



# **KES**International Conference Programme **KES2020**

**16 - 18 September 2020**

24th International Conference on  
Knowledge-Based and Intelligent  
Information & Engineering Systems

**KES Virtual Conference Centre**



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## Chairs' Welcome

Welcome to the 24th International Conference on Knowledge - Based and Intelligent Information & Engineering Systems (KES 2020), organised by KES International and held in virtual form on the KESonline virtual conference platform over 16-18 September 2020.

This is the first time that this conference has been held virtually, and this has been made necessary because of the Covid-19 pandemic which has swept the world. Covid-19 has caused disruption, economic problems, and human tragedy in many countries. We offer condolences and sympathy to those who have sadly lost loved ones or colleagues in the pandemic.

KES 2020 is the 24th event in a series of broad-spectrum conferences on intelligent systems first held in Adelaide in Australia in 1997. The aim of this KES conference series is to provide an internationally respected forum for the dissemination of research results and the discussion of issues relating to the theory, technologies and applications of intelligent engineering and information systems.

This truly international conference has proved very popular this year. It attracted submissions from a large number of researchers and practitioners from all over the world, who submitted their papers to four general tracks and 33 special sessions on specific topics. Each paper was peer reviewed by at least two members of the International Program Committee. From them, the best 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 Yukio Ohsawa, University of Tokyo, Japan, title of talk: 'Beyond Explainable Learning to Explanatory Intelligence - A Systems Innovation Approach on Data Jackets'; Dr Urszula Stańczyk, Silesian University of Technology, Poland, title of talk: 'On the uniqueness of writing styles - Problems and tasks of stylometry'; and Dr Guido Governatori, Data 61, Dutton Park, Australia, title of talk: 'Digital Legislation'.

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

KES International hopes and intends that KES2020 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, 'Aurel Vlaicu' University of Arad, Romania and Bournemouth University, UK***

***and***

***Prof. Lakhmi C. Jain, University of Technology Sydney, Australia and Liverpool Hope University, UK***



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### **KES Conference Series**

KES2020 is part of the KES Conference Series.

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

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The organisation and operation of KES2020 is the responsibility of KES International.

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Prof. Sergey Zykov	National Research University, Russia



## General Track Sessions

Code	Track Title	Track Chair
<b>G01</b>	Machine Learning, Artificial Neural Networks and Deep Learning	Prof. Cecilia Zanni-Merk
<b>G02</b>	Knowledge Based and Expert Systems	Prof Anne Hakansson
<b>G03a</b>	Intelligent Information and Engineering Systems	Prof Ron Hartung
<b>G03b</b>	Cybersecurity	Michael Soltys
<b>G04</b>	Industry Applications	Dr Carlos Toro

## Invited Sessions

Code	Session	Session Chair
<b>WS01</b>	3rd Symposium on Information Systems and Technologies for Management, Economy and Decision Making	Dr. Wojciech Salabun, Assoc. Prof. Jaroslaw Watrobski, Prof. Jaroslaw Jankowski, Prof. Ewa Ziemba
<b>IS01</b>	Cyber-Physical Systems and Smart Internet-of-Things	Prof Anne Hakansson, Prof. Ronald Hartung
<b>IS02</b>	Intelligent Information Processing for Educational Innovations	Assoc. Prof. Daocheng Hong
<b>IS03</b>	Recent Advances in Numerical Modelling and Recognition Techniques	Prof Margarita Favorskaya, Prof. Lakhmi C. Jain
<b>IS04</b>	Networks for Innovation, Knowledge Creation and Sharing	Prof. Shuichiro Yamamoto, Prof. Hironori Takeuchi
<b>IS05</b>	Intelligent Digital Architectures	Prof. Alfred Zimmermann, Prof. Hironori Takeuchi
<b>IS06</b>	Recent Advances in Biometric Technology	Assoc. Prof. Dzati Athiar Ramli, Assoc. Prof. Bakhtiar Affendi Rosdi, Assoc. Prof. Haidi Ibrahim
<b>IS07</b>	Interdisciplinary Approaches in Data Science and Digital Transformation Practice (IADSDTP 2020)	Prof. Ivan Luković, Prof. Ralf-Christian Harting
<b>IS08</b>	Collaboration in Software and System Engineering	Dr Maria Spichkova, Dr. Milan Simic
<b>IS09</b>	Eye Movement Data Processing and Analysis (EMDPA)	Dr. Pawel Kasprowski, Dr. Katarzyna Harezlak
<b>IS10</b>	Chance Discovery and Market of Data	Prof. Akinori Abe, Prof. Yukio Ohsawa, Prof. Noriyuki Kushiro
<b>IS11</b>	The 2nd International Symposium on Metaheuristics and Multiagent models for Flexible Manufacturing Systems	Dr. Housseem Eddine Nouri, Dr. Olfa Belkahla Driss
<b>IS12</b>	Knowledge-Based Systems for e-Business	Prof. Kazuhiko Tsuda, Prof. Masakazu Takahashi, Prof. Nobuo Suzuki
<b>IS13</b>	Software Engineering and Large-Scale Systems	Prof. Sergey Zykov

Code	Session	Session Chair
<b>IS14</b>	Bioengineering Applications	Dr Milan Simic, Dr. Maria Spichkova
<b>IS15</b>	Cybercrime Investigation and Digital Forensics	Assoc. Prof. Da-Yu Kao, Assist. Prof. Fuching Tsai
<b>IS16</b>	Knowledge-management and knowledge-based systems for configuration, self-assessment and training in medical home care	Prof. Ralf Seepold, Assoc. Prof. Margarita Stankova
<b>IS17</b>	Artificial Intelligence for autonomous navigation and robotics	Prof. Laurent Vercoeur, Assoc. Prof. Samia Ainouz
<b>IS18</b>	Classification, forecasting and decision support	Dr. Wojciech Froelich, Dr. Petr Hajek
<b>IS19</b>	New Generation Computing in Engineering, Life Science and Economy	Dr. Piotr Nikonczuk, Prof. Elisabeth Rakus-Andersson
<b>IS20</b>	Preventing risks and analysing events through social media analysis	Prof. Josiane Mothe
<b>IS21</b>	Global and Constrained Optimization: Algorithms and Applications	Prof. Abdellah Chehri, Prof. Gwanggil Jeon, Prof. Paul Fortier
<b>IS22</b>	Knowledge Management and Intelligent Interaction in Autonomous and Embedded Systems	Prof. Radosław Katarzyniak, Prof. Janusz Sobecki, Prof. Ziemowit Malecha
<b>IS23</b>	Interactive Linguistics for Agent and Multiagent Systems	Prof. Radosław Katarzyniak, Prof. Velina Slavova, Prof. Yasuhiro Katagiri, Prof. Andre Włodarczyk
<b>IS24</b>	Immunity-Based Systems: Resilience with AI	Prof. Yoshiteru Ishida, Prof. Takeshi Okamoto
<b>IS25</b>	Smart Education: Learning environment using technology	Prof. Nobuyuki Ogawa, Prof. Hideyuki Kanematsu, Prof. Kuniaki Yajima, Assist. Prof. Katsuko T. Nakahira, Prof. Kazunori Nishino
<b>IS26</b>	Knowledge and data engineering in medicine and health care	Assoc. Prof. Krzysztof Pancerz, Assist. Prof. Wiesław Paja, Assoc. Prof. Catalin Stoean
<b>IS27</b>	Contemporary issues in Informatics Education	Assoc. Prof. Hiroko Kanoh, Prof. Kyota Aoki

Code	Session	Session Chair
<b>IS28</b>	Neuroscience techniques and quantitative methods in supporting decision making	Prof. Kesra Nermend, Prof. Waldemar Tarczynski, Prof. Edyta Rudawska, Prof. Malgorzata Latuszynska
<b>IS29</b>	Skill Acquisition and Ubiquitous Human Computer Interaction	Assoc. Prof. Masato Soga, Assist. Prof. Hirokazu Miura, Prof. Hirokazu Taki
<b>IS30</b>	Networking and Artificial Intelligence for Aerial Monitoring Systems: Design, Operation, Performance Analysis, and Future Directions	Dr. Abolfazl Razi, Dr. Francesco Malandrino
<b>IS31</b>	Knowledge Management and Smart Systems	Dr. Cesar Sanin
<b>IS32</b>	Knowledge-based Learning and Education Support System: Design and Function	Prof. Tomoko Kojiri, Dr. Yuki Hayashi
<b>IS33</b>	Computational Intelligence System and its Application to Media Information Technology	Prof. Yuji Iwahori, Prof. Yoshinori Adachi, Prof. Nobuhiro Inuzuka, Assist. Prof. Ryosuke Yamanishi
<b>IS34</b>	Service-oriented Data Science	Prof. Katsutoshi Yada, Prof. Takahira Yamaguchi
<b>IS35</b>	AI, Robotics, and Human Machine Systems (IROHMS) for smart manufacturing	Dr. Ze Ji, Prof. Wenjun Xu, Dr. Guoliang Liu, Prof. Rossi Setchi
<b>IS36</b>	AI, Robotics, and Human Machine Systems (IROHMS) for Medical and Healthcare Applications	Dr. Yulia Hicks, Dr. Hiroharu Kawanaka, Prof. Rossi Setchi
<b>IS37</b>	Effect of Modern Technologies in our Lives	Assoc. Prof. Adrian Iftene, Prof. Lenuta Alboaie
<b>IS38</b>	Cyber Security and Forensics	Dr. Esmiralda Moradian, Prof. Oliver Popov
<b>IS39</b>	Intelligent Decision-making to enhance business processes	Assoc. Prof. Beulah Moses
<b>IS40</b>	Signal Processing Algorithms and Pattern Recognition Techniques for Automated Identification/Classification Systems	Dr. Paolo Crippa, Prof. Claudio Turchetti

## Plenary Talks

### Prof Guido Governatori

La Trobe University, Australia

#### *Digital Legislation*

**Abstract:** The talk will address the issue of digital legislation, the idea that norms are formulated in a format that is at the same time understandable by humans and processable by computers. Processable in the sense that given the facts of a case it is possible to compute what are the legal requirements (obligations, prohibitions, permissions,...) in force for the case and, whether they have been complied with or violated. We provide a quick overview of the theoretical foundation to make this possible; furthermore, we discuss the benefits of such an approach and the challenges it faces.



**Biography:** Guido Governatori is a senior principal researcher at CSIRO's Data61 where he leads the Software Systems Research Group and a research professor at La Trobe University Law School. He received his PhD in Legal Informatics from the University of Bologna. His research expertise includes non-classical and modal logics for normative reasoning, and their applications to agents and business processes. His work on business process compliance started this novel field and his

seminal paper received in 2017 the BPM test of time award as one of the most influential papers in the business process management discipline. In 2015 he won the Australian Computer Society Gold Award for the researcher of the Australian researcher of the year in computer science.

**Prof Yukio Ohsawa**

University of Tokyo, Japan

***Beyond Explainable Learning to Explanatory Intelligence - A Systems Innovation Approach on Data Jackets -***

**Abstract:** The recent endeavors of researchers in artificial intelligence for explainable machine learning imply users still suffer the difficulty in understanding what/how the machine learned. The tools with AI for making the real world dealable may rather make things unclear for humans, and the decisions of humans nowadays may be rather influenced by incomprehensible logic. On the other hand, an important role of AI is to explain events and changes -- which may affect a human's life and why that happened and affects. In this talk, the speaker talks about the requirements of participants so far in the data marketplace organized using Data Jackets, to reveal participants' desire to computational intelligence for explaining events or changes. This is intended to go quite beyond the scope of learning from available data, toward the development of methods for human-machine interaction to reach the latent causalities involving events out of available or in unreachable data.



**Biography:** Yukio Ohsawa is a professor of Systems Innovation in the School of Engineering. He received BE, ME, and PhD from the School of Engineering, The University of Tokyo (1995). Then worked for the School of Engineering Science at Osaka University (research associate, 1995-1999), Graduate School of Business Sciences at University of Tsukuba (associate professor, 1999-2005), and moved back to The Univ. of Tokyo. He started researches from non-linear optics, and, via artificial

intelligence, created a new domain chance discovery meaning to discover events of significant impact on decision making, since year 2000. About chance discovery he gave keynote talks in conferences, e.g., Knowledge-Based Intelligent Information and Engineering Systems, International Symposium on Knowledge and Systems Sciences, Int'l Conf. on Rough Sets and Fuzzy Sets, Joint Conf. on Information Sciences, etc. Chance discovery came to be embodied as innovators' marketplace, a methodology for innovation borrowing principles of the dynamics of markets. Then he, when biking from his job in a business school, invented the basic idea of Data Jackets as a new tool for enhancing chance discoveries via combining data from various data owners. Since then, he is introducing the method presented in this book to sciences, educations, and businesses. His original concepts and technologies have been published as books and monographs from global publishers such as Springer Verlag, Taylor & Francis, etc. Four of the most important books among them, for this talk, are "Chance Discovery" (2003

Springer, foreword given by Eric von Hippel), "Innovators' Marketplace: Using Games to Activate and Train Innovators" (2012 Springer, foreword given by Larry Leifer), and "Living Beyond Data" (Springer) and "Tools for Activating Data Marketplace" (Springer) being now edited by the speaker and his co-editor. Also, he edited special issues as guest editors for journals, mainly relevant to chance discovery, such as Intelligent Decision Technologies (2016), Information Sciences (2009), New Generation Computing (2003), Journal of Contingencies and Crisis Management (2002), etc. As the program chair of the Annual Conference of The Japanese Society on Artificial Intelligence, he is the first to change this domestic conference into an international conference from June 2019. He is also in the editorial board of Information, The Review of Socionetwork Strategies, International Journal of Computer Information Systems and Industrial Management Applications, etc., and is an academic member of KES Focus Group on Intelligent Decision Technologies.

**Dr Urszula Stańczyk**

Silesian University of Technology, Poland

### ***On the uniqueness of writing styles - Problems and tasks of stylometry***

**Abstract:** Stylometry advocates that no two people can express their thoughts in writing in the same way, that originality of human beings manifests itself also in our linguistic preferences and habits. The choices we make with respect to employed vocabulary, construction of sentences, used punctuation marks, are so individual that not only writer characterisation and comparison is possible, but also sufficiently reliable authorship attribution. Stylometric characteristic features can be applied to confirm true authorship of disputed historical texts, to help in forensic investigations with identification of document forgery or plagiarism, for literary, social or gender studies. Nowadays a text can take a multitude of forms, which poses one of the challenges in stylometric processing, while others include recognition of ghost writers, adopting a style, changes of style over time, collaborations of several authors. Contemporary stylometric analysis bases on observations drawn from the constantly growing corpus of texts available through the Internet, relies heavily on computers, exploits statistical calculations, and implements methods and techniques from artificial intelligence domain.

Starting with comments on fundamental stylometric notions, this keynote will discuss some of widely used practices for input data preparation and processing, evaluation of effectiveness and performance, and provide illustration of problems with selected case studies.



**Biography:** Urszula Stańczyk received the M.Sc. degree in Computer Science, and Ph.D. degree (with honours) in technical sciences with specialisation in Informatics from the Silesian University of Technology (SUT), Gliwice, Poland. Her doctoral dissertation addressed application of elements from Boolean algebra to pre-processing of digital images. An Assistant Professor at the Institute of Informatics, SUT, till 2018, currently she is a Senior Lecturer in the Department of Graphics, Computer Vision, and Digital Systems, SUT.

From 2003 to 2010 Editor-in-Chief of the "Activity Report" for the Institute of Informatics, Dr Stańczyk is a member of KES International ([www.kesinternational.org/](http://www.kesinternational.org/)), ADAA Group (<http://adaa.polsl.pl/>), MIR Labs (<http://www.mirlabs.org/>), International Rough Set Society (<http://www.roughsets.org/>), and a member of the Editorial Board of Intelligent Decision Technologies: An International Journal (<http://www.iospress.nl/journal/intelligent-decision-technologies/>). She is a member of Programme Committees for many scientific conferences, and one of key persons



responsible for establishing a series of *International Conferences on Man-Machine Interactions (ICMMI)*. She co-chaired Invited Sessions on Intelligent Data Analysis and Applications.

Her research interests include artificial intelligence, pattern recognition and classification, neural and rough processing, feature extraction, selection and reduction, induction of decision rules, rule quality measures and filtering, stylometric processing of texts, data mining.

She co-edited conference proceedings, and two multi-authored monographs on feature selection, authored and co-authored a two-volume monograph on synthesis and analysis of logic circuits, academic textbooks dedicated to arithmetic of digital systems, book chapters, conference papers, and journal articles focused on various applications of computational intelligence techniques to stylometry.

## Timetable – Wednesday 16 September

	Room 1	Room 2	Room 3	Room 4	Room 5	Room 6
9:00 - 9:15 BST	<b>Opening Ceremony</b> <b>Prof Robert J Howlett &amp; Prof Lakhmi Jain</b>					
9:15 - 10:15 BST	<b>Keynote Speaker 1</b> <b>Dr. Guido Governatori</b> <b>Data61, Dutton Park, Australia</b> <b>Digital Legislation</b>					
10:30 - 12:30 BST	<b>G01-A:</b> <b>Machine Learning, Artificial Neural Networks and Deep Learning</b> <b>Chair: Prof Cecila Zanni-Merk</b>	<b>G02-A:</b> <b>Knowledge Based and Expert Systems</b> <b>Chair: Prof Anne Hakansson</b>	<b>G03a-A:</b> <b>Intelligent Information and Engineering Systems</b> <b>Chair: Prof Ron Hartung</b>	<b>G04-A:</b> <b>Industry Applications</b> <b>Chair: Dr Carlos Toro</b>	<b>WS01-A:</b> <b>3rd Symposium on Information Systems and Technologies for Management, Economy and Decision Making</b> <b>Chair: Dr. Wojciech Salabun</b>	<b>IS25-A:</b> <b>Smart Education: Learning environment using technology</b> <b>Chair: Prof. Nobuyuki Ogawa</b>

	Room 1	Room 2	Room 3	Room 4	Room 5	Room 6
<b>14:00 - 16:00 BST</b>	<b>G01-B:</b> Machine Learning, Artificial Neural Networks and Deep Learning Chair: Prof Cecilia Zanni-Merk	<b>G02-B:</b> Knowledge Based and Expert Systems Chair: Prof Anne Hakansson	<b>G03a-B:</b> Intelligent Information and Engineering Systems Chair: Prof Ron Hartung	<b>G04-B:</b> Industry Applications Chair: Dr Carlos Toro	<b>WS01-B:</b> 3rd Symposium on Information Systems and Technologies for Management, Economy and Decision Making Chair: Dr. Wojciech Salabun	<b>IS09:</b> Eye Movement Data Processing and Analysis (EMDPA) Chair: Dr. Pawel Kasprowski

	Room 7	Room 8	Room 9	Room 10	Room 11	Room 12
9:00 - 9:15 BST	<b>Opening Ceremony</b> <b>Prof Robert J Howlett &amp; Prof Lakhmi Jain</b>					
9:15 - 10:15 BST	<b>Keynote Speaker 1</b> <b>Dr. Guido Governatori</b> <b>Data61, Dutton Park, Australia</b> <b>Digital Legislation</b>					
10:30 - 12:30 BST	<b>IS12:</b> <b>Knowledge-Based Systems for e-Business</b> <b>Chair: Prof. Kazuhiko Tsuda</b>	<b>IS14:</b> <b>Bioengineering Applications</b> <b>Chair: Dr. Milan Simic</b>	<b>IS04:</b> <b>Networks for Innovation, Knowledge Creation and Sharing</b> <b>Chair: Prof. Shuichiro Yamamoto</b>	<b>IS28-A:</b> <b>Neuroscience techniques and quantitative methods in supporting decision making</b> <b>Chair: Prof Kesra Nermend</b>	<b>IS10:</b> <b>Chance Discovery and Market of Data</b> <b>Chair: Prof Akinori Abe</b>	<b>IS24 &amp; IS34:</b> <b>Immunity-Based Systems: Resilience with AI &amp; Service-oriented Data Science</b> <b>Co-Chairs: Prof Yoshiteru Ishida &amp; Prof Katsutoshi Yada</b>

	Room 7	Room 8	Room 9	Room 10	Room 11	Room 12
<b>14:00 - 16:00 BST</b>	<b>IS20:</b> Preventing risks and analysing events through social media analysis Chair: Prof. Josiane Mothe	<b>IS21-A &amp; IS05:</b> Global and Constrained Optimization: Algorithms and Applications & Intelligent Digital Architectures Chair: Prof Abdellah Chehri & Prof. Alfred Zimmermann	<b>IS36:</b> AI, Robotics, and Human Machine Systems (IROHMS) for Medical and Healthcare Applications Chair: Dr Yulia Hicks	<b>IS28-B:</b> Neuroscience techniques and quantitative methods in supporting decision making Chair: Prof Kesra Nermend	<b>IS26:</b> Knowledge and data engineering in medicine and health care Chair: Assoc. Prof. Krzysztof Pancerz	<b>IS03-A:</b> Recent Advances in Numerical Modelling and Recognition Techniques Chair: Prof Margarita Favorskaya

## Timetable – Thursday 17 September

	Room 1	Room 2	Room 3	Room 4	Room 5	Room 6
9:00 - 10:00 BST	<p><b>Keynote Speaker 2</b>  <b>Prof Yukio Ohsawa</b>  <b>University of Tokyo, Japan</b>  <b>Beyond Explainable Learning to Explanatory Intelligence</b>  <b>- A Systems Innovation Approach on Data Jackets -</b></p>					
10:30 - 12:30 BST	<b>G01-C:</b> <b>Machine Learning, Artificial Neural Networks and Deep Learning</b> <b>Chair: Prof Cecila Zanni-Merk</b>	<b>G02-C:</b> <b>Knowledge Based and Expert Systems</b> <b>Chair: Prof Anne Hakansson</b>	<b>G03a-C:</b> <b>Intelligent Information and Engineering Systems</b> <b>Chair: Prof Ron Hartung</b>	<b>WS01-C:</b> <b>3nd Symposium on Information Systems and Technologies for Management, Economy and Decision Making</b> <b>Chair: Dr. Wojciech Salabun</b>	<b>WS01-D:</b> <b>3nd Symposium on Information Systems and Technologies for Management, Economy and Decision Making</b> <b>Chair: Assoc. Prof. Jaroslaw Watrobski</b>	<b>WS01-E:</b> <b>3nd Symposium on Information Systems and Technologies for Management, Economy and Decision Making</b> <b>Chair: Prof. Jaroslaw Jankowski</b>

	Room 1	Room 2	Room 3	Room 4	Room 5	Room 6
13:00 - 14:00 BST	<p><b>Keynote Speaker 3</b>  <b>Dr Urszula Stańczyk</b>  <b>Silesian University of Technology, Poland</b>  <b>On the uniqueness of writing styles</b>  <b>- Problems and tasks of stylometry</b></p>					
14:30 - 16:30 BST	<b>G01-D:</b> <b>Machine Learning, Artificial Neural Networks and Deep Learning</b> <b>Chair: Prof Cecila Zanni-Merk</b>	<b>G02-D:</b> <b>Knowledge Based and Expert Systems</b> <b>Chair: Prof Anne Hakansson</b>	<b>G03a-D:</b> <b>Intelligent Information and Engineering Systems</b> <b>Chair: Prof Ron Hartung</b>	<b>WS01-F:</b> <b>3nd Symposium on Information Systems and Technologies for Management, Economy and Decision Making</b> <b>Chair: Dr. Wojciech Salabun</b>	<b>WS01-G:</b> <b>3nd Symposium on Information Systems and Technologies for Management, Economy and Decision Making</b> <b>Chair: Assoc. Prof. Jaroslaw Watrobski</b>	<b>WS01-H:</b> <b>3nd Symposium on Information Systems and Technologies for Management, Economy and Decision Making</b> <b>Chair: Prof. Jaroslaw Jankowski</b>

	Room 7	Room 8	Room 9	Room 10	Room 11	Room 12
9:00 - 10:00 BST	<p><b>Keynote Speaker 2</b>  <b>Prof Yukio Ohsawa</b>  <b>University of Tokyo, Japan</b>  <b>Beyond Explainable Learning to Explanatory Intelligence</b>  <b>- A Systems Innovation Approach on Data Jackets -</b></p>					
10:30 - 12:30 BST	<p><b>IS12:</b>  <b>Knowledge-Based Systems for e-Business</b>  <b>Chair: Prof. Kazuhiko Tsuda</b></p>	<p><b>IS08:</b>  <b>Collaboration in Software and System Engineering</b>  <b>Chair: Dr Maria Spichkova</b></p>	<p><b>IS07:</b>  <b>Interdisciplinary Approaches in Data Science and Digital Transformation Practice (IADSDTP 2020)</b>  <b>Chair: Prof Ivan Lukovic</b></p>	<p><b>IS03-B:</b>  <b>Recent Advances in Numerical Modelling and Recognition Techniques</b>  <b>Chair: Prof Margarita Favorskaya</b></p>	<p><b>IS02-A:</b>  <b>Intelligent Information Processing for Educational Innovations</b>  <b>Chair: Assoc. Prof. Daocheng Hong</b></p>	<p><b>IS15:</b>  <b>Cybercrime Investigation and Digital Forensics</b>  <b>Chair: Assoc. Prof. Da-Yu Kao</b></p>



	Room 7	Room 8	Room 9	Room 10	Room 11	Room 12
13:00 - 14:00 BST	<p><b>Keynote Speaker 3</b>  <b>Dr Urszula Stańczyk</b>  <b>Silesian University of Technology, Poland</b>  <b>On the uniqueness of writing styles</b>  <b>- Problems and tasks of stylometry</b></p>					
14:30 - 16:30 BST	<p><b>IS13- A:</b>  <b>Software Engineering and Large-Scale Systems</b>  <b>Chair: Prof. Sergey Zykov</b></p>	<p><b>IS21-B:</b>  <b>Global and Constrained Optimization: Algorithms and Applications</b>  <b>Chair: Prof Abdellah Chehri</b></p>	<p><b>IS35:</b>  <b>AI, Robotics, and Human Machine Systems (IROHMS) for smart manufacturing</b>  <b>Chair: Dr Ze Ji</b></p>	<p><b>IS28-C:</b>  <b>Neuroscience techniques and quantitative methods in supporting decision making</b>  <b>Chair: Prof Kesra Nermend</b></p>	<p><b>IS22:</b>  <b>Knowledge Management and Intelligent Interaction in Autonomous and Embedded Systems</b>  <b>Chair: Prof. Radosław Katarzyniak</b></p>	<p><b>IS37-A:</b>  <b>Effect of Modern Technologies in our Lives</b>  <b>Chair: Assoc. Prof. Adrian Iftene</b></p>

## Timetable – Friday 18 September

	Room 1	Room 2	Room 3	Room 4	Room 5	Room 6
9:30 - 11:30 BST	<b>G01-E:</b> Machine Learning, Artificial Neural Networks and Deep Learning Chair: Prof Cecila Zanni-Merk	<b>G02-E:</b> Knowledge Based and Expert Systems Chair: Prof Anne Hakansson	<b>G03b:</b> Cybersecurity Chair: Prof Michael Soltys	<b>G03a-E:</b> Intelligent Information and Engineering Systems Chair: Prof Ron Hartung	<b>WS01-I:</b> 3rd Symposium on Information Systems and Technologies for Management, Economy and Decision Making Chair: Dr. Wojciech Salabun	<b>IS19-A:</b> New Generation Computing in Engineering, Life Science and Economy Chair: Dr. Piotr Nikonczuk

	Room 1	Room 2	Room 3	Room 4	Room 5	Room 6
13:30 - 15:30 BST	<b>G01-F:</b> Machine Learning, Artificial Neural Networks and Deep Learning Chair: Prof Cecila Zanni-Merk	<b>G01-G:</b> Machine Learning, Artificial Neural Networks and Deep Learning	<b>IS01:</b> Cyber-Physical Systems and Smart Internet-of-Things Chair: Prof Anne Hakansson	<b>IS19-B:</b> New Generation Computing in Engineering, Life Science and Economy Chair: Dr. Piotr Nikonczuk	<b>WS01-J:</b> 3rd Symposium on Information Systems and Technologies for Management, Economy and Decision Making Chair: Dr. Wojciech Salabun	<b>IS13- B:</b> Software Engineering and Large-Scale Systems Chair: Prof. Sergey Zykov
15:30 - 15:45 BST	Closing Ceremony					

	Room 7	Room 8	Room 9	Room 10	Room 11	Room 12
9:30 - 11:30 BST	<b>IS25-B:</b> <b>Smart Education: Learning environment using technology</b> <b>Chair: Prof. Nobuyuki Ogawa</b>	<b>IS33:</b> <b>Computational Intelligence System and its Application to Media Information Technology</b> <b>Chair: Prof Yuji Iwahori</b>	<b>IS16-A:</b> <b>Knowledge-management and knowledge-based systems for configuration, self-assessment and training in medical home care</b> <b>Chair: Prof Ralf Seepold</b>	<b>IS18-A:</b> <b>Classification, forecasting and decision support</b> <b>Chair: Dr. Wojciech Froelich</b>	<b>IS02-B &amp; IS29:</b> <b>Intelligent Information Processing for Educational Innovations &amp; Skill Acquisition and Ubiquitous Human Computer Interaction</b> <b>Chair: Assoc. Prof. Daocheng Hong &amp; Assoc. Prof. Masato Soga</b>	<b>IS37-B:</b> <b>Effect of Modern Technologies in our Lives</b> <b>Chair: Assoc. Prof. Adrian Iftene</b>

	Room 7	Room 8	Room 9	Room 10	Room 11	Room 12
13:30 - 15:30 BST	<b>IS16-B:</b> Knowledge-management and knowledge-based systems for configuration, self-assessment and training in medical home care Chair: Prof Ralf Seepold	<b>IS03-C &amp; IS31:</b> Recent Advances in Numerical Modelling and Recognition Techniques & Knowledge Management and Smart Systems Chair: Prof Margarita Favorskaya & Dr. Cesar Sanin	<b>IS28-D:</b> Neuroscience techniques and quantitative methods in supporting decision making Chair: Prof Kesra Nermend	<b>IS18-B:</b> Classification, forecasting and decision support Chair: Dr. Wojciech Froelich	<b>IS23:</b> Interactive Linguistics for Agent and Multiagent Systems Chair: Prof. Radosław Katarzyniak	
15:30 - 15:45 BST	Closing Ceremony					

## Presentation Schedule – General Tracks

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

Chair: Prof Cecilia Zanni-Merk

Wednesday 16 Sept: 10:30 - 12:30 BST

Room 1

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20gen-005</b>	Video scenes segmentation base on multimodal genre prediction Phd Student Mohamed Bouyahi, University Lecturer Yassine Ben Ayed
<b>k20gen-010</b>	GEP-based classifier with drift detection for mining imbalanced data streams Prof. Jedrzejowicz Joanna, Prof. Jedrzejowicz Piotr
<b>k20gen-015</b>	An interpretable model to measure fakeness and emotion in news Dr Guillaume Gadek, Mr Paul Guélorget
<b>k20gen-026</b>	Multidimensional medical data modeling based on fuzzy cognitive maps and k-means clustering Phd Katarzyna Poczeta, Msc Lukasz Kubus, Prof. Alexander Yastrebov
<b>k20gen-027</b>	Travel Time Prediction in Missing Data Areas Dr Elmi Sayda, Pr Tan Kian-lee
<b>k20gen-030</b>	Cross-lingual deep neural transfer learning in sentiment analysis Mr Kamil Kanclerz, Mr Jan Kocon, Mr Piotr Milkowski
<b>k20gen-035</b>	Multidimensional Decision Tree Splits to Improve Interpretability Dr. Frank Höppner

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

Chair: Prof Cecilia Zanni-Merk

Wednesday 16 Sept: 14:00 - 16:00 BST

Room 1

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20gen-042</b>	An improved BiGAN based approach for anomaly detection Msc. Student M. Oguz Kaplan, Assoc. Prof. S. Emre Alptekin
<b>k20gen-044</b>	Condensed Silhouette: An Optimized Filtering Process for Cluster Selection in K-Means Mr Alireza Naghizadeh, Dr Dimitris Metaxas
<b>k20gen-046</b>	Genetic Algorithms for Finding Episodes in Temporal Networks Phd Mohammad Mehdi Hosseinzadeh, Professor Mauro Castelli, Professor Riccardo Dondi
<b>k20gen-055</b>	Speech Emotion Recognition with deep learning Dr Hadhami Aouani, Pr Yassine Ben Ayed
<b>k20gen-058</b>	KISS: an EBM-based approach for explaining deep models Doctoral Student Quexuan Zhang, Professor Yukio Ohsawa
<b>k20gen-063</b>	RadRAR: A relational association rule mining approach for nowcasting based on predicting radar products' values Phd. Student Andrei Mihai, Phd. Gabriela Czibula, Phd. István Czibula

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

Chair: Prof Cecilia Zanni-Merk

Thursday 17 Sept: 10:30 - 12:30 BST

Room 1

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20gen-069</b>	Deep Learning for Classification of Radiology Reports with a Hierarchical Schema Dr Luca Putelli, Prof. Alfonso Gerevini, Dr. Alberto Lavelli, Dr. Matteo Olivato, Prof. Ivan Serina
<b>k20gen-073</b>	Human Action Recognition Using Laban Movement Analysis and Dynamic Time Warping Phd Student Zahra Ramezanpanah, Research Eng Frederic Davesne, Professor Malik Mallem
<b>k20gen-077</b>	A Resampling Method for Imbalanced Datasets Considering Noise and Overlap Mr Taisho Sasada, Mr Tokiya Baba, Prof. Kenji Hatano, Mr Yusuke Kimura, Mr Zhaoyu Liu
<b>k20gen-079</b>	Svm for human identification using the ECG signal Dr Sihem Hamza, Pr Yassine Ben Ayed
<b>k20gen-081</b>	Towards inductive learning of surgical task knowledge: a preliminary case study of the peg transfer task Mr Daniele Meli, Prof Paolo Fiorini, Prof Mohan Sridharan
<b>k20gen-087</b>	Split-Merge Evolutionary Clustering for Multi-View Streaming Data Ms. Vishnu Manasa Devagiri, Professor Veselka Boeva, Senior Researcher Elena Tsiorkova



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

Chair: Prof Cecilia Zanni-Merk

Thursday 17 Sept: 14:30 - 16:30 BST

Room 1"

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20gen-089</b>	How are you? How a Robot can Learn to Express its own Roboceptions Dr. Giovanni Pilato, Dr. Agnese Augello, Dr. Umberto Maniscalco, Prof. Rosa Meo, Ms. Irene Trifirò, Dr. Filippo Vella
<b>k20gen-106</b>	Hyperspectral Feature Extraction by Tensor Modeling and Intrinsic Decomposition Dr Asma Fejjari, Pr. Ouajdi Korbaa, Dr. Karim Saheb Ettabaa
<b>k20gen-119</b>	A Generic approach for Pronominal Anaphora and Zero Anaphora resolution in Arabic language Phd Student Saoussen Mathlouthi Bouzid, Professor Chiraz Ben Othmane Zribi
<b>k20gen-121</b>	Optimization of Convolutional Neural Networks for Imbalanced Set Classification Dr. Iren Valova, Dr. Natacha Gueorguieva, Mr. Christopher Harris, Mr. Tony Mai
<b>k20gen-125</b>	Deep Neural Networks for Low-Cost Eye Tracking Mr. Ildar Rakhmatulin, Mr. Andrew Duchowski
<b>k20gen-131</b>	Psychosocial risk management Professor Henrique Vicente, Professor Liliana Ávidos, Dr Ana Fernandes, Professor Margarida Figueiredo, Professor José Neves, Professor Dinis Vicente

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

Chair: Prof Cecilia Zanni-Merk

Friday 18 Sept: 9:30 - 11:30 BST

Room 1

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20gen-136</b>	Language-related features for early detection of Alzheimer Disease Phd Randa Ben Ammar, Dr Yassine Ben Ayed
<b>k20gen-142</b>	A disk failure prediction method based on LSTM network due to its individual specificit Master Student Lihan Hu, Professor Lixin Han, Doctor Tianming Jiang, Doctor Huijun Qi, Doctor Zhenyuan Xu
<b>k20gen-143</b>	EO-CNN: An Enhanced CNN Model Trained by Equilibrium Optimization for Traffic Transportation Prediction Dr. Nguyen Minh, Dr. Nguyen Giang, Ms.c. Nguyen Thieu
<b>k20gen-145</b>	Estimation of causal effect using propensity score and weighted-average method Mr. Otani Ryo, Prof. Yadohisa Hiroshi
<b>k20gen-146</b>	PWIDB: A framework for learning to classify imbalanced data streams with incremental data re-balancing technique Mr Rafiq Mohammed, Dr Mohd Fairuz Shiratuddin, Dr Xuequn Wang, Dr Kok-wai Wong
<b>k20gen-150</b>	Term Weight Algorithm Oriented Terms: Low Frequency Rather Than Little Occurrences Student Yiyi He, Student Yuhong Huang, Researcher Yanhuang Jiang, Professor Tiejun Li, Researcher Shijie Li

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

Chair: Prof Cecilia Zanni-Merk

Friday 18 Sept: 13:30 - 15:30 BST

Room 1

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20gen-152</b>	Combining Multi-task Learning with Transfer Learning for Biomedical Named Entity Recognition Mr. Tahir Mehmood, Dr. Alfonso Gerevini, Dr. Alberto Lavelli, Dr. Ivan Serina
<b>k20gen-159</b>	Intention Mining Data preprocessing based on Multi-Agents System Ms Hajer Bouricha, Mrs Arwa Benlashram Arwa, Sir Khaled Ghedira, Mrs Lobna Hsairi
<b>k20gen-162</b>	Evaluation of Machine Learning Techniques for Inflow Prediction in Lake Como, Italy Mr. Michele Pini, Mr. Mohammad Liaqat, Mr. Tahir Mehmood, Prof. Roberto Ranzi, Mr. Andrea Scalvini, Dr. Ivan Serina
<b>k20gen-167</b>	Multi-view Human Action Recognition Based on TSN Architecture Integrated with GRU Mr Vu Bui, Ms Oanh Nguyen
<b>k20gen-173</b>	SCoRMiner: Automated Discovery of Network Service and Application Dependencies using a graph mining approach Phd Student Sarra Slimani, Professor Faouzi Ben Charrada, Professor Tarek Hamrouni
<b>k20gen-174</b>	Evaluating different Natural Language Understanding services in a real business case for the Italian language Ph.d. Student Matteo Zubani, Prof. Alfonso Emilio Gerevini, Prof. Ivan Serina, Mr Luca Sigalini

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

Chair: Dr. Carlos Toro

Friday 18 Sept: 13:30 - 15:30 BST

Room 2

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20gen-176</b>	Influencing web customers. Deep learning practical application Dr Germanas Budnikas, Mr Lukas Marculanas
<b>k20gen-177</b>	An Evolutionary Distributed Framework for Projection Pursuit Msc Robert-mihail Ungureanu, Phd Mihaela Elena Breaban
<b>k20gen-178</b>	A Hybrid Approach Combining Contractive Autoencoder and Restricted Boltzmann Machine to Differentiate Representation of Female Brain Disorder Dr Abeer M.Mahmoud
<b>k20gen-185</b>	Acoustic features exploration and examination for voice spoofing counter measures with boosting machine learning techniques Student Raoudha Rahmeni, Maître Assistant Anis Ben Aicha, Maitre Conference Yassine Ben Ayed
<b>k20gen-197</b>	Bimodal person recognition using dorsal-vein and finger-vein images Phd Student Amal Abbes, Professor Yassine Ben Ayed, Assistant Professor Randa Boukhris Trabelsi
<b>k20gen-198</b>	Does data cleaning improve heart disease prediction? Student Hafsa Lattar, Doctor Aicha Ben Salem, Professor Henda Hajjami Ben Ghezala

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

Chair: Prof. Anne Hakansson

Wednesday 16 September: 10:30 - 12:30 BST

Room 2

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20gen-007</b>	COMET: A conceptual coupling based metrics suite for software defect prediction Phd Student Diana-Lucia Mihalca, Phd Gabriela Czibula, Phd Student Vlad Tomescu
<b>k20gen-012</b>	Revisiting Object-Rule Fusion in Query Languages Professor Andrzej Szalas
<b>k20gen-041</b>	Experiments on iris recognition using SURF descriptors, texture and a repetitive method Mrs. Anca Ignat, Mr. Ioan Pavaloi
<b>k20gen-065</b>	Rule-Based Machine Translation from Tunisian Dialect to Modern Standard Arabic Phd Mohamed Ali Sghaier, Prof Mounir Zrigui
<b>k20gen-068</b>	Extensions of the Tourist Travel Design Problem for different travel styles Dr Laura Sebastia, Dr Eliseo Marzal
<b>k20gen-085</b>	Dealing with Biology Systems in the Framework of Answer Set Programming Phd Tarek Khaled, Phd Belaid Benhamou

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

Chair: Prof. Anne Hakansson

Wednesday 16 September: 14:00 - 16:00 BST

Room 2

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20gen-092</b>	A multidimensional framework to study accessible guidance in u-learning systems for disabled learners Phd Student Nesrine BenSalah, Professor Henda Ben Ghezala, Assistant Professor Ines Bayoudh Saadi
<b>k20gen-095</b>	Modelling Consumer Knowledge: the Role of Ontology Dr. Dmitry Kudryavtsev, Prof. Tatiana Gavrilova, Ms. Ksenia Golovacheva, Dr. Maria Smirnova
<b>k20gen-097</b>	Temporal-fault diagnosis for critical-decision making in discrete-event systems Prof. Gianfranco Lamperti, Ing. Nicola Bertoglio, Prof. Marina Zanella, Prof. Xiangfu Zhao
<b>k20gen-098</b>	Multiobjective Two-level Simple Recourse Programming Problems with Discrete-type LR Fuzzy Random Variables Prof. Hitoshi Yano
<b>k20gen-102</b>	A Spatial-Temporal Model for Event Detection in Social Media Mr. Serban Boghiu, Dr Gifu Daniela
<b>k20gen-116</b>	VR Training for Railway Wagons Maintenance: architecture and implementation Mr Alexandr Nikitin, Mrs Olesya Karelova, Mrs Nina Reshetnikova, Mr Ivan Sitnikov

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

Chair: Prof. Anne Hakansson

Thursday 17 September: 10:30 - 12:30 BST

Room 2

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20gen-126</b>	A Filtering Process to Enhance Topic Detection and Labelling Phd Student Amal Trifa, Associate Professor Aroua Hedhili, Professor Wided Lejouad Chaari
<b>k20gen-129</b>	Contextual ontology for tonality assessment Dr Wojciech Waloszek, Dr Nina Rizun
<b>k20gen-130</b>	Improving the Performance of Ontological Querying by using a Contextual Approach Dr Wojciech Waloszek, Dr Aleksander Waloszek
<b>k20gen-135</b>	Towards a Modern Ontology Development Environment Dr Patryk Burek, Mr Filip Pietron, Mr Adrian Stadnicki
<b>k20gen-137</b>	An efficient roadside unit deployment method for vehicular ad-hoc networks Phd Student Seif Ben Chaabene, Professor Sadok Ben Yahia, Associate Professor Taoufik Yefereny
<b>k20gen-140</b>	An incremental approach to update influential nodes in dynamic social networks Phd Student Nesrine Hafiene, Prof Lotfi Ben Romdhane, Dr Wafa Karoui

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

Chair: Prof. Anne Hakansson

Thursday 17 September: 14:30 - 16:30 BST

Room 2

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20gen-147</b>	Supply Chain and ICT Issues of Estonia: Survey Findings Prof. Olli-pekka Hilmola, Mr. Ain Kiisler, Dr. Tomi Solakivi
<b>k20gen-154</b>	Improved Overlapping Community Detection in Networks based on Maximal Cliques Enumeration Student Hadhemi Boubaker, Dr Wafa Karoui
<b>k20gen-155</b>	Sequential Recommendation System Clustering Genres with Markov Chains Student Fatma Mlika, Dr Wafa Karoui
<b>k20gen-158</b>	Behaviour recognition of planning agents using Behaviour Trees Master Stanislav Sitanskiy, Dr Eva Onaindia, Dr Laura Sebastia
<b>k20gen-164</b>	A real-time Decision Support System for Big Data Analytic: A case of Dynamic Vehicle Routing Problems Phd Student Ines Sbaj, Pr Saoussen Krichen
<b>k20gen-169</b>	PRUCARS: improved association rule-based social recommender systems using overlapping community detection Ph.d student Imen Ben El Kouni, Professor Lotfi Ben Romdhane, Doctor Wafa Karoui



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

Chair: Prof. Anne Hakansson

Friday 18 September: 9:30 - 11:30 BST

Room 2

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20gen-172</b>	Choice of method imputation missing values for obstetrics clinical data Mrs. Olga Altukhova
<b>k20gen-175</b>	AGE-Learn: Ontology-Based Representation of Personalized Gamification in E-learning Mrs Souha Bennani, Prof. Henda Hajjami Ben Ghezala, Dr. Ahmed Maalel
<b>k20gen-181</b>	Case-based Reasoning for Crisis Response: Case Representation and Case Retrieval Mr. Walid Bannour, Prof. Henda Hajjami Ben Ghezala, Dr. Ahmed Maalel
<b>k20gen-192</b>	An explainable data-driven approach to web directory taxonomy mapping Miss Elena Daraio, Prof Luca Cagliero, Prof Silvia Chiusano, Prof Paolo Garza, Mr Giuseppe Ricupero
<b>k20gen-199</b>	Approach to Reasoning about Uncertain Temporal Data in OWL 2 Miss. Nassira Achich, Mr. Faiez Gargouri, Mrs. Fatma Ghorbel, Mr. Fayçal Hamdi, Mrs. Elisabeth Métais

**G03a-A: Intelligent Information and Engineering Systems**

Chair: Prof Ron Hartung

Wednesday 16 Sept: 10:30 - 12:30 BST

Room 3

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20gen-014</b>	Representation of Information and Satisfiability, Algorithms for Multi-Agent Logics Professor Vladimir Rybakov
<b>k20gen-022</b>	Concurrent phonetic transcription, lexical stress assignment and syllabification with deep neural networks Ms Beáta Lorincz
<b>k20gen-031</b>	QuadRoad: An Ensemble of CNNs for Road Segmentation Ms. Ahana Roy Choudhury, Dr. Piyush Kumar, Dr. Biswas Parajuli
<b>k20gen-033</b>	Transferable and self-learning Online Monitoring System for electrical household appliances M. Sc. Moritz Benninger, Prof. Dr.-ing. Martina Hofmann, Prof. Dr.-ing. Marcus Liebschner
<b>k20gen-049</b>	i-vector Evaluation of Electrocardiogram (ECG) Biometric Identification System based on Sequential Compensation Approach Assoc. Prof. Dr. Dzati Athiar Ramli, Ms Noor Salwani Ibrahim, Mr Reng Xian Tiong
<b>k20gen-051</b>	Multiple-Depot Vehicle Scheduling Problem Heuristics Lecturer Ph. D. Emanuel Florentin Olariu, Lecturer Ph. D. Cristian Frasinaru

***G03a-B: Intelligent Information and Engineering Systems***

Chair: Prof Ron Hartung

Wednesday 16 Sept: 14:00 - 16:00 BST

Room 3

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20gen-061</b>	Data-driven Interactive Multiobjective Optimization: Challenges and a Generic Multi-agent Architecture Dr. Bekir Afsar, Professor Kaisa Miettinen, Dr. Dmitry Podkopaev
<b>k20gen-066</b>	Event Nugget Detection using Pre-trained Language Models Phd Student Riadh Meghatria, Professor Chiraz Latiri, Professor Fahima Nader
<b>k20gen-070</b>	Ontology-based NLP information extraction to enrich nanomaterial environmental exposure database Mr Ali Ayadi, Mrs. Mélanie Auffan, Mr Jérôme Rose
<b>k20gen-071</b>	Using Bidirectional LSTM and Shortest Dependency Path for Classifying Arabic Temporal Relations Phd Haffar Nafaa, Assistant Professor Hkiri Emna, Professor Zrigui Mounir
<b>k20gen-088</b>	Unsupervised Edge Detector based on Evolved Cellular Automata Ms. Alina Enescu, Ms. Anca Andreica, Mrs. Laura Diosan, Ms. Delia Dumitru
<b>k20gen-096</b>	An ambiguous tag-based query reformulation technique for an effective semantic-based social image research Mme Mariam Bouchakwa, Mme Ikram Amous, Mr Yassine Ayadi

***G03a-C: Intelligent Information and Engineering Systems***

Chair: Prof Ron Hartung

Thursday 17 Sept: 10:30 - 12:30 BST

Room 3

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20gen-112</b>	Agent Collaboration in a Multi-Agent-System for Analysis and Optimization of Mechanical Engineering Parts Dr.-Ing. Paul Christoph Gembarski
<b>k20gen-115</b>	Combining textual features to detect cyberbullying in social media posts Dr Patricia Anthony, Dr Stuart Charters, Ms Meisy Fortunatus
<b>k20gen-118</b>	A Step Towards Preschoolers' Satisfaction Assessment Support by Facial Expression Emotions Identification Ms. Adriana Guran, Ms. Grigoreta Cojocar, Ms. Laura Diosan
<b>k20gen-120</b>	Representation of Knowledge by Decision Trees for Decision Tables with Multiple Decisions Dr. Mohammad Azad, Dr. Igor Chikalov, Professor Mikhail Moshkov
<b>k20gen-122</b>	Multi-Agent Logic's Modelling Non-Monotonic Information and Reasoning Prof Vladimir Rybakov
<b>k20gen-124</b>	Multi-Agent Task Allocation Based on the Learning of Managers and Local Preference Selections Ms. Yuka Ishihara, Prof. Toshiharu Sugawara

***G03a-D: Intelligent Information and Engineering Systems***

Chair: Prof Ron Hartung

Thursday 17 Sept: 14:30 - 16:30 BST

Room 3

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20gen-127</b>	Tabu-search optimization approach for no-wait hybrid flow-shop scheduling with dedicated machines Miss Houda Harbaoui, Madam Soulef Khalfallah
<b>k20gen-128</b>	Robustness analysis of transferable cellular automata rules optimized for edge detection Miss Delia Dumitru, Dr. Anca Andreica, Dr. Zoltan Balint, Dr. Laura Diosan
<b>k20gen-160</b>	SleepAge: Sleep Quality Assessment from Nocturnal Sound in Home Environment Dr. Wasin Kalintha, Dr. Ken-ichi Fukui, Dr. Takafumi Kato
<b>k20gen-161</b>	Software Reliability Prediction using Package Level Modularization metrics Lecturer Phd Camelia Serban, Assistant Profesor Shaikh Mohsin
<b>k20gen-163</b>	A formal representation of appraisal categories for social data analysis Dr Valentina Dragos, Prof. Delphine Battistelli, Mrs Emmanuelle Kelloudjoue
<b>k20gen-170</b>	Strategic Challenges for Platform-based Intelligent Assistants Prof. Dr. Alfred Zimmermann, Prof. Dr. Kurt Sandkuhl, Prof. Dr. Rainer Schmidt

***G03a-E: Intelligent Information and Engineering Systems***

Chair: Prof Ron Hartung

Friday 18 Sept: 9:30 - 11:30 BST

Room 4

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20gen-179</b>	Towards a Smarter Data dissemination strategy in connected environments Doctor Sabri Allani, Professor Richard Chbeir, Doctor Khoulood Salameh, Doctor Taoufik Yeferny
<b>k20gen-180</b>	A Lightweight Approach to the Multi-perspective Modeling of Processes and Objects Dr Patryk Burek, Prof. Heinrich Herre
<b>k20gen-188</b>	Recognizing human actions with multiple Fourier transforms M.sc. Katarzyna Gosciewska, Assoc. Prof. Dariusz Frejlichowski
<b>k20gen-191</b>	The General Shape Analysis applied for coarse classification of teeth shapes M.sc. Katarzyna Gosciewska, Assoc. Prof. Dariusz Frejlichowski
<b>k20gen-195</b>	Automatic profile recognition of authors on social media based on hybrid approach Phd Student Mourad Ellouze, Professor Lamia Hadrach Belguith, Assistant Seifeddine Mechti
<b>k20gen-200</b>	An Experimental Study on Sentiment Classification of Algerian Dialect Texts Miss Leila Moudjari, Ms Karima Akli-astouati

**G03b: Cybersecurity**

Chair: Prof Michael Soltys

Friday 18 Sept: 9:30 - 11:30 BST

Room 3

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20gen-006</b>	Rule Reduction after Knowledge Graph Mining for Cyber Situational Awareness Analysis Doctor Bin Liu, Phd Candidate Junfeng Wu, Professor Li Yao, Phd Candidate Xixi Zhu
<b>k20gen-013</b>	Cyber Diplomacy: A Systematic Literature Review PhD Student Amel Attatfa, Dr Stefano De Paoli, Prof Karen Renaud
<b>k20gen-018</b>	Malware Persistence Mechanisms Professor Michael Soltys, Mr Zane Gittins
<b>k20gen-020</b>	Voyager: Tracking with a Click Professor Michael Soltys, Mr. Samuel Decanio, Mr. Kimo Hildreth
<b>k20gen-108</b>	Intrusion Detection based on Graph oriented Big Data Analytics Master Student Ahlem Abid, Prof Assit Farah Jemili

**G04-A: Industry Applications**

Chair: Dr. Carlos Toro

Wednesday 16 Sept: 10:30 - 12:30 BST

Room 4

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20gen-038</b>	Comparison of Predictive Maintenance Methods for Thermal Systems B. Sc Christoph Kammerer, B. Sc Michael Gaust, Prof. Dr. Alexander Jesser, B. Sc Micha Küstner, Dipl. Ing (fh) Roman Radtke, M. Sc Pascal Starke
<b>k20gen-043</b>	Adaptive Interactive Displaying System for In-Vehicle Use Phd. Dragos Sburlan, Phd. Elena Bautu, Phd. Mircea Popovici, Phd. Crenguta Puchianu
<b>k20gen-056</b>	Enhancing Energy Efficiency of Wireless Sensor Network for Mining Industry Applications Dr Abdellah Chehri, Dr Nadir Hakem, Mrs Chaibi Hasna, Dr Saadane Rachid
<b>k20gen-062</b>	Sewer Deterioration Modeling: The Effect of Training a Random Forest Model on Logically Selected Data-groups Phd Stud., Msc Bolette Hansen, Phd, Msc David Jensen, Prof., Phd, Msc Thomas Moeslund, Phd, Msc Søren Rasmussen, Msc Mads Uggerby
<b>k20gen-067</b>	Sentiment Analysis of Indian Stock Market Volatility Dr Rajendra Paramanik, Mr. Vatsal Singhal
<b>k20gen-072</b>	A discrete planning approach in collision avoidance for smart ships Dr Agnieszka Lazarowska,
<b>k20gen-075</b>	Crack detection system in AWS Cloud using Convolutional neural networks Mrs Georgiana-Lucia Coca, Mr Serban-Mihai Botez, Mr Adrian Iftene, Mr Stefan-Cosmin Romanescu



**G04-B: Industry Applications**

Chair: Dr. Carlos Toro

Wednesday 16 Sept: 14:00 - 16:00 BST

Room 4

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20gen-076</b>	Application of Random Forests in ToF-SIMS Data M.sc. Yinghan Zhao, M.sc. Nico Brandt, Prof. Britta Nestler, M.sc. Svenja-k. Otto, Dr. Michael Selzer
<b>k20gen-111</b>	Blind Source Separation (BSS) of Mixed Maternal and Fetal Electrocardiogram (ECG) Signal: A comparative Study Assoc. Prof. Dr. Dzati Athiar Ramli, Ms Norsalina Hassan, Mr Hong Shiong Yeoh
<b>k20gen-114</b>	A New Architecture based AR for Detection and Recognition of Objects and Text to Enhance Navigation of Visually Impaired People Dr. Imene Ouali, Dr. Mohamed Ben Halima, Dr. Mohamed Saifeddine Hadj Sassi, Dr. Ali Wali
<b>k20gen-203</b>	Outlier Detection in Sensor Data using Ensemble Learning Dr. Nadeem Iftikhar, Mr. Thorkil Baattrup-Andersen, Mr. Finn Ebertsen Nordbjerg, Mr. Karsten Jeppesen
<b>k20gen-204</b>	Predicting the Return of Orders in the E-Tail Industry Accompanying with Model Interpretation Mr Abdullah Al Imran, Mr Md Nur Amin
<b>k20gen-215</b>	A knowledge-intensive methodology for explainable sales prediction Dr. Matteo Cristani

## Presentation Schedule – Invited Sessions

### ***WS01-A: 3rd Symposium on Information Systems and Technologies for Management, Economy and Decision Making***

Chair: Dr. Wojciech Salabun

Wednesday 16 Sept 2020: 10:30 - 12:30 BST

Room 5

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-005</b>	Comparison of Customers' Perception of the Quality of Poland-Turkey Electronic Marketing Solutions Professor Witold Chmielarza, Assist. Prof. Dr. Mesut Atasever, Phd Alicja Fandrejewska, Phd Marek Zborowski
<b>k20is-008</b>	Deep learning for grape variety recognition Prof. Marcin Hernes, Prof. Bogdan Franczyk, Dr. Adrianna Kozierekiewicz, Msc. Agata Kozina, Dr. Marcin Pietranik, Msc. Ingolf Roemer
<b>k20is-017</b>	Earnings management prior to mergers and acquisitions: The role of acquirers' ownership structures. Evidence from Poland Professor Andrzej Piosik, Dr Ewa Genge
<b>k20is-038</b>	Sustainable business models of enterprises - actual and declared activities for ensuring corporate sustainability Dr Hab Magdalena Ziolo, Dr Hab Iwona Bak, Dr Hab Katarzyna Cheba, Dr Anna Spoz
<b>k20is-039</b>	The relationship between banks and company business models - sustainability context Dr Hab Magdalena Ziolo, Dr Hab Iwona Bak, Dr Hab Katarzyna Cheba, Dr Anna Spoz
<b>k20is-059</b>	Concept Mapping in developing an indicator framework for coordinated health care Professor Iga Rudawska

## ***WS01-B: 3rd Symposium on Information Systems and Technologies for Management, Economy and Decision Making***

Chair: Dr. Wojciech Salabun

Wednesday 16 Sept 2020: 14:00 - 16:00 BST

Room 5

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-099</b>	The Selection and Comparison of the Methods Used to Evaluate the Quality of E-Banking Websites: The Perspective of Individual Clients Prof Witold Chmielarz, Ph.d. Marek Zborowski
<b>k20is-118</b>	Liquidity prediction on Vietnamese stock market using deep learning Prof. Marcin Hernes, Dr Wiesława Gryncewicz, Prof. Katarzyna Kuziak, Msc Pham Quoc Khang, Dr Artur Rot
<b>k20is-141</b>	How the normalization of the decision matrix influences the results in the VIKOR method? Student Jakub Wieckowski, Phd Wojciech Salabun
<b>k20is-142</b>	How to handling with uncertain data in the TOPSIS technique? Student Jakub Wieckowski, Phd Wojciech Salabun
<b>k20is-143</b>	How to choose the optimal single-track vehicle to move in the city? Electric scooters study case Student Bartłomiej Kizielewicz, Phd Larisa Dobryakova
<b>k20is-146</b>	Information systems projects' success in government units: the issue of information systems integration Phd Iwona Kolasa, Professor Tomasz Papaj, Professor Ewa Ziemba

## ***WS01-C: 3rd Symposium on Information Systems and Technologies for Management, Economy and Decision Making***

Chair: Dr. Wojciech Salabun

Thursday 17 Sept 2020: 10:30 - 12:30 BST

Room 4

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-148</b>	An attempt to knowledge handling in digital sustainability assessment tools Dr Agnieszka Konys
<b>k20is-149</b>	A hybrid software processes management support model Dr Włodzimierz Wysocki
<b>k20is-159</b>	Stability of user satisfaction prediction in software projects Dr. Lukasz Radlinski
<b>k20is-165</b>	Modelling the disorder in workplace based on a multi-agent simulation and a game theory Prof. Krzysztof Malecki
<b>k20is-167</b>	Website and e-shop Development as an e business Teaching Programme Innovation in Management Education Phd. Kinga Krupcala, Phd., Associate Prof Arkadiusz Januszewski
<b>k20is-196</b>	Innovation, R&D and User-driven Innovation Activity in R&D Departments in Poland. The Multi-Criteria Analysis Dr Hab. Katarzyna Szopik-depczynska, Dr Hab. Katarzyna Cheba, Prof. Joanna Wisniewska

## ***WS01-D: 3rd Symposium on Information Systems and Technologies for Management, Economy and Decision Making***

Chair: Assoc. Prof. Jaroslaw Watrobski

Thursday 17 Sept 2020: 10:30 - 12:30 BST

Room 5

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-197</b>	Application of crowdfunding to video game projects financing Dr Hab. Katarzyna Szopik-depczynska, Dr Hab. Angelika Kedzierska-szczepaniak, Dr Krzysztof Szczepaniak
<b>k20is-198</b>	Data Mining Approach in Evaluation of Sustainable Entrepreneurship Phd Paula Bajdor, Phd Ilona Paweloszek
<b>k20is-199</b>	From Perceptual to Algorithmic Evaluation of Recommending Interfaces Survival in Visual Space Master Of Science Kamil Bortko, Professor Jaroslaw Jankowski, Bachelor Of Engineer Patryk Pazura
<b>k20is-201</b>	Attracting User Attention to Visual Elements within Website with the use of Fitts's Law and Flickering Effect Master Of Science Kamil Bortko, Professor Bozena smialkowska, Master Of Science Piotr Bartków, Professor Jaroslaw Jankowski, Bachelor Of Engineer Patryk Pazura
<b>k20is-207</b>	Financial decisions support using the supervised learning method based on random forests Prof Marcin Hernes, Msc Klaudia Kaczmarczyk
<b>k20is-228</b>	Sources of threats and methods of securing information in companies in Poland compared to other EU countries Ph.d. Eng. Ireneusz Miciula, Ph.d. Judyta Kabus, Master Degree Krzysztof Miciula, Ph.d. Luiza Piersiala

## ***WS01-E: 3rd Symposium on Information Systems and Technologies for Management, Economy and Decision Making***

Chair: Prof. Jaroslaw Jankowski

Thursday 17 Sept 2020: 10:30 - 12:30 BST

Room 6

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-239</b>	Exploring levels of ICT adoption and sustainability - The case of local governments from Poland Professor Ewa Ziemia
<b>k20is-247</b>	A Statistical Approach to Assess Differences in Perception of Online Shopping Phd Ilona Paweloszek, Phd Paula Bajdor
<b>k20is-248</b>	BPM motivations framework for digital challenges: lessons learned from customer use cases Dr. Renata Gabryelczyk, Msc. Aneta Biernikowicz, Dr. Janice C. Sipior
<b>k20is-250</b>	Model of the geospatial situation of the decision support system for automatic determination of inland vessel movement Ph.d. Eng. Ireneusz Miciula, Ph.d. Pawel Stepień, Master Degree Malgorzata Zakrzewska
<b>k20is-259</b>	Possibilities of Using GIS Technology for Dynamic Planning of Investment Processes in Cities Dr Cezary Stepniak, Dr Tomasz Turek
<b>k20is-264</b>	Assessing quality of decision reducts Dr. Urszula Stanczyk, Prof. Beata Zielosko

## ***WS01-F: 3rd Symposium on Information Systems and Technologies for Management, Economy and Decision Making***

Chair: Dr. Wojciech Salabun

Thursday 17 Sept 2020: 14:30 - 16:30 BST

Room 4

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-267</b>	Client evaluation decision models in the credit scoring tasks Phd Pawel Ziemia, Phd Jaroslaw Becker, Phd Aleksandra Radomska-zalas
<b>k20is-270</b>	Ontology Learning Approaches to Provide Domain-Specific Knowledge Base Dr Agnieszka Konys, Prof Zygmunt Drazek
<b>k20is-271</b>	Performance evaluation for ranking-based discretisation Phd Grzegorz Baron, Phd Stanczyk Urszula
<b>k20is-272</b>	Towards standardization in frameworks, tools and approaches dedicated to ontology building and management Prof. Jaroslaw Watrobski
<b>k20is-273</b>	Ontology learning methods from text - an extensive knowledge-based approach Prof. Jaroslaw Watrobski,
<b>k20is-277</b>	Is BPM truly a critical success factor for ERP adoption? An examination within the public sector Dr. Renata Gabryelczyk

## ***WS01-G: 3rd Symposium on Information Systems and Technologies for Management, Economy and Decision Making***

Chair: Assoc. Prof. Jaroslaw Watrobski

Thursday 17 Sept 2020: 14:30 - 16:30 BST

Room 5

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-282</b>	Women's Entrepreneurial Attitudes when Facing Restructuring Processes - study results Prof. Jaroslaw Korpysa, Msc Agnieszka Lopatka
<b>k20is-285</b>	Agile Requirements Prioritization in Practice: Results of an Industrial Survey Dr Aleksander Jarzebowicz, Msc Natalia Sitko
<b>k20is-288</b>	Digital payment methods within Polish students - leading decision characteristics Phd Oskar Szumski
<b>k20is-289</b>	Entrepreneurial management of SMEs Professor Jaroslaw Korpysa
<b>k20is-291</b>	Future management Prof. Zdzislaw Szyjewski
<b>k20is-296</b>	Swimming progression evaluation by assessment model based on the COMET method Student Jakub Wieckowski, Phd Joanna Kolodziejczyk



**WS01-H: 3rd Symposium on Information Systems and Technologies for Management,**  
 Economy and Decision Making  
 Chair: Prof. Jaroslaw Jankowski

Thursday 17 Sept 2020: 14:30 - 16:30 BST  
 Room 6

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-297</b>	MCDA based approach to sports players' evaluation under incomplete knowledge Student Bartłomiej Kizielewicz, Phd Larisa Dobryakova
<b>k20is-299</b>	Technological trust from the perspective of digital payment Phd Oskar Szumski
<b>k20is-300</b>	Handling economic perspective in multicriteria model - renewable energy resources case study Student Bartłomiej Kizielewicz, Prof. Zdzisław Szyjewski
<b>k20is-301</b>	Comparison of mini-models based on various clustering algorithms. Phd Marcin Pietrzykowski
<b>k20is-302</b>	A comparison of heuristics applied for studying the usability of websites Mgr Lukasz Krawiec, Associate Professor Helena Dudycz
<b>k20is-303</b>	Effects of the selection of characteristic values on the accuracy of results in the COMET method Student Bartłomiej Kizielewicz, Phd Joanna Kolodziejczyk

## ***WS01-I: 3rd Symposium on Information Systems and Technologies for Management, Economy and Decision Making***

Chair: Dr. Wojciech Salabun

Friday 18 Sept 2020: 9:30 - 11:30 BST

Room 5

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-304</b>	Why TOPSIS does not always give correct results? Student Bartosz Paradowski, Phd Larisa Dobryakova, Student Jakub Wieckowski
<b>k20is-308</b>	Knowledge based approach to sustainability assessment Dr Agnieszka Konys
<b>k20is-310</b>	Gamification of communication and documentation processes in project teams Ms. Karolina Muszynska
<b>k20is-319</b>	Do distance-based multi-criteria decision analysis methods create similar rankings? Student Andrii Shekhovtsov, Phd Joanna Kolodziejczyk
<b>k20is-320</b>	A comparative case study of the VIKOR and TOPSIS rankings similarity Student Andrii Shekhovtsov, Phd Wojciech Salabun
<b>k20is-322</b>	Modeling the Performance of Limiting Information Spreading Processes under Competing Linear Threshold Model Bachelor Of Engineer Patryk Pazura, Master Of Science Kamil Bortko, Professor Jaroslaw Jankowski

## ***WS01-J: 3rd Symposium on Information Systems and Technologies for Management, Economy and Decision Making***

Chair: Dr. Wojciech Salabun

Friday 18 Sept 2020: 13:30 - 15:30 BST

Room 5

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-323</b>	Distributed Environment of Decision Support Centers: An Interests Representation Model of Virtual Collaboration And Technological Basic Dr. Zinaida Avdeeva, Mrs Svetlana Kovriga
<b>k20is-325</b>	Passenger BIBO detection with IoT support and machine learning techniques for intelligent transport systems Dr Marcin Mastalerz, Mr. Slawomir Kwiatkowski, Prof. Aleksander Malinowski, Mrs. Anna Sniegula, Mr. Bartosz Wieczorek
<b>k20is-326</b>	Identification of reference Multi Criteria domain model - Production line optimization case study Msc Szymon Rymaszewski, Msc Artur Karczmarczyk, Phd Jaroslaw Watróbski
<b>k20is-327</b>	Identification of the decision-making model for selecting an information system Student Bartosz Paradowski, Prof. Zygmunt Drazek
<b>k20is-329</b>	Multi-criteria decision making approach to production line optimization Prof. Jaroslaw Watrobski
<b>k20is-336</b>	A Hybrid Method of Assessing Individual Electronic Banking Services in 2019. The Case of Poland Prof Witold Chmielarz, Ph.d. Marek Zborowski

***IS01 Cyber-Physical Systems and Smart Internet-of-Things***

Chair: Prof Anne Hakansson

Friday 18 Sept 2020: 13:30 - 15:30 BST

Room 3

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-058</b>	Machine Learning for Hydropower Scheduling: State of the Art and Future Research Directions Assoc. Prof. Chiara Bordin, Dr. Jiehong Kong, Dr. Hans Ivar Skjelbred, Prof. Zhirong Yang
<b>k20is-144</b>	Smart Energy and power systems modelling: an IoT and Cyber-Physical Systems perspective, in the context of Energy Informatics Assoc. Prof. Chiara Bordin, Prof. Anne Håkansson, Dr. Sambheet Mishra
<b>k20is-160</b>	Spectrum Sensing for Smart Embedded Devices in Cognitive Networks using Machine Learning Algorithms Professor Saadane Rachid, Professor Chehri Abdellah, Dr El Rharras Abdessamad, Professor Kharraz Aroussi Hatim, Student Saber Mohamed, Professor Hakem Nourddine
<b>k20is-230</b>	Towards evaluating GDPR compliance in IoT applications Mr Christos Karageorgiou Kaneen, Prof. Euripides Petrakis

***IS02-A: Intelligent Information Processing for Educational Innovations***

Chair: Assoc. Prof. Daocheng Hong

Wednesday 16 Sept 2020: 10:30 - 12:30 BST

Room 11

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-011</b>	Role and Object Domain-Based Access Control Model for Graduate Education Information System Mr Gangzeng Jin, Professor Qiwen Dong, Associate Professor Daocheng Hong, Professor Ye Wang, Mr Daojiang Wang, Mr Dawei Yang
<b>k20is-026</b>	DevOps in Practice for Education Management Information System at ECNU Mr Dawei Yang, Prof. Qiwen Dong, Associate Prof. Daocheng Hong, Prof. Ye Wang, Mr Daojiang Wang, Mr Dongming Yang
<b>k20is-029</b>	Intelligent information processing for language education: The use of artificial intelligence in language learning apps Phd Marcel Pikhart,
<b>k20is-046</b>	A Novel Application of Education Management Information System based on Micro Frontends Mr Daojiang Wang, Associate Professor Daocheng Hong, Professor Shubin Song, Professor Ye Wang, Mr Dongming Yang, Postdoctor Huan Zhou
<b>k20is-057</b>	The Method of Rapidly Improving Pass Rate of CET-4 Based on Gaussian / Steed Variance Master Hongwei Shi, Undergraduate Course Songting He, Doctor Jun Steed Huang

***IS02-B: Intelligent Information Processing for Educational Innovations***

Chair: Assoc. Prof. Daocheng Hong

Friday 18 Sept 2020: 9:30 - 11:30 BST

Room 11

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-086</b>	A novel application integration architecture for the education industry Mr Dongming Yang, Professor Qiwen Dong, Professor Shubin Song, Professor Ye Wang, Mr Daojiang Wang, Postdoctor Huan Zhou
<b>k20is-120</b>	Individualized learning in a course with a tight schedule Professor Jacek Marciniak, B.eng. Marcin Szczepanski
<b>k20is-134</b>	Humming-Query and Reinforcement-Learning based Modeling Approach for Personalized Music Recommendation Mr Dezhuang Miao, Mr Qiwen Dong, Mr Daocheng Hong, Mr Xuesong Lu

***IS03-A: Recent Advances in Numerical Modelling and Recognition Techniques***

Chair: Prof. Margarita N. Favorskaya

Wednesday 16 Sept 2020: 14:00 - 16:00 BST

Room 12

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-013</b>	Robust textual watermarking for high resolution videos based on Code-128 barcoding and DWT Prof. Margarita Favorskaya, Dr. Alexandr Zotin
<b>k20is-016</b>	Deep Markov models of multidimensional random fields Prof. Nikita Andriyanov, Prof. Vitaly Dement'yev, Prof. Alexander Tashlinsky
<b>k20is-055</b>	Study of digital textual watermarking distortions under Internet attacks in high resolution videos Prof. Margarita Favorskaya, Dr. Andrey Pakhirka, Dr. Alexandr Proskurin, Dr. Alexandr Zotin
<b>k20is-069</b>	Distributed System of Small Radars in Moving Object Location and Tracing Dr. Vadim Nenashev, Dr. Anton Sentsov, Prof. Mikhail Sergeev, Dr. Elena Turnetskaya
<b>k20is-070</b>	Calculating Symmetrical Hadamard Matrices of Balonin-Seberry Construction for Coding and Masking Dr. Anton Vostrikov, Dr. Alexander Sergeev
<b>k20is-090</b>	The identification of doubly stochastic circular image model Prof. Victor Krashennnikov, Ms. Olga Malenova, Mr. Alexey Subbotin

***IS03-B: Recent Advances in Numerical Modelling and Recognition Techniques***

Chair: Prof. Margarita N. Favorskaya

Thursday 17 Sept 2020: 10:30 - 12:30 BST

Room 10

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-094</b>	Pseudo-gradient algorithm for identification of doubly stochastic cylindrical image model Prof. Victor Krashennnikov, Docent Yuliya Kuvayskova, Mr. Alexey Subbotin
<b>k20is-116</b>	Personalized Approach to Developing Image Processing and Analysis Methods for Medical Video Systems Ph.d Alexandr Motyko, D.sc. Nataliia Obukhova, Postgraduate Alexandr Pozdeev
<b>k20is-145</b>	Modelling and learning cause-effect -- application in frost forecast Professor Liya Ding, Professor Kosuke Noborio, Dr. Kazuki Shibuya
<b>k20is-175</b>	Fall of shock wave from a supersonic aircraft into the geological media Dr Alena Favorskaya
<b>k20is-176</b>	Types of elastic and acoustic wave phenomena scattered on gas- and fluid-filled fractures Dr Alena Favorskaya, Dr Nikolay Khokhlov
<b>k20is-178</b>	Elastic and acoustic approximations for solving direct problems of human head ultrasonic study Dr Alena Favorskaya, Dr Vasily Golubev



***IS03-C: Recent Advances in Numerical Modelling and Recognition Techniques***

Chair: Prof. Margarita N. Favorskaya

Friday 18 Sept 2020: 13:30 - 15:30 BST

Room 8

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-188</b>	On the Definition of Autonomous Dependable Control of Complex Technical Systems Dr. Andrey Tyugashev, Dr. Ivan Andronchev
<b>k20is-191</b>	G2I: A Principled Approach to Leveraging the Goal-to-Information Nexus in BDI agents Dr Angela Consoli, Dr Kinzang Chhogyal, Associate Professor Hoa Dam, Professor Aditya Ghose
<b>k20is-261</b>	Object detection quality in remote sensing images Prof. Vladimir Volkov

***IS04: Networks for Innovation, Knowledge Creation and Sharing***

Chair: Prof. Shuichiro Yamamoto

Wednesday 16 Sept 2020: 10:30 - 12:30 BST

Room 9

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-012</b>	Evaluating Mutual Requirements Evolution of Several Information Systems Dr Haruhiko Kaiya
<b>k20is-018</b>	Business Analysis Method for Constructing Business--AI Alignment Model Prof. Hironori Takeuchi, Prof. Shuichiro Yamamoto
<b>k20is-025</b>	A Strategic Map for Digital Transformation Dr. Shuichiro Yamamoto,
<b>k20is-027</b>	Deriving of Time Constants in Timed Automata for Hazard Transition Sequences for STAMP/STPA Dr Kozo Okano, Dr Shinpei Ogata, Dr Keishi Okamoto, Mr Pan Yang
<b>k20is-032</b>	Proposal of a Privacy Knowledge Base for Supporting Development of Privacy Friendly Software Prof. Atsuo Hazeyama
<b>k20is-033</b>	A Tool to Manage Traceability on Several Models and Its Use Case} Prof. Haruhiko Kaiya, Prof. Atsuo Hazeyama, Dr. Shinpei Ogata, Prof. Takao Okubo, Mr Shogo Tatsui, Dr. Nobukazu Yoshioka

***IS05: Intelligent Digital Architectures***

Chair: Prof. Alfred Zimmermann

Wednesday 16 Sept 2020: 14:00 - 16:00 BST

Room 8

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-309</b>	Protecting the environment: a multi-agent approach to environmental monitoring Dr. Matteo Cristani, Dr. Luca Pasetto, Dr. Claudio Tomazzoli

## ***IS07: Interdisciplinary Approaches in Data Science and Digital Transformation Practice (IADSDTP 2020)***

Chair: Prof. Ivan Luković

Thursday 17 Sept 2020: 10:30 - 12:30 BST

Room 9

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-049</b>	Evaluation of Machine Learning for Sensorless Detection and Classification of Faults in Electromechanical Drive Systems Tobias Grüner, Falco Böllhoff, Robert Meisetschläger, Alexander Vydrenko, Martyna Bator, Alexander Dicks, Andreas Theissler
<b>k20is-050</b>	Automated Clustering and Knowledge Acquisition Support for Beginners Mr. Ryota Kamoshida, Dr. Fuyuki Ishikawa
<b>k20is-078</b>	WAR FOR TALENTS MEETS FACIAL EXPRESSION - leveraging recruiting videos in professional service firms Mr Veit Etzold, Mr Lukas Butz, Ms Tabea Wanner
<b>k20is-097</b>	Developing the Quality Model for Collaborative Open Data Prof. Mouzhi Ge, Dr. Włodzimierz Lewoniewski
<b>k20is-103</b>	Potentials of Blockchain Technologies in Supply Chain Management - A Conceptual Model Prof. Dr. Ralf-Christian Haerting, B.A. Julia Rettenmaier, M.Sc. Alexander Sprengel, B.A. Katja Wottle
<b>k20is-112</b>	Challenges in the Market Launch of Active Assisted Living Solutions - Empirical Results from European Experts Dr. Christopher Reichstein, B.a. Felix Häfner, Prof. Dr. Ralf-christian Härting
<b>k20is-183</b>	The Dark Side of Data Science - an Empirical Study of Cyber Risks in German SMEs Prof. Dr. Patrick Ulrich, M.sc. Vanessa Frank, M.sc. Alice Timmermann

***IS08: Collaboration in Software and System Engineering***

Chair: Dr Maria Spichkova

Thursday 17 Sept 2020: 10:30 - 12:30 BST

Room 8

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-208</b>	QLearn: Towards a Framework for Smart Learning Environments Lecturer Phd Camelia Serban, Researcher Ioan Lungu
<b>k20is-213</b>	Formal Specification and Verification of a Broadcasting Protocol: A Refinement-Based Approach Phd Faten Fakhfakh, Prof Mohamed Mosbah, Dr Mohamed Tounsi
<b>k20is-275</b>	Exploratory analysis of cultural influences on requirements engineering activities based on participant's profile Student Tawfeeq Alsanoosy, Prof. James Harland, Dr. Maria Spichkova
<b>k20is-306</b>	VM2: Automated security configuration and testing of virtual machine images Dr Maria Spichkova, Mr Biao Li, Ms Ye Lyu, Mr Luke Mason, Mr Lachlan Porter, Mr Yi Weng
<b>k20is-317</b>	Usage Visualisation for the AWS Services Dr Maria Spichkova, Mr Roshan Elvitigala, Ms Lettisia George, Mr Yanan Guo, Mr Vikas Kumar, Mr Denis Stepanov

***IS09: Eye Movement Data Processing and Analysis (EMDPA)***

Chair: Dr. Pawel Kasprowski

Wednesday 16 Sept 2020: 14:00 - 16:00 BST

Room 6

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-022</b>	Discriminative Viewer Identification using Generative Models of Eye Gaze M.sc. Silvia Makowski, Prof. Dr. Ralf Engbert, Dr. Lena Jäger, Prof. Dr. Tobias Scheffer, M.sc. Lisa Schwetlick, Dr. Hans Trukenbrod
<b>k20is-115</b>	Towards expert gaze modeling and recognition of a user's attention in realtime M.sc. Nora Castner, M.sc. David Geisler, B.sc. Lea Geßler, Priv.-doz. Dr. Fabian Hüttig, Prof.dr Enkelejda Kasneci
<b>k20is-123</b>	On the Relationship between Eye Tracking Resolution and Performance of Oculomotoric Biometric Identification Dr. Paul Prasse, B.sc. Moritz Feuerpfeil, Dr. Lena A. Jäger, M.sc. Silvia Makowski, Prof. Dr. Tobias Scheffer
<b>k20is-127</b>	Lexically or grammatically adapted texts: what is easier to process for secondary school children? Mr. Vladislav Zubov, Mrs. Tatiana Petrova
<b>k20is-210</b>	The effects of optokinetic nystagmus on vection and simulator sickness Mr Artem Kovalev, Mr Alexei Drozhdev, Ms Oxana Klimova, Ms Maria Klimova
<b>k20is-223</b>	Creating and Processing Sketchnotes: A Psycholinguistic Study Graduate Student Valentina Bratash, Professor Tatiana Petrova, Professor Elena Riekhakaynen
<b>k20is-324</b>	Using Pose Estimation to Map Gaze to Detected Fiducial Markers Professor Andrew Duchowski, Dr Krzysztof Krejtz, Dr Vsevolod Peysakhovich

***IS10: Chance Discovery and Market of Data***

Chair: Prof. Akinori Abe

Wednesday 16 Sept 2020: 10:30 - 12:30 BST

Room 11

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-028</b>	Extracting characteristics of plates, pots, and vases in molding process: an attempt of creating a simple model Professor Jun Nakamura, Professor Sanetake Nagayoshi, Mr. Masahiko Teramoto
<b>k20is-052</b>	The Acceptability of Tools for the Data Marketplace among Firms Using Market Research Online Communities Dr. Teruaki Hayashi, Prof. Yukio Ohsawa
<b>k20is-063</b>	Net-TF-SW: Event Popularity Quantification with Network Structure Mr. Hiroshi Nagaya, Dr. Teruaki Hayashi, Prof. Yukio Ohsawa, Dr. Hiroyuki Torii, Dr. Fujio Toriumi, Dr. Kazuko Uno
<b>k20is-096</b>	Logic Visualization Algorithm in System Specifications as Companion Tool for System Designing and Testing Professor Kushihiro Noriyuki, Dr. Aoyama Yusuke
<b>k20is-156</b>	Identification of Factors Supporting Co-Creative Consensus Building and Proposals for the Communication Environment Assistant Professor Sae Kondo, Professor Hideki Koizumi, Mr. Masaaki Kuzuya, Mr. Taichi Miyamae, Mr. Takashi Numata, Mr. Kotaro Onishi
<b>k20is-240</b>	How will the information change the sense of values during art appreciation? Prof Akinori Abe, Mr. Kotaro Fukushima
<b>k20is-274</b>	Visualization of the Change Process of Organization Members' Unconscious Perception in Organizational Transformation Dr. Sanetake Nagayoshi, Prof. Jun Nakamura

***IS12-A: Knowledge-Based Systems for e-Business***

Chair: Prof. Kazuhiko Tsuda

Wednesday 16 Sept 2020: 10:30 - 12:30 BST

Room 7

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-043</b>	The effect of the number of additional options for vehicles on consumers' willingness to pay Dr. Takumi Kato, Prof. Kazuhiko Tsuda
<b>k20is-047</b>	Fluctuation of commodity prices in EC market and its factor analysis Mr Tatsuya Ogura, Dr Kazuhiko Tsuda
<b>k20is-053</b>	Bot Detection Model using User Agent and User Behavior for Web Log Analysis Mr. Takamasa Tanaka, Mr. Hiroki Kawashima, Ms. Shiyinxue Li, Mr. Hidekazu Niibori, Mr. Shimpei Nomura, Dr. Kazuhiko Tsuda
<b>k20is-077</b>	Towards Generating Anomaly Prediction based on Health Checkup Results Dr. Prof. Masakazu Takahashi, Mr. Masashi Shibata, Mr. Noriyuki Sugahara
<b>k20is-080</b>	A Study of a Method to Solve Intention of Taste Expression using Text Mining Ph.d. Student Shinichi Tachibana, Professor Kazuhiko Tsuda
<b>k20is-091</b>	Study on Human Cognition: A study challenging Gambling Businesses using a Cognitive Model for Casinos Ph.d Student Nozomi Komiya, Prof. Jun Nakamura, Prof. Kazuhiko Tsuda



***IS12-B: Knowledge-Based Systems for e-Business***

Chair: Prof. Kazuhiko Tsuda

Thursday 17 Sept 2020: 10:30 - 12:30 BST

Room 7

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-098</b>	Population estimation by random forest analysis using social sensors Mr Hiroki Hara, Prof Yoshikatsu Fujita, Prof Kazuhiko Tsuda
<b>k20is-105</b>	A Study of Conflict Solving Tactics and Culture in Integrated Organizations through Interviews and Text Mining Mr. Hideo Hosoo, Dr. Yuto Kimura, Prof. Kazuhiko Tsuda
<b>k20is-106</b>	A Method of Using News Sentiment for Stock Investment Strategy Mr. Daisuke Katayama, Prof. Kazuhiko Tsuda
<b>k20is-117</b>	Extracting Repeater Knowledge from Citizen Report Data Mr. Eiji Kano, Prof. Kazuhiko Tsuda
<b>k20is-135</b>	Simulation of learning effects of adaptive learning Student Keisuke Kuniyoshi, Professor Setsuya Kurahashi
<b>k20is-312</b>	A Study of Quality Indicator Model of Large-Scale Open Source Software Projects for Adoption Decision-making Mr. Shinji Akatsu, Dr. Ayako Masuda, Dr. Tsuyoshi Shida, Dr. Kazuhiko Tsuda

***IS13-A: Software Engineering and Large-Scale Systems***

Chair: Prof. Sergey Zykov

Thursday 17 Sept 2020: 14:30 - 16:30 BST

Room 7

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-040</b>	Remote Recognition of Human Emotions Using Deep Machine Learning of Artificial Neural Networks Dr Georgy Lebedev, Mr Alexey Moskoenko, Dr Evgeniy Zhovnerchuk, Dr Inna Zhovnerchuk
<b>k20is-064</b>	Technology of Supporting Medical Decision-Making Using Evidence-Based Medicine and Artificial Intelligence Prof Lebedev Georgy, Dr Fartushnyi Eduard, Dr Klimenko Herman, Mr Fartushnyi Igor, Dr Shaderkin Igor, Dr Kozhin Pavel
<b>k20is-073</b>	Automatic detection of morphodynamic profile of human embryos in vitro data sets preparation Mr Gleb Nemkovskiy, Md Aleksandra Bayzarova, Prof Vladimir Belyakov, Dr Aleksandr Kuznetsov, Dr Dmitriy Rusakov, Prof Oksana Shurygina
<b>k20is-074</b>	Implementation of IDMP standards as a means of creating a unified information space in the field of drug circulation Assoc. Prof. Konstantin Koshechkin, Prof. Eduard Fartushny, Prof. Georgiy Lebedev
<b>k20is-095</b>	The Impact of Object Immutability on the Java Class Size Mr. Yegor Bugayenko, Dr. Sergey Zykov
<b>k20is-109</b>	Study of the Cancer Treatment Drugs Availability Effect on Overall Survival Assoc. Prof. Konstantin Koshechkin, Mr. Nikita Golubev, Prof. George Radzievsky, Prof. Sergey Zykov

***IS13-B: Software Engineering and Large-Scale Systems***

Chair: Prof. Sergey Zykov

Friday 18 Sept 2020: 13:30 - 15:30 BST

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<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-170</b>	Industry 4.0 Impact Propagation on Enterprise Architecture Models Doctor Elena Kornysheva, Professor Judith Barrios
<b>k20is-184</b>	A Qualitative-Quantitative Resilience Assessment Approach for Socio-technical Systems Student Wissem Eljaoued, Professor Narjès Bellamine Ben Saoud, Assistant Professor Nesrine Ben Yahia
<b>k20is-231</b>	CAN Bus Attacks Detection exploiting Deep Learning Prof. Alfredo Cuzzocrea, Dr. Fabio Martinelli, Dr. Francesco Mercaldo
<b>k20is-232</b>	Predictive analytics on open big data for supporting smart transportation services Prof. Carson Leung, Mr. Paul Patrick F. Balbin, Mr. Jackson C.R. Barker, Prof. Alfredo Cuzzocrea, Mr. Marvin Tran, Mr. Riley P. Wall
<b>k20is-256</b>	About some issues of developing Digital Twins for the intelligent process control in quarries Phd Sergey Deryabin, Prof. Igor Temkin, Prof. Sergey Zykov
<b>k20is-331</b>	SPPOLAP: Computing Privacy-Preserving OLAP Data Cubes Effectively and Efficiently - Algorithms, Complexity Analysis and Experimental Evaluation Prof. Alfredo Cuzzocrea

**IS14: Bioengineering Applications**

Chair: Dr. Milan Simic

Wednesday 16 Sept 2020: 10:30 - 12:30 BST

Room 8

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-009</b>	Augmented reality in robot programming Mr Fengxin Zhang, Dr Songlin Ding, Dr Chow Yin Lai, Dr Milan Simic
<b>k20is-139</b>	Deep Learning for Heart Disease Detection through Cardiac Sounds Dr Francesco Mercaldo, Prof Luca Brunese, Dr Fabio Martinelli, Prof Antonella Santone
<b>k20is-140</b>	Machine Learning for Coronavirus COVID-19 Detection from Chest X-rays Dr Francesco Mercaldo, Prof Brunese Luca, Dr Fabio Martinelli, Prof Antonella Santone
<b>k20is-211</b>	Performance of EEG Motor-Imagery based spatial filtering methods: A BCI study on Stroke patients Msc Aleksandar Miladinovic, Prof Agostino Accardo, Dr Milos Ajcevic, Prof Piero Paolo Battaglini, Dr Joanna Jarmolowska, Dr Uros Marusic
<b>k20is-221</b>	Wireless EEG in hyper-acute ischemic stroke: correlation between neurophysiological alterations and CTP total hypoperfused volume Dr. Milos Ajcevic, Dr. Paola Caruso, Dr. Giovanni Furlanis, Dr. Aleksandar Miladinovi&#263;, Dr. Marcello Naccarato, Dr. Giulia Silveri
<b>k20is-224</b>	A big - data classification tree for decision support system in the detection of dilated cardiomyopathy using heart rate variability Dr Giulia Silveri, Prof Agostino Accardo, Dr Milos Ajcevic, Md Marco Merlo, Md Luca Restivo, Md Gianfranco Sinagra
<b>k20is-305</b>	Monitoring gait events by image processing Dr Milan Simic, Associate Professor Milena Simic, Mr Jeffery Young

***IS15: Cybercrime Investigation and Digital Forensics***

Chair: Assoc. Prof. Da-Yu Kao

Thursday 17 Sept 2020: 10:30 - 12:30 BST

Room 12

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-004</b>	Cyberstalking and Law Enforcement Assistant Professor Wei Jung Chang
<b>k20is-061</b>	LooCipher Ransomware Detection Using Lightweight Packet Characteristics Mr. Te-min Liu, Miss. Yun-ya Chen, Dr. Da-yu Kao
<b>k20is-071</b>	An AutoTriage B-CoC model in digital forensic investigation Phd Fu-ching Tsai, Mr. Po-yu Jung

***IS16-A: Knowledge-management and knowledge-based systems for configuration, self-assessment and training in medical home care***

Chair: Prof. Ralf Seepold

Friday 18 Sept 2020: 9:30 - 11:30 BST

Room 9

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-087</b>	Application of artificial intelligence methods to recognize pathologies on photographs of fundus Dr Georgy Lebedev, Dr Herman Klimenko, Prof Vitaliy Kluganov, Prof Viacheslav Kurenkov, Ms Anna Meshcheryakova, Dr Artem Sologubov
<b>k20is-100</b>	Artificial Neural Networks to Monitor Bedridden Patients Dr Georgy Lebedev, Mr Sergey Kachkovskiy, Dr Herman Klimenko, Ms Anna Meshcheryakova, Ms Natalia Pestova
<b>k20is-150</b>	Device-supported training and assessment for fall prevention of community-dwelling elderly: a pre-post mixed methods study Mr Dominik Fuchs, Prof. Dr. Petra Friedrich, Mr Jakob Tiebel
<b>k20is-151</b>	Analysis of Survey Tools for Recommender Systems in the Selection of Ambient Assisted Living Technologies MSc Yurii Shkilniuk, MSc Maksym Gaiduk, Prof. Dr. Natividad Martínez Madrid, Prof. Dr. Ralf Seepold, MSc Ángel Serrano Alarcón
<b>k20is-152</b>	Comparison of sleep characteristics measurements: a case study with a population aged 65 and above M.sc. Maksym Gaiduk, Prof. Dr. Natividad Martínez Madrid, Prof. Dr. Juan Antonio Ortega, Prof. Dr. Ralf Seepold
<b>k20is-200</b>	Non-obtrusive system for overnight respiration and heartbeat tracking M.Sc. Maksym Gaiduk, Prof.Dr. Juan A. Ortega, Prof.Dr. Ralf Seepold, Mr. Dennis Wehrle

***IS16-B: Knowledge-management and knowledge-based systems for configuration, self-assessment and training in medical home care***

Chair: Prof. Ralf Seepold

Friday 18 Sept 2020: 13:30 - 15:30 BST

Room 7

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-202</b>	A Deep Learning Approach to Detect Sleep Stages Prof.Dr. Ralf Seepold, M.Sc. Maksym Gaiduk, M.Sc. Klara Stuburic
<b>k20is-205</b>	Health information and CAM online search Assoc.prof. Margarita Stankova, Phd Filip Andonov, Engineer Todor Datchev, Phd Polina Mihova
<b>k20is-217</b>	A portable ECG for recording and flexible development of algorithms and stress detection M.Sc. Wilhelm Daniel Scherz, Mr. Jannik Baun, Dr. Natividad Martínez Madrid, Dr. Juan Antonio Ortega, Dr. Ralf Seepold
<b>k20is-218</b>	Non-invasive arterial pressure monitoring by a new pneumatic sensor and on-line analysis of pulse waveforms for a modern medical home care systems Phd Viacheslav Antsiperov, Phd Michael Danilychev, Phd Gennady Mansurov
<b>k20is-245</b>	Machine Learning and Data Fusion Techniques Applied to Physical Activity Classification Using Photoplethysmographic and Accelerometric Signals Dr. Paolo Crippa, Dr. Giorgio Biagetti, Dr. Laura Falaschetti, Prof. Natividad Martinez Madrid, Prof. Ralf Seepold, Prof. Claudio Turchetti
<b>k20is-262</b>	Virtual reality as a significant stressor for studies using ECG M.sc. Wilhelm Daniel Scherz, Dr. Victor Corcoba Magañab, Dr. Natividad Martínez Madrid, Dr. Juan Antonio Ortega, Dr. Ralf Seepold

***IS18-A: Classification, forecasting and decision support***

Chair: Dr. Wojciech Froelich

Friday 18 Sept 2020: 9:30 - 11:30 BST

Room 10

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-015</b>	Are coalitions needed when classifiers make decisions? Dr Hab. Malgorzata Przybyla-kasperek,
<b>k20is-030</b>	Outliers in rules - the comparison of LOF, COF and KMEANS algorithms Dsc Agnieszka Nowak-brzezinska, Eng. Czeslaw Horyn
<b>k20is-034</b>	Combining Rough Set-based Relevance and Redundancy for the Ranking and Selection of Nominal Features Prof. Wojciech Froelich, Prof. Petr Hajek
<b>k20is-044</b>	A Novel Framework for Decision Support System in Human Resource Management Prof. Ireneusz Czarnowski, Mr. Piotr Pszczolkowski



***IS18-B: Classification, forecasting and decision support***

Chair: Dr. Wojciech Froelich

Friday 18 Sept 2020: 13:30 - 15:30 BST

Room 10

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-083</b>	Complexity of Rule Sets Mined from Incomplete Data Using Probabilistic Approximations Based on Generalized Maximal Consistent Blocks Professor Jerzy Grzymala-busse, Phd Patrick Clark, Professor Zdzislaw Hippe, Phd Teresa Mroczek, Ms Rafal Niemiec
<b>k20is-102</b>	Using Differential Evolution in order to create a personalized list of recommended items Prof. Dr Hab. Urszula Boryczka, Phd Michal Balchanowski
<b>k20is-179</b>	Reduct-based ranking of attributes Dr Beata Zielosko, Dr Urszula Stanczyk
<b>k20is-190</b>	The ants in the grids - the examination of the behavior of multiagents with role specialization into the simulation of commonly existing grids in Intelligent Buildings Msc Jaroslaw Utracki, Prof Mariusz Boryczka

**IS19-A: New Generation Computing in Engineering, Life Science and Economy**

Chair: Dr. Piotr Nikonczuk

Friday 18 Sept 2020: 9:30 - 11:30 BST

Room 6

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-024</b>	Spectral features in the singing voice evaluation using simulated imperfections Dr Mirosław Lazoryszczak
<b>k20is-056</b>	Applying the Business Model Canvas to Design the E-platform for Sailing Tourism Phd Roma Strulak-Wojcikiewicz, Phd Ewa Hacia, Phd Aleksandra Lapko, Phd Natalia Wagner
<b>k20is-136</b>	On some aspects of Concurrent Control Processes Modelling and Implementation in LAD Diagram Language With Use of New Generation Engineering Software Prof. Nadzw. Dr Hab. Tomasz Krolikowski, Dr Grzegorz Andrzejewski, Dr Kazimierz Krzywicki, Dr. Wojciech Zajac
<b>k20is-138</b>	Information support of cargo ferry transport: case study of Latvia Dr. Ludmila Filina-dawidowicz, Msc. Deniss Bickovs, Msc. Anna Cernova-bickova, Msc. Daria Mozdrzen, Prof. Iouri Semenov, Phd. Anna Wiktorowska-jasik
<b>k20is-174</b>	Concerns about the technology used by collaborative platforms - a challenge for managers Dr Natalia Wagner, Dr Roma Strulak-wojcikiewicz
<b>k20is-214</b>	The flow calculation algorithm of submerged hydraulic cargo pumps working with reduced pump speed on modern product and chemical tankers Prof. Zut Andrzej Banaszek, Phd Eng. Tomasz Urbanski
<b>k20is-266</b>	Selected reflections on formal modeling in Industry 4.0 Prof. Pk Dr Hab. Inz Tomasz Krolikowski, Prof. Pk Dr Hab. Inz Norbert Chamier-glisczynski, Prof. Pw Dr Hab. Inz Mariusz Kostrzewski

**IS19-B: New Generation Computing in Engineering, Life Science and Economy**

Chair: Dr. Piotr Nikonczuk

Friday 18 Sept 2020: 13:30 - 15:30 BST

Room 4

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-268</b>	Design of ship course-keeping system via active disturbance rejection control Profesor Zenon Zwierzewicz, Phd Lech Dorobczynski, Phd Slawomir Jaszczak
<b>k20is-278</b>	Optimization of multilayer rail substrate under moving load, using metamaterials Prof. Pk Dr Hab. Inz Tomasz Krolikowski, Dr Inz. Andrzej Blazejewski, Mgr Inz. Remigiusz Knitter
<b>k20is-280</b>	Application of multidimensional correspondence analysis to identify socioeconomic factors conditioning voluntary life insurance PhD Agnieszka Strzelecka, PhD Agnieszka Kurdys-Kujawska, Dr hab., prof. KUT Danuta Zawadzka
<b>k20is-281</b>	Application of logistic regression models to assess household financial decisions regarding debt PhD Agnieszka Strzelecka, PhD Agnieszka Kurdys-Kujawska, Dr hab., prof. KUT Danuta Zawadzka
<b>k20is-307</b>	The Production Quality Control Process, Enhanced with Augmented Reality Glasses and the New Generation Computing Support System Dr Hab. Inz. Prof. Tomasz Krolikowski, Dr Hab. Inz. Prof. Norbert Chamier-glisczynski, Dr Hab. Inz. Prof. Roman Stryjski, Mgr Inz. Andrzej Szajna, Dr Hab. Inz. Prof. Waldemar Wozniak
<b>k20is-332</b>	Identification of fan dynamics in a spray booth using genetic algorithms Prof. Piotr Nikonczuk, Dr Slawomir Jaszczak

***IS20: Preventing risks and analysing events through social media analysis***

Chair: Prof. Josiane Mothe

Wednesday 16 Sept 2020: 14:00 - 16:00 BST

Room 7

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-088</b>	A Semantic Engine and an Ontology Visualization Tool for Advanced Crime Analysis Mr Nikolaos Peppes, Dr Evgenia Adamopoulou, Mr Theodoros Alexakis, Dr Kostas Demestichas, Mrs Konstantina Remoundou
<b>k20is-113</b>	A recursive methodology for radical communities' detection on social networks Ms Amal Rekik, Mr Abdelmajid Ben Hamadou, Ms Salma Jamoussi
<b>k20is-121</b>	Named Entities and Their Role in Creating Context Information Prof. Dr. Kurt Englmeier,
<b>k20is-133</b>	Project Hatemeter: helping NGOs and Social Science researchers to analyze and prevent anti-Muslim hate speech on social media Phd Mario Laurent
<b>k20is-147</b>	Getting Insights from a Large Corpus of Scientific Papers on Specialised Comprehensive Topics - the Case of COVID-19 Epidemia Prof. Bernard Dousset, Prof. Josiane Mothe
<b>k20is-155</b>	Building a formal model for hate detection in French corpora Dr Valentina Dragos, Pr. Delphine Battistelli, M. Cyril Bruneau
<b>k20is-172</b>	How to characterize the discourse of the digital ultra-right? For an interdisciplinary method of terrorism prevention. Pr. Seraphin Alava, Phd Nawel Chaouni, Phd Yasmine Charles

**IS21-A: Global and Constrained Optimization: Algorithms and Applications**

Chair: Prof. Abdellah Chehri

Wednesday 16 September 2020: 14:00 - 16:00 BST

Room 8

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-020</b>	On Coordinate-Wise Minimization Applied to General Convex Optimization Problems Ing. Tomas Dlask
<b>k20is-072</b>	A heuristic approach based decision support system for the bi-objective hazardous materials transportation problem Doctor Ons Abdelkhalek, Professor Saoussen Krichen, Phd Nasreddine Ouertani
<b>k20is-124</b>	Bi-level multi-objective combinatorial optimization using reference approximation of the lower level reaction Phd Student Malek Abbassi, Professor Nabil Absi, Professor Lamjed Ben Said, Phd Abir Chaabani
<b>k20is-161</b>	A Framework of Optimizing the Deployment of IoT for Precision Agriculture Industry Professor Chehri Abdellah, PhD Chaibi Hasna, Professor Wahbi Mohamed, Professor Hakem Nadir, Professor Saadane Rachid
<b>k20is-166</b>	Optimization of Spectrum Utilization Parameters in Cognitive Radio Using Genetic Algorithm Professor Saadane Rachid, Professor Chehri Abdellah, Phd El Rharras Abdessamad, Professor Jeon Gwanggil, Phd Hakem Nadir

**IS21-B: Global and Constrained Optimization: Algorithms and Applications**

Chair: Prof. Abdellah Chehri

Thursday 17 September 2020: 14:30 - 16:30 BST

Room 8

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-246</b>	Comparison of Planning Models for Dynamic Berth Allocation Problem Using A Sailfish-basedn Algorithm Mr Issam El Hammouti, Dr Mohamed El Merouani, Dr Azza Lajjam
<b>k20is-254</b>	PTSP Solution Strategy for Motion Trajectory of UAV in Ubiquitous Sensor Network Assistant Professor Mohamed Abdellahi Amar, Associate Professor Leila Horchani, Assistant Professor Walid Khaznaji
<b>k20is-293</b>	Parallel Genetic Algorithm Decoder Scheme Based on DP-LDPC Codes for Industrial IoT Scenarios Pr Rachid Saadane, Dr Hasna Chaibi, Pr Abdellah Chehri, Pr Alfred Zimmermann
<b>k20is-298</b>	Automatic Anode Rod Inspection in Aluminum Smelters using Deep-Learning Techniques: A Case Study Pr Abdellah Chehri, Mr Hamou Chehri, Pr Laszlo Kiss, Pr Alfred Zimmermann
<b>k20is-333</b>	On the Ultra-Reliable and Low-Latency Communications for Tactile Internet in 5G Era Professor Saadane Rachid, Professor Chehri Abdellah, Phd Slalmi Ahmed, Professor Jeon Gwanggil, Phd Chaibi Hasna, Professor Hakem Nadir

## ***IS22: Knowledge Management and Intelligent Interaction in Autonomous and Embedded Systems***

Chair: Prof. Radosław Katarzynyak

Thursday 17 Sept 2020: 14:30 - 16:30 BST

Room 11

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-234</b>	A Framework for Organization-Centered Doxastic Reasoning Professor Andrzej Szalas, Professor Barbara Dunin-keplicz
<b>k20is-295</b>	Self-adaptation of Workflow Business Software to the User's Requirements and Behavior Ph.d. D.sc. Janusz Sobecki, Ph.d. D.sc. Grzegorz Kolaczek, Ph.d. Adam Wasilewski
<b>k20is-321</b>	3D printed robotic arm with elements of artificial intelligence B.eng Rafal Siemasz, Assoc. Prof. Ziemowit Malecha, Assoc. Prof. Krzysztof Tomczuk

***IS23: Interactive Linguistics for Agent and Multiagent Systems***

Chair: Prof. Radosław Katarzyniak

Friday 18 Sept 2020: 13:30 - 15:30 BST

Room 11

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-251</b>	Grounding of Modal Responses in Question Answering System Equipped with Hierarchical Categorisation Dr Wojciech Lorkiewicz, Dr Grzegorz Popek
<b>k20is-255</b>	Aligning naming conventions through dialogue-like interaction in multi-agent systems Dr Wojciech Lorkiewicz
<b>k20is-265</b>	Extracting categories with prototypes in artificial cognitive agents Mr. Marcin Zurawski, Prof. Radosław Katarzyniak, Dr. Grzegorz Popek
<b>k20is-316</b>	A Preliminary Semiotic-Conceptual Analysis of a Learning Management System Dr. Uta Priss
<b>k20is-328</b>	To know we need to share - information in the context of interactive acquisition of knowledge Dr Pawel Stacewicz, Dr Hab. André Włodarczyk



***IS24: Immunity-Based Systems: Resilience with AI***

Chair: Prof. Yoshiteru Ishida

Wednesday 16 Sept 2020: 10:30 - 12:30 BST

Room 12

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-284</b>	Identification of library functions statically linked to Linux malware without symbols Mr Shu Akabane, Prof Takeshi Okamoto
<b>k20is-334</b>	Dynamic assignment based on a probabilistic matching: Application to server-container assignment Prof. Yoshiteru Ishida, Mr. Akhmad Alimudin
<b>k20is-335</b>	Gait identification and authentication using LSTM based on 3-axis accelerations of smartphone Dr. Yuji Watanabe, Mr. Masaki Kimura

***IS25-A: Smart Education: Learning environment using technology***

Chair: Prof. Nobuyuki Ogawa

Wednesday 16 Sept 2020: 10:30 - 12:30 BST

Room 6

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-014</b>	An Off-Line Scaffolding Tool for Writing Abstracts of Qualification Papers Associate Professor Blanka Klimova
<b>k20is-019</b>	Reflection on Blended Learning and E-Learning - Case Study Dr Jaroslav Kacetl, Prof. Ilona Semradova
<b>k20is-036</b>	The use of technology in the learning environment for business communication: the positive psychology aspects in the use of smart learning environments Phd Marcel Pikhart
<b>k20is-041</b>	Assessment of vocabulary knowledge through a mobile application Mgr. Petra Polakova, Assoc. Prof. Blanka Klimova
<b>k20is-045</b>	Development of A-txt system compatible introductory teaching materials for Electric Power Engineering using gaming simulation Prof. Shin-nosuke Suzuki, Dr. Yutaro Akimoto, Dr. Katsumi Hirata, Dr. Takehito Kato, Dr. Suzuki Kengo, Dr. Akira Okada

***IS25-B: Smart Education: Learning environment using technology***

Chair: Prof. Nobuyuki Ogawa

Friday 18 Sept 2020: 9:30 - 11:30 BST

Room 7

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-125</b>	Active Learning Classes (in KOSEN Colleges of Japan) Using ICT and Tools for Obtaining Biological Information to Enhance the Creativity of Engineering Design Students Prof. Ph.d. Nobuyuki Ogawa, Prof. Dana M. Barry, Prof. Hideyuki Kanematsu, Prof. Masashi Kawaguchi, Prof. Tatsuya Shirai, Prof. Kuniaki Yajima
<b>k20is-128</b>	Virtual Chemical Experiments in Metaverse and their Applications to Collaborative Projects: The framework and its significance Prof. Shin-nosuke Suzuki, Prof. Dana M. Barry, Prof. Hideyuki Kanematsu, Prof. Katsuko T Nakahira, Prof. Nobuyuki Ogawa, Prof. Kuniaki Yajima
<b>k20is-137</b>	Benefits of the Use of Mobile Applications for Learning a Foreign Language by Elderly Population Assoc. Prof. Blanka Klimova
<b>k20is-212</b>	Alexa, What classes do I have today? The use of Artificial Intelligence via Smart Speakers in Education Lecturer Phd Serban Serban, Researcher Ioana-alexandra Todericiu
<b>k20is-235</b>	Application of Biological Information from Eye Blinking to Mutual Communication for e-Learning: Results of PBL Activities for Students Prof Kuniaki Yajima, Prof Barry Dana M, Prof Hideyuki Kanematsu, Prof Masashi Kawaguchi, Prof Nobuyuki Ogawa, Prof Tatsuya Shirai

**IS26: Knowledge and data engineering in medicine and health care**

Chair: Assoc. Prof. Krzysztof Pancerz

Wednesday 16 Sept 2020: 14:00 - 16:00 BST

Room 11

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-031</b>	Automated feature selection for obstructive sleep apnea syndrome diagnosis Phd, Eng, Dsc Agnieszka Wosiak, Mr Rafal Kowalski
<b>k20is-263</b>	Dealing with Polysemy in the Polish Sign Language Using the OWL Ontology Dr Wojciech Koziol, M.sc. Kamil Dudek, Prof. Krzysztof Pancerz, Prof. Kazimierz Sikora
<b>k20is-269</b>	A Constructive Induction of Feature using Random Forest Approach Ph. D. Wiesław Paja, Ph. D. Maksymilian Knap
<b>k20is-292</b>	Experiments with Fuzzification of MMPI Profiles for the Classification Task Prof. Krzysztof Pancerz, M.sc. Sylwia Augustynowicz, M.sc. Marcin Chyla, M.sc. Jerzy Gomula
<b>k20is-314</b>	Data Security Platform Model in Networked Medical IT Systems based on Statistical Classifiers and ANN Ph.d., Eng. Mirosław Hajder, Msc., Eng. Piotr Hajder, Ph.d., Eng. Janusz Kolbusz, Msc., Eng. Mateusz Liput, Ph.d., Eng. Mariusz Nycz

## ***IS28-A: Neuroscience techniques and quantitative methods in supporting decision making***

Chair: Prof. Kesra Nermend

Wednesday 16 Sept 2020: 10:30 - 12:30 BST

Room 10

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-010</b>	Green jobs on the background of Industry 4.0 Dr hab inż. Małgorzata Rutkowska, Dr inż. Adam Sulich
<b>k20is-101</b>	Decision Making Model Based on Attractor Network With Binary Neurons Mr Marcin Penconek
<b>k20is-111</b>	IT and Data Mining in Decision-Making in the Organization. Education Management in the Culture of Late Modernity Ma Julia Klimek, Ma Jordan Klimek
<b>k20is-162</b>	A rapid preliminary skills diagnostics for supporting the decision-making process, on HR management example. Dr Grzegorz Szyjewski
<b>k20is-163</b>	Multi-Criteria Assessment of the Bureaucracy in Poland - the Individual Decision-Making Aspect Ma Julia Klimek,
<b>k20is-164</b>	Quantitative analysis of a private tax rulings corpus Phd Tomasz Strak, Phd Michał; Tuszyński

## ***IS28-B: Neuroscience techniques and quantitative methods in supporting decision making***

Chair: Prof. Kesra Nermend

Wednesday 16 Sept 2020: 14:00 - 16:00 BST

Room 10

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-169</b>	The use of neurophysiological measures in studying social advertising effectiveness Dr. Anna Borawska, Prof. Malgorzata Latuszynska
<b>k20is-173</b>	The relations between materialism, consumer decisions and advertising perception Professor Dominika Maison, Ma/phd Candidate Dominika Adamczyk
<b>k20is-182</b>	Neuroentrepreneurship a new paradigm in the management science Professor Korpysa Korpysa
<b>k20is-192</b>	The value of the company and its fundamental strength Dr Hab. Malgorzata Tarczyska-luniewska, Dr Hab. Sebastian Majewski, Prof. Dr Hab. Waldemar Tarczyński
<b>k20is-204</b>	Supporting Managerial Decisions with IDI in the Organization's Innovative Activities Profesor Katarzyna Koziol-nadolna, Profesor Joanna Wisniewska
<b>k20is-206</b>	Using the PVM-VSI method (Preference Vector Method - Vector Space of Increments) in supporting the decision related to the purchase of an electric car M.sc. Eng. Marek Kannchen

## ***IS28-C: Neuroscience techniques and quantitative methods in supporting decision making***

Chair: Prof. Kesra Nermend

Thursday 17 Sept 2020: 14:30 - 16:30 BST

Room 10

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-219</b>	The value of free time - the result of surveys Dr Hab. Danuta Milaszewicz
<b>k20is-220</b>	Application of Vector Measure Construction Methods to estimate growth factors of fundamental importance for the economy on the example of nations in transition Dr Hab. Danuta Milaszewicz, Prof Kesra Nermend, Dr Mateusz Piwowski
<b>k20is-227</b>	Cognitive neuroscience in the design process of social advertising Dr Mateusz Piwowski, Prof. Kesra Nermend
<b>k20is-229</b>	Influence of the different cause-related marketing (CRM) strategies on consumer decision making Mrs Aleksandra Furman, Mrs Dominika Maison
<b>k20is-236</b>	Application of machine learning and artificial intelligence models to annual financial statements to identify the companies with fraudulent corporate culture Phd Joanna Wyrobek

## ***IS28-D: Neuroscience techniques and quantitative methods in supporting decision making***

Chair: Prof. Kesra Nermend

Friday 18 Sept 2020: 13:30 - 15:30 BST

Room 9

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-237</b>	On the effectiveness of using virtual reality games in social marketing Dr. Anna Borawska, Prof. Malgorzata Latuszynska, Mr. Konrad Biercewicz, Prof. Mariusz Borawski, Dr. Jaroslaw Duda
<b>k20is-253</b>	Application of VMCM, to investigate, the dynamics of changes information society development Dr Piotr Ogonowski
<b>k20is-260</b>	Rough set theory in the classification of loan applications Phd Jaroslaw Becker, Phd Aleksandra Radomska-zalas, Phd Pawel Ziemia
<b>k20is-311</b>	Analysis and Evaluation Of Information Usefulness And User Experience For Content Presentation In Electronic Media Dr Michal Nowakowski
<b>k20is-062</b>	Empirical verification of the importance of economic knowledge in the development of creativity of creative employees Phd Aneta Sokól



***IS29: Skill Acquisition and Ubiquitous Human Computer Interaction***

Chair: Assoc. Prof. Masato Soga

Friday 18 Sept 2020: 9:30 - 11:30 BST

Room 11

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-023</b>	The effects of tablet and printed media on brain activation during a short-memory task Mr. Muhammad Nur Adilin Bin Mohd Anuardi, Mr. Ikuya Sato, Prof. Atsuko K. Yamazaki
<b>k20is-154</b>	Proposal and development of a system that accelerates task processing speed by fast tempo stimulation B.a. Naoto Sasaki, Dr. Masato Soga

***IS30: Networking and Artificial Intelligence for Aerial Monitoring Systems:  
Design,  
Operation, Performance Analysis, and Future Directions***

Chair: Dr. Abolfazl Razi

Thursday 17 2020: 14:30 - 16:30 BST

Room 9

PROSE Paper No	Paper Title / Authors
k20is-257	Short study of unmanned cargo multicopters with simulation Researcher Kalle Saastamoinen, 1st Lieutenant Tuomas Taipale

***IS31: Knowledge Management and Smart Systems***

Chair: Dr. Cesar Sanin

Friday 18 Sept 2020: 13:30 - 15:30 BST

Room 8

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-158</b>	Industry 4.0 Implementation Challenges in Manufacturing Industries: an Interpretive Structural Modelling Mr. Ahmad Reshad Bakhtari, Dr. Vineet Kumar, Dr. Cesar Sanin, Prof. Edward Szczerbicki, Dr. Mohammad Maqbool Waris
<b>k20is-181</b>	Smart Virtual Product Development (SVPD) System to Support Product Inspection Planning in Industry 4.0 Mr Muhammad Bilal Ahmed, Dr Farhat Majeed, Dr Cesar Sanin, Professor Edward Szczerbicki
<b>k20is-242</b>	Human Feedback and Knowledge Discovery: Towards Cognitive Systems Optimization Miss Catherine Silva De Oliveira, Doctor Cesar Sanin, Professor Edward Szczerbicki

### ***IS33: Computational Intelligence System and its Application to Media Information Technology***

Chair: Prof. Yuji Iwahori

Friday 18 Sept 2020: 9:30 - 11:30 BST

Room 8

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-021</b>	A Proposal for Article Management Method Using Wearable Camera Professor Tsukasa Kudo
<b>k20is-054</b>	Tracking the Annual Changes of Statistical Property of a Stock Index in the Arrowhead Market Dr. Mieko Tanaka-yamawaki, Dr. Yumihiko Ikura
<b>k20is-075</b>	Graph Matching Approach between Endoscope Images for Non-Rigid Motion using Blood Vessel Structure Prof. Yuji Iwahori, Mr. Shun Emoto, Dr. Kenji Funahashi, Prof. Kunio Kasugai, Dr. Naotaka Ogasawara, Dr. Hiroyasu Usami
<b>k20is-076</b>	Automatic Construction of Dataset with Automatic Annotation for Object Detection Prof. Yuji Iwahori, Mr. Witsarut Achariyaviriya, Dr. Shinji Fukui, Prof. Yoshitsugu Hayashi, Prof. Boonserm Kijirikul, Mr. Naoki Watanabe
<b>k20is-171</b>	Colorectal Polyp Classification Based On Latent Sharing Features Domain from Multiple Endoscopy Images Dr. Hiroyasu Usami, Prof. Yoshinori Adachi, Prof. M. Bhuyan, Dr. Masahide Ebi, Prof. Yuji Iwahori, Dr. Aili Wang
<b>k20is-193</b>	Walking Cycle and Walking Phases Extraction from Videos using Transfer Learning Dr Insaf Setitra, Pr Yuji Iwahori, Dr Abdelkrim Meziane

**IS34: Service-oriented Data Science**

Chair: Prof. Katsutoshi Yada

Wednesday 16 Sept 2020: 10:30 - 12:30 BST

Room 12

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-186</b>	Value Measurement and Taxation Metrics in the Model-Building Foundations for Intelligent Pricing Methodology Dr Marina Kholod, Dr Yury Lyandau, Ms Elena Popova, Ms Ksenia Sadykova, Mr Aleksei Semenov
<b>k20is-249</b>	SLA-aware task scheduling and data replication for enhancing provider profit in clouds Ph.d Student Amel Khelifa, Professor Faouzi Ben Charrada, Associate Professor Tarek Hamrouni, Associate Professor Riad Mokadem

## ***IS35: AI, Robotics, and Human Machine Systems (IROHMS) for smart manufacturing***

Chair: Dr. Ze Ji

Thursday 17 2020: 14:30 - 16:30 BST

Room 9

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-180</b>	Machine Learning-enabled feedback loops for metal powder bed fusion additive manufacturing Dr. Chao Liu, Dr. Samuel Bigot, Dr. Ze Ji, Dr. Pierre Kerfriden, Dr. Franck Lacan, Mr. Léopold Le Roux
<b>k20is-226</b>	Automated Robot-based Large-Scale 3D Surface Imaging Dr Ji Ze, Dr Kun Chen, Mr Jingjing Wen, Dr Jing Wu
<b>k20is-313</b>	Framework and Enabling Technologies of Cloud Robotic Disassembly Dr Jiayi Liu, Mr Jia Cui, Mrs Liping Yuan, Ms Xinyu Zhang
<b>k20is-315</b>	Interacting Multiple Model-Based Adaptive Trajectory Prediction for Anticipative Human Following of Mobile Industrial Robot B.e. Hao Wu, Dr. Hao Feng, Dr. Yang Hu, Prof. Wenjun Xu, Dr. Bitao Yao

## ***IS36: AI, Robotics, and Human Machine Systems (IROHMS) for Medical and Healthcare Applications***

Chair: Dr. Yulia Hicks

Wednesday 16 Sept 2020: 14:00 - 16:00 BST

Room 9

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-122</b>	Effects of a Humanoid Robot on the Well-being for Hospitalized Children in the Pediatric Clinic - An Experimental Study Dr. Christopher Reichstein, M.a. Pia Beyer-wunsch
<b>k20is-189</b>	Feature extraction and feature selection in smartphone-based activity recognition Dr. Maryam Banitalebi Dehkordi, Prof. Rossitza Setchi, Dr. Abolfazl Zaraki
<b>k20is-209</b>	Automatic Low Back Pain Classification Using Inertial Measurement Units: A Preliminary Analysis Ms Zoe Bacon, Dr Mohammad Al-amri, Dr Yulia Hicks, Dr Liba Sheeran
<b>k20is-238</b>	Explainable Robotics in Human-Robot Interactions Professor Rossi Setchi, Dr Maryam Dehkordi, Ms Juwairiya Khan
<b>k20is-252</b>	Significant Features of Hand Motion for Dementia Evaluation in the Simple Recreation Game Mr Kanta Kanta Umemura, Dr Hiroharu Kawanaka, Prof Rossi Setchi, Dr Yulia Hicks

***IS37-A: Effect of Modern Technologies in our Lives***

Chair: Assoc. Prof. Adrian Iftene

Wednesday 16 Sept 2020: 14:30 - 16:30 BST

Room 12

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-035</b>	Eye and Voice Control for an Augmented Reality Cooking Experience Mr Adrian Iftene, Mr Vlad Radulescu, Mrs Diana Trandabat
<b>k20is-037</b>	In-vehicle Visualization of Data by means of Augmented Reality Dr. Elena Bautu, Ms. Emanuela Bran, Dr. Dorin Mircea Popovici, Dr. Crenguta Puchianu, Dr. Dragos Sburlan
<b>k20is-042</b>	Self-Sovereign Applications: return control of data back to people Phd Sinica Alboaie, Professor Lenuta Alboaie, Phd Student Nicu-Cosmin Ursache
<b>k20is-051</b>	Offline but still connected with IPFS based communication Lect. Andrei Panu, Prof. Lenuta Alboaie, Stud. Alexandru Cristea, Lect. Vlad Radulescu
<b>k20is-129</b>	Learn Chemistry with Augmented Reality Ms Macariu Camelia, Mrs Daniela Gifu, Mr Adrian Iftene



***IS37-B: Effect of Modern Technologies in our Lives***

Chair: Assoc. Prof. Adrian Iftene

Thursday 17 Sept 2020: 9:30 - 11:30 BST

Room 12

<b>PROSE Paper No</b>	<b>Paper Title / Authors</b>
<b>k20is-157</b>	Development of e-service virtual museum tours in Poland during the SARS-CoV-2 pandemic Phd Piotr Gutowski, Phd Zuzanna Klos-adamkiewicz
<b>k20is-185</b>	Conceptual and Ontological Modeling of In-Vehicle Lifelogging Software Systems Mrs Crenguta Puchianu, Mrs Elena Bautu
<b>k20is-203</b>	Prehospital Cerebrovascular Accident Detection using Artificial Intelligence Powered Mobile Devices Mr. Cristian Simionescu, Mr. Robert Herscovici, Ms. Madalina Insuratelu
<b>k20is-216</b>	Towards a Sustainable Future: Ubiquitous Knowledge and the Mixed Reality Museum Miss Emanuela Bran, Mrs. Elena Bautu, Miss Emanuela Bran, Mr. Dorin Mircea Popovici

# KES International

Knowledge Brokerage | Professional networks | Conferences | Publications | Membership Services

## KES INTERNATIONAL

For over a decade the mission of KES International has been to provide a professional community, networking and publication opportunities for all those who work in knowledge-intensive subjects. At KES we are passionate about the dissemination, transfer, sharing & brokerage of knowledge. The KES community consists of several thousand experts, scientists, academics, engineers students and practitioners who participate in KES activities.



***KES brings people together to make ... Knowledge Connections.***

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For over 20 years KES has run conferences in different countries of the world on leading edge topics -

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**Innovation, Knowledge Transfer, Enterprise and Entrepreneurship** -- *Innovation and Knowledge Transfer* -- *Innovation in Medicine and Healthcare*  
**Digital Media** -- *Archiving Tomorrow* -- *Innovation in Music*



*Some of the countries - Australia, Chile, Croatia, England, Germany, Japan, Ireland, Italy, Poland, Portugal, New Zealand, United States, Vietnam, Wales*

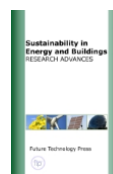
## KES JOURNALS

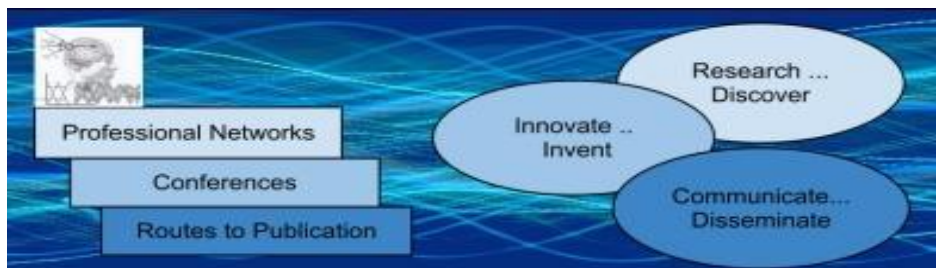
**KES edits a range of journals and serials on knowledge intensive subjects -**

-- *International Journal of Knowledge Based and Intelligent Engineering Systems* -- *Intelligent Decision Technologies: an International Journal* -- *InImpact: the Journal of Innovation Impact* -- *Sustainability in Energy and Buildings: Research Advances* -- *Advances in Smart Systems Research*

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KES can provide live and online training courses on all the topics in its portfolio. KES has good relationships with leading universities and academics around the world, and can harness these to provide excellent personal development and training courses.

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It is essential for research groups to communicate the outcomes of their research to those that can make use of them. But academics do not want to run their own conferences. KES has specialist knowledge of how to run a conference to disseminate research results. Or a research project workshop can be run alongside a conference to increase dissemination to an even wider audience.



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KES works in partnership with the Institute of Knowledge Transfer (IKT), the sole accredited body dedicated to supporting and promoting the *knowledge professional*: those individuals involved in innovation, enterprise, and the transfer, sharing and exchange

of knowledge. The IKT accredits the quality of innovation and knowledge transfer processes, practices activities, and training providers, and the professional status of its members.

### ABOUT KES

Formed in 2001, KES is an independent worldwide association involving about 5000 professionals, engineers, academics, students and managers, operated on a not-for-profit basis, from a base in the UK. A number of universities around the world contribute to its organisation, operation and academic activities. KES International Management Ltd is a private limited company that services the KES International organisation.

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# KES International – 2021 Conferences

## Celebrating 25 Years of KES

Due to the COVID-19 pandemic, all conferences this year will be planned as hybrid events. Participants will be able to attend either in person or online via our unique virtual platform.

### SDF-21: 14-16 June 2021



Smart Digital Futures 2019 brings you six of our most popular conferences on various aspects of intelligent systems (Innovation in Medicine & Healthcare, Intelligent Decision Technologies, Human Centered Intelligent Systems, Agent & Multi-agent Systems,

Smart Education & E-Learning and Smart Transport Systems) in the stunning city of **Rome**. It will feature a unique and exciting social programme.

### KES-2021: 8-10 September 2021

We are delighted to announce that this is the 25th International Conference on Knowledge Based and Intelligent information and Engineering Systems! Celebrate with us in **Szczecin, Poland** at the **Radisson Blu Hotel** and on social events throughout this incredible and historic city.



### SST-21: 15-17 September 2021



Smart Sustainable Technologies 2021 is KES's dual themed conference incorporating: Sustainability in Energy and Buildings (SEB-21) & Sustainable Design and Manufacturing (SDM-21) It will be held at the beautiful **Hotel President**, which sits in the centre of the lively city of **Split, Croatia**. Split lies on the eastern shore of the Adriatic

Sea and is Croatia's second largest city.





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