Dr. Elzbieta Kawecka, Dr. Jerzy Podhajecki
<b>k22-407</b>	How to benefit more from business process documentation? Framework for calculation personality - process role fit Phd Student Marcin Prys, Prof. Przemyslaw Rózewski
<b>k22-444</b>	Teaching Digital Innovation Processes for Services in Higher Education M.sc. Judith Helmer, B.a. Thien-minh-thuong Huynh, Dr. Sue Rossano-rivero
<b>k22-450</b>	Measuring innovation process digitalisation in SMEs - a methodological approach Ass. Prof. Dr Katarzyna Lobacz, M.a Renata Szanter
<b>k22-480</b>	Digitalisation levels of innovation management practices - pilot study of service SMEs in Poland Dr Katarzyna Lobacz, Dr Roman Tylzanowski

## ***IS57: Physiological and Knowledge-Based Engineering for Education and Learning***

Chair: Dr. Atsuko Yamazaki

Friday 9 September: 10:15 - 12:30 CET

Room 13

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-225</b>	Cognitive Model of Understanding and Active Learning Environment to enhance Understanding with experiencing Moon Waxing and Waning by sharing AR Space Dr Masato Soga, Ma Yudai Asano
<b>k22-426</b>	A Word Learning Environment with Experiences in VR World Dr Masato Soga, M.a. Kosuke Kimoto
<b>k22-439</b>	Development of a support system for learning foot massage movement skills using IoT technology Dr. Toshiyasu Kato, Dr. Kaoru Eto, Ms. Kiyomi Ito, Ms. Tomoko Iwata, Prof. Hiroshi Takase
<b>k22-473</b>	A preliminary cyber-physical study of a VR training material for engineering students to give a presentation in English Mr. Taishi Akimoto, Dr. Hiroshi Hasegawa, Dr. Kayoko H. Murakami, Dr. Tsukasa Yamanaka, Dr. Atsuko K. Yamazaki
<b>k22-474</b>	A preliminary study of VR English training material for personnel in the tourism industry Mr. Kazumine Takada, Dr. Kayoko H. Murakami, Dr. Tsukasa Yamanaka, Dr. Atsuko K. Yamazaki
<b>k22-475</b>	A preliminary study of impressions of Japanese food photos for tourism promotion Mr. Rui Takahashi, Dr. Muhammad N. A. M. Anuardi, Dr. Kayoko H. Murakami, Mr. Katsutoshi Waki, Dr. Atsuko K. Yamazaki, Mr. Kenichiro Yoshikawa
<b>k22-516</b>	Analysis of cerebral blood flow state during a mental rotation task to assess spatial perception ability Ms. Reina Nishikawa, Dr. Hirokazu Miura, Emer. Prof. Hirokazu Taki

***IS58: Internet-of-Things and Intelligent Decision Making***

Chair: Prof. Xiangpei Hu

Friday 9 September: 10:15 - 12:30 CET

Room 14

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-117</b>	PCMCR: A Novel Conflict Resolution Strategy based on Possibility Theory for Human Activity Recognition Dr Illef Ben Slima, Dr Sourour Ammar, Prof Amel Borgi, Dr Amina Jarraya
<b>k22-144</b>	Model-based wear prediction of milling blades Mr. Teemu Mäkiahho, Professor Kari Koskinen, Mr. Henri Vainio
<b>k22-327</b>	Correct-by-Construction Approach for Formal Verification of IoT Architecture Ms Zinah Hussein
<b>k22-403</b>	A reverse personnel assignment method with duration re-inferring for smart “IOT+ blockchain” project Associate Professor Lili Zhang, Student Wenhao Guo, Student Siyao Li, Student Di Su, Student Wenwen Yang
<b>k22-446</b>	A fuzzy trust measurement method considering patients' trust opinions in Internet Plus Healthcare Mrs Jin Yin, Mr Xunan Cao, Miss Mei Zeng, Mr Boyu Zhang
<b>k22-568</b>	Product Bundling for online supermarkets by frequent itemset mining and optimization approach Ms Yan Fang, Ms Mingyue Guo, Mr Ying Hou, Mr Rui Wang
<b>k22-577</b>	Preference Characteristics on Consumers’ Online Consumption of Fresh Agricultural Products under the Outbreak of COVID-19: An Analysis of Online Review Data Based on LDA Model Assistant Professor Xiaochun Feng, Assistant Professor Xiaochun Feng, Professor Junhu Ruan, Student Xiaolong Tian, Student Chaorun Xie, Associate Professor Xiaoni Zhang

***IS59: Interactive Linguistics for Agent and Multi-agent Systems***

Chairs: Prof. Radosław Katarzyniak

Wednesday 7 September: 10:30 - 12:30 CET

Room 15

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k22-526</b>	Applying categories with prototypes to incomplete observations in artificial cognitive agents Dr. Grzegorz Popek, Msc. Marcin Zurawski, Prof. Radosław Katarzyniak
<b>k22-546</b>	Meta-strategies of referencing basic level categories in elaborative response generation in cognitive agents Dr. Grzegorz Popek, Dr. Wojciech Lorkiewicz
<b>k22-545</b>	An approach to determination of representative set of exemplars for basic-level category mapping in cognitive agents Dr Wojciech Lorkiewicz, Prof. Radosław Katarzyniak, Mr. Mariusz Mulka





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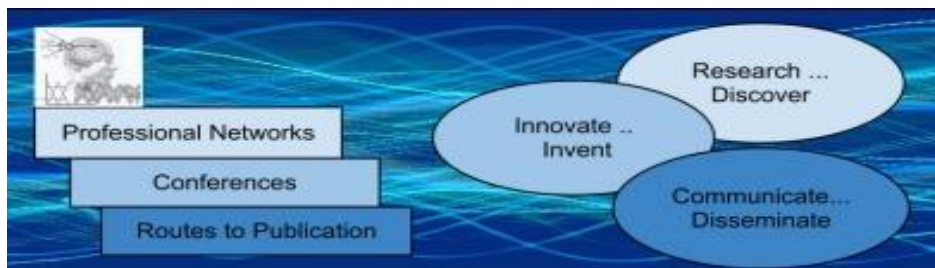
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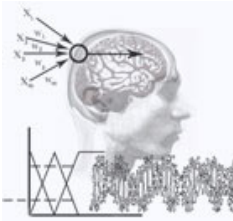
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