# KES International

## Conference Programme

# KES2023

27th International Conference on
Knowledge-Based and Intelligent
Information & Engineering Systems



6 - 8 September 2023
Athens, Greece &
KES Virtual Conference Centre

# Contents

# Chairs' Welcome

Welcome to the 27th International Conference on Knowledge-Based and Intelligent Information & Engineering Systems (KES 2023), organised by KES International and held in Athens, Greece, 6-8 September 2023.

KES 2023 is the 27th event in a series of broad-spectrum intelligent systems conferences first held in Adelaide, Australia in 1997. The main aim of this KES conference series is to provide an internationally respected forum for the dissemination of research results and the discussion of issues relating to the theory, technologies and applications of intelligent engineering and information systems. The conference is rated 'B' under the CORE conference ranking system.

We are pleased to be able to hold this conference in the breath-taking Royal Olympic Hotel, located within the centre of the city. The venue directly overlooking the Temple of Zeus and National Garden, with grand views of Acropolis and other archaeological sites. Its rooftop terrace provides the perfect viewing platform to see the city in all of its natural beauty.

Although the conference is intended to be mainly a live event with physical attendance, delegates unable to take advantage of the opportunity to visit this wonderful location can present virtually over the KESonline platform.

This truly international conference attracted submissions from a substantial number of researchers and practitioners from all over the world, who submitted their papers to four general track sessions and 50 special sessions.  A large number of submissions was received and each paper was peer reviewed by at least two members of the International Program Committee.  From them, 512 high-quality papers were accepted for oral presentation and publication in Procedia Computer Science, submitted for indexing in Conference Proceedings Citation Index (CPCI), Scopus and INSPEC.

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

Prof. Dr. Nikolaos G. Bourbakis, Wright State University, USA, title of talk: *'Knowledge-based Navigation of Autonomous Robots'*;
Prof. Manolis Koubarakis, National and Kapodistrian University of Athens, Greece, title of talk: *'Question Answering over Geospatial Knowledge Graphs'*;
Prof. Lyudmila Mihaylova, University of Sheffield, Sheffield, United Kingdom, title of talk:
*'Machine Learning Methods for Sensor Data Fusion and Autonomous Systems'*;

Prof. Ireneusz Czarnowski, Gdynia Maritime University, Poland, title of talk: *'Processing of difficult data for machine learning'*;
Prof. Nobuyuki Ogawa, National Institute of Technology (KOSEN), Gifu College. Japan, title of talk: *'The Potential and Challenges of the Metaverse'.*

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

KES International hopes and intends that KES2023 will make a significant contribution to international research collaboration and understanding, an essential task for the promotion of scientific joint work and excellence.

*Prof. Robert J. Howlett, KES International Research, UK, and 'Aurel Vlaicu' University of Arad, Romania.*
*Prof. Lakhmi C. Jain, KES International, UK*
*Prof. George A. Tsihrintzis, University of Piraeus, Greece*
*Dr. Carlos Toro, NTT DATA Europe and LATAM*
*Assoc. Prof. Sebastian Rios, University of Chile, Chile*

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**KES Conference Series**
KES2023 is part of the KES Conference Series.

*Conference Series Chairs:*
L.C.Jain and R.J.Howlett

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| **Prof. Sergey V. Zykov** | HSE University, Russia |

# General Track Sessions

| Code | Track Title | Track Chair |
|------|-------------|-------------|
| **G01** | Machine Learning, Artificial Neural Networks and Deep Learning | Assoc. Prof. Ahmed Samet |
| **G02** | Knowledge Based and Expert Systems | Prof. Anne Hakansson |
| **G03** | Intelligent Information and Engineering Systems | Prof. Cecilia Zanni-Merk |
| **G04** | Industry Applications | Dr Carlos Toro |

# Invited Sessions

| Code | Session | Session Chair |
|------|---------|---------------|
| **IS01** | Networks for Innovation, Knowledge Creation and Sharing | Prof. Hironori Takeuchi |
| **IS02** | Artificial Intelligence, Robotics and Human-Machine Systems | Prof. Rossi Setchi ,Prof. Philip, Dr. Robert Deaves |
| **IS03** | Challenges and Solutions for Knowledge Management in Project Management | Assoc. Prof. Tadeusz A. Grzeszczyk, Assoc. Prof. Jakub Swacha |
| **IS04** | Knowledge-Based Systems for e-Business | Prof. Kazuhiko Tsuda, Prof. Masakazu Takahashi, Prof. Nobuo Suzuki |
| **IS05** | Interdisciplinary Approaches in Digital Transformation (IADT 2023) | Prof. Ralf-Christian Härting, Prof. Ivan Luković |
| **IS06** | Interdisciplinary Approaches in Data Science Practice (IADSP 2023) | Prof. Ivan Luković, Prof. Ralf-Christian Härting |
| **IS07** | Software Engineering and Large-Scale Systems | Prof. Sergey V. Zykov, Dr. Hadi M. Saleh |
| **IS08** | Smart Education: Learning Environment Using Techno | Prof. Nobuyuki Ogawa, Prof. Hideyuki Kanematsu, Prof. Kuniaki Yajima, Prof. Dana Barry, Assoc. Prof. Katsuko T. Nakahira, Prof. Kazunori Nishino |
| **IS09** | Intelligent Methods in Maritime Engineering, Transport and Logistics | Prof. Andrzej Banaszek |
| **IS10** | Digitalization and Knowledge Management in Health Data Acquisition and Processing | Prof. Ralf Seepold, Prof. Massimo Conti |
| **IS11** | Computational Culture, Arts and Interaction | Assoc. Prof. Ryosuke Yamanishi, Prof. Mitsunori Matsushita, Prof. Satoshi Nakamura, Prof. Yoko Nishihara |
| **IS12** | Knowledge and Data Engineering in Medicine and Health Care | Assoc. Prof. Krzysztof Pancerz, Assist. Prof. Wieslaw Paja, Assoc. Prof. Catalin Stoean, Assoc. Prof. Agnieszka Wosiak |

| Code | Session | Session Chair |
|------|---------|---------------|
| **IS13** | Information Technology and Information Systems in Accounting, Finance and Controlling | Assoc. Prof. Arkadiusz Januszewski |
| **IS14** | Aspects of Intelligent Learning Systems: e-Learning Across Various Educational Contexts | Prof. Hiroshi Ueda, Assoc. Prof. Mohammad Nehal Hasnine, Assoc. Prof. Hiroya Suno, Assoc. Prof. Hisashi Hatakeyama |
| **IS15** | Cyber Security and Big Data | Dr. Francesco Mercaldo |
| **IS16** | Global and Constrained Optimization: Algorithms and Applications (4th Edition) | Prof. Abdellah Chehri, Prof. Francois Rivest, Prof. Imran Ahmed |
| **IS17** | Applied Econometrics and Statistics | Assoc. Prof. Mariusz Doszyń, Dr. Sebastian Gnat |
| **IS18** | Classification, Forecasting and Decision Support | Dr. Rafal Deja |
| **IS19** | Modern Technology Reshaping our World | Prof. Lenuţa Alboaie, Assoc. Prof. Adrian Iftene |
| **IS20** | Digital Transformation in Organizations | Assoc. Prof. Klaudia Smoląg, Dr. Paula Pypłacz |
| **IS21** | RAI – Robust Artificial Intelligence | Dr. Aya Saad, Prof. Anne Håkansson |
| **IS22** | The 7th Special Session on Eye Movement Data Processing and Analysis (EMDPA) | Assoc. Prof. Katarzyna Harezlak, Assoc. Prof. Pawel Kasprowski, Assoc. Prof. Jacek Matulewski |
| **IS23** | Intelligent Systems in Evaluation and Performance Measurement | Prof. Malgorzata Porada-Rochoń, Prof. Iga Rudawska |
| **IS24** | Intelligent Decision Support and Process Optimization Under Uncertainty | Dr. Aleksandra Radomska-Zalas, Prof. Andrzej Perec, Prof. Paweł Ziemba |
| **IS25** | Innovations-Oriented Intelligent Information Processing (3IP 2023) | Assoc. Prof. Daocheng Hong, Prof. Jun Steed Huang |
| **IS26** | Complex and Dispersed Classifiers (CDC 2023) | Assoc. Prof. Małgorzata Przybyła-Kasperek, Dr. Rafał Skinderowicz |
| **IS27** | ICT & IT innovation as a Source of Entrepreneurship of Companies | Prof. Jaroslaw Korpysa |

| Code | Session | Session Chair |
|------|---------|---------------|
| **IS28** | Information, Innovation and Technology as a Basis for Sustainable Business and Society | Prof. Katarzyna Szopik-Depczyńska, Prof. Katarzyna Cheba, Prof. Krzysztof Janasz, Dr. Ewa Staniewska |
| **IS29** | (DECREASE) DElving into imbalanCed, oveRlapping and multidimEnsionAl data: recent advanceS and challEnges | Dr. Małgorzata Bach, Dr. Aleksandra Werner, Dr. Daniel Kostrzewa |
| **IS30** | Computational Intelligence System and its Application to Media Information Technology | Prof. Yuji Iwahori, Prof. Yoshinori Adachi, Prof. Nobuhiro Inuzuka |
| **IS31** | Computer Science for Green Technologies and Sustainable Development | Prof. Adam Sulich, dr inż. Letycja Sołoducho-Pelc, mgr inż. Tomasz Zema |
| **IS32** | Machine Learning for Vision Systems | Dr. Laura Falaschetti, Prof. Claudio Turchetti |
| **IS33** | Innovation Strategies and Digital Transformation | Dr. Ilona Pawełoszek |
| **IS34** | Recent Advances in Biometric Technology | Assoc. Prof. Dzati Athiar Ramli, Prof. Abdellah Chehri, Dr. Ng Theam Foo |
| **IS35** | Curative Power of Medical Data | Dr. Daniela Gifu, Dr. Kevin Cohen, Assoc. Prof. Jingbo Xia |
| **IS36** | Data Pre-processing Strategies and Machine Learning | Prof. Ireneusz Czarnowski, Prof. Antonio J. Tallon-Ballesteros |
| **IS37** | Intelligent Management Support Systems (IMSS) | Assoc. Prof. Marcin Hernes, Assoc. Prof. Artur Rot, Prof. Marcin Fojcik, Assoc. Prof. Anne-Lena Kampen |
| **IS38** | Quantitative Tools Supporting Financial Decisions | Prof. Waldemar Tarczyński, Prof. Sebastian Majewski |
| **IS39** | Chance Discovery and Market of Data | Prof. Akinori Abe, Prof. Yukio Ohsawa, Prof. Noriyuki Kushiro |
| **IS40** | Knowledge-driven development of digital twins in industries and service applications | Dr. Sina Namaki Araghi, Prof. Dr. Mohammed Hedi Karray |
| **IS41** | Semantic Models for the Web of Things | Dr. José Miguel Blanco, Prof. Dr. Mouzhi Ge |

| Code | Session | Session Chair |
|------|---------|---------------|
| IS42 | Signal Processing Algorithms and Pattern Recognition Techniques for Embedded Systems | Prof. Paolo Crippa, Prof. Claudio Turchetti |
| IS43 | Knowledge-based Data Analysis for Complex Data | Prof. Mika Sato-Ilic |
| IS44 | Intelligent Data Analytics for Internet of Things Environments | Dr. Maha Driss, Dr. Wadii Boulila |
| IS45 | Intelligent Critical Infrastructures | Dr. Laura Verde, Dr. Fiammetta Marulli |
| IS46 | Physiological and knowledge-based engineering for social innovation | Atsuko K. Yamazaki, Hiroshi Hasegawa, Tsukasa Yamanaka |
| IS47 | New Generation Computing in Engineering, Life Science and Economy | Prof. Piotr Nikończuk, Prof. Norbert Chamier-Gliszczyński, Dr. Roma Strulak-Wójcikiewicz, PhD Cand. Norbert Lech |
| IS48 | Organisational networks based on knowledge, innovation and intelligent systems | Associate Professor Eng. Ph.D. Robert Kucęba, Ph.D. Dariusz Dudek, Ph.D. Grzegorz Chmielarz |
| IS49 | Knowledge engineering and data mining in the creation of intelligent applications | Assoc Prof. Agnieszka Nowak-Brzezińska, Dr. Agnieszka Konys |
| IS50 | Emerging Technologies, Challenges and Solutions for Zero Trust | Prof. Kuo-Hui Yeh, Prof. Shi-Cho Cha, Prof. Hsing-Kuo Pao, Prof. Hsin-Chin Liu, Prof. Nai-Wei Lo |
| WS01 | Multi-Criteria Decision-Analysis methods - theory and their applications | Dr Wojciech Sałabun |

# Plenary Talks

**Prof. Dr. Nikolaos G. Bourbakis**
Wright State University, USA

### *Knowledge-based Navigation of Autonomous Robots*

**Abstract:** The field of autonomous robots has been drastically revolutionized during the last five decades, with major contributions at all levels. A significant contribution to this evolution has been coming from advances in Computer Science and, especially, from the Artificial Intelligence (AI) community. Indeed, new methodologies and synergies have been developed from different sub-areas of AI, including the sub-area of Knowledge-Based and Intelligent Information & Engineering Systems (KES) and its applications. This talk proposes some novel ideas on the intersection of AI and KES with Intelligent Robotics. In particular, it presents a novel way for robots to extract knowledge from the surrounding space during navigation and to efficiently use to navigate without collision in complex environments.

**Biography:** Prof.-Dr. Nikolaos G. Bourbakis (IEEE Life Fellow, AAIA Fellow) has been serving the fields of Artificial Intelligence (including Machine Learning/Deep Learning) and Assistive Technologies from various posts for almost fifty years now. He received a BS in Mathematics from the National and Kapodistrian University of Athens, Greece, a Certificate in Electrical Engineering from the University of Patras, Greece, and a PhD in Computer Engineering and Informatics (awarded with excellence), from the Department of Computer Engineering & Informatics, University of Patras, Greece. He is currently a Distinguished Professor of Information & Technology and the Director of the Center of Assistive Research Technologies (CART) at Wright State University, Ohio, USA. He is the founder and Editor-in-Chief of the International Journal on Artificial Intelligence Tools, the International Journal on Monitoring and Surveillance Technology Research (IGI-Global, Publ.) and the EAI Transactions on Bioengineering & Bioinformatics. He is also the Founder and Steering Committee Chair of several International IEEE Computer Society Conferences (namely ICTAI, ICBIBE, and ICIISA), Symposia and Workshops. He pursues research in Assistive Technologies, Applied Artificial Intelligence, Bioengineering, Information Security, and Parallel/Distributed Processing, which is funded by USA and European government and industry. He has published extensively in IEEE and International Journals and he has graduated, as the main advisor, several dozens of doctoral students. His research work has been internationally recognized and he has received several prestigious awards, including:

IEEE Computer Society Technical Research Achievement Award; Member of the New York Academy of Sciences; Diploma of Honor in AI School of Engineering, University of Patras, Greece; ASC Outstanding Scientists & Engineers Research Award; Dr. F. Russ IEEE Biomedical Engineering award, Dayton Ohio; Most Cited Article in Pattern Recognition Journal; IEEE ICTAI and ICBIBE best paper Awards; Recognition Award for Outstanding Scholarly Achievements and Contributions in the field of Computer Science, University of Piraeus, Greece; IEEE EMBS-GR Award of Achievements; IEEE Computer Society 30 years ICTAI Outstanding Service & Leadership Recognition; Honorary Doctorate degree of the University of Piraeus, Greece. Since August 2021, he is an Honorary Professor of the Technical University of Crete, Greece.

**Prof. Manolis Koubarakis**
National and Kapodistrian University of Athens, Greece

*Question Answering over Geospatial Knowledge Graphs*

**Abstract:** Given the importance of geospatial information on the Web, we have recently seen the emergence of geospatial knowledge graphs such as YAGO2, YAGO2geo, World-KG and KnowWhereGraph. This talk surveys state-of-the-art geospatial knowledge graphs, and then it studies the problem of answering natural language questions over these knowledge graphs.

**Biography:** Manolis Koubarakis is a Professor and Director of Graduate Studies in the Dept. of Informatics and Telecommunications, National and Kapodistrian University of Athens. He leads the Artificial Intelligence team (http://ai.di.uoa.gr). He holds a Ph.D. in Computer Science from the National Technical University of Athens, an M.Sc. in Computer Science from the University of Toronto, and a diploma (B.Sc.) in Mathematics from the University of Crete. He is a Fellow of EurAI (European Association for Artificial Intelligence) since 2015, Secretary of the EurAI Board since 2022, and current President of the Hellenic Association for Artificial Intelligence. He is a member of the Advisory Board that implements the Hellenic National Strategy for Artificial Intelligence. He has published more than 200 papers that have been widely cited (7700 citations and h-index 46 in Google Scholar) in the areas of Artificial Intelligence (especially Knowledge Representation and Constraint Programming), Databases (especially temporal and spatial databases), Semantic Web, Knowledge Graphs and Linked Data (especially geospatial and Earth observation data), and Deep Learning for Natural Language Processing. His research has been financially supported with a total amount exceeding 9 million Euros by the European Commission, the Hellenic Foundation for Research and Innovation, the Greek General Secretariat for Research and Technology, the European Space Agency and industry.

**Prof. Lyudmila Mihaylova**
The University of Sheffield, United Kingdom

### *Machine Learning Methods for Sensor Data Fusion and Autonomous Systems*

**Abstract:** There is a fast development of different machine learning methods – for object classification, tracking, action recognition and other tasks with multiple types of data – from images and videos to data from wireless sensor networks. Autonomous image and video analytics faces a number of challenges due to the huge volumes of data that sensors provide, the changeable environmental conditions and other factors. However, it is important to know when the methods work well and when they are not reliable, e.g. how much could we trust the obtained results? How could we characterise trust is a related question. How could we quantify the impact of uncertainties on the developed solutions? This talk will discuss current trends in the area of machine learning and show results for image and video analytics for autonomous systems.
This talk will present recent results on automated behaviour analysis for decision making. Recent results for automated video analytics will be presented with Gaussian process methods, deep learning and other methods. Their pros and cons will be discussed. Some of these results are part of Digital twins, recently developed new tools that incorporate machine learning and artificial intelligence methods. This talk will discuss the big potential of Digital Twins, the opportunities and challenges that they bring.



**Biography:** Lyudmila Mihaylova is Professor of Signal Processing and Control in the Department of Automatic Control and Systems Engineering at the University of Sheffield, Sheffield, United Kingdom. Her research interests are in the areas of trustworthy autonomous systems with applications to smart cities, sensor networks, digital health and others. She has expertise in the areas of machine learning, intelligent sensing and sensor data fusion. She won the Tammy Blair best award from the International Conference of Information Fusion 2017, best paper awards from the IEEE DESSERT'2019, 17th IEEE SPA'2013 Conference and IEEE Sensor Data Fusion Workshop, 2013.
Prof. Mihaylova has published more than 200 scientific papers in peer reviewed international journals such as IEEE Transactions on Aerospace and Electronic Systems, IEEE Transactions on Signal Processing, Automatica, IEEE Transactions on Industrial informatics and in a number of conferences. She has more than 6200 citations on google scholar. She is Associate Editor-in-Chief for the IEEE Transactions on Aerospace and Electronic Systems, Senior Editor for the Target Tracking and Multi-sensor data Fusion area since 2021, and a Subject Area Editor for the Elsevier Signal Processing

Journal since 2022. She is a guest Editor for a special issue for Frontiers of Robotics and AI (2022-2023). Prof. Mihaylova is on the Board of Directors of the International Society of Information Fusion (ISIF) and was the ISIF President in the period 2016–2018. She has given a number of talks and tutorials, including NATO SET- 262 AI 2018 (Hungary), Fusion 2017 (Xi'an, China), plenary talks for the IEEE Sensor Data Fusion 2015 (Germany), invited talks at IPAMI Traffic Workshop 2016 (USA) and others.

She is a member of the organising committee of the International Conference of Information Fusion 2022, 2021, IEEE MFI' 2021, UKCI' 2021 and vice-chair of the UKCI 2022. She was the general vice-chair for the International Conference on Information Fusion 2018 (Cambridge, UK), of the IET Data Fusion & Target Tracking 2014 and 2012 Conferences, publications chair for ICASSP 2019 (Brighton, UK) and others.

**Prof. Ireneusz Czarnowski**
Gdynia Maritime University, Poland

### *Processing of difficult data for machine learning*

**Abstract:** Traditional techniques used for machine learning are not well fit to data, which are difficult, i.e. have a high dimensionality, imbalanced class distribution, are uncompleted, damaged, massive or are streaming in nature. Thus, searching for new and better techniques, methods or approaches suitable for working with such data is a really actual for the machine learning community. In my talk I will present selected research results on working with difficult data. Proprietary approaches for learning from big dataset, as well as, from imbalanced data and data streams will be presented. It will be also presented research results on methods for multi-label learning in the selected telecommunication system, where a problem of data damaged is observed.
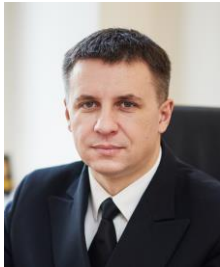
**Biography:** Ireneusz Czarnowski is a graduate of the Faculty of Electrical Engineering at Gdynia Maritime University, Poland. He gained the doctoral degree in the field of computer science in 2004 at Faculty of Computer Science and Management of Poznań University of Technology, Poland. In 2012, he earned a postdoctoral degree in the field of computer science in technical sciences at Wrocław University of Science and Technology, Poland. Since 1998 is associated with Gdynia Maritime University, currently is an professor of computer science in the Department of Information Systems. From 2016 to 2020 he has been a Vice Rector for Scientific Research and Development at Gdynia Maritime University. In the years 2021 to 2022 he was at a research stay at European Research Center for Information Systems (ERCIS), University of Münster, Germany. Currently he is a deputy head of Department of Information Systems, Gdynia Maritime University, Poland.

His main research interests are related to the use of artificial intelligence methods in decision support systems and data mining. His research activity is concerned with machine learning, data reduction for machine learning and data mining. His scientific work also focuses on research in the field of optimization methods and applications of agent systems. Within the field of his interest, he has published, as the author and co-author, more than 100 scientific works, including 30 which appeared in ISI Master Journal List, chapters in scientific monographs, three monographs and several other publications. He has been also the leader of ten research projects and took part in research in five other projects. He is also an editorial board member of the Journals of Knowledge-Based and Intelligent Engineering Systems as well as co-editor several special issues of international journals.

He has been serving as chair or co-chair of programme committee of above 10 international conferences, and served as PC member on more than 50 conferences. He was co-organizer of several International Conferences and has been co-editor conference proceedings published by Springer and IEEE. He is also a member of IEEE and, since 2016, he is the Chair of the Polish Chapter of IEEE System, Man and Cybernetics and a member of other scientific associations.

**Prof. Nobuyuki Ogawa**
National Institute of Technology (KOSEN), Gifu College, Japan

### *The Potential and Challenges of the Metaverse*

**Abstract:** In recent years, constructing a near-future society using metaverse, digital twin, IoT, and AI technologies has been explored as promising to achieve a more efficient and sustainable world. At the same time, technical issues and problems related to data security and privacy are discussed, along with new technologies such as NFT (Non-Fungible Token) technology with a high degree of security safety. We have received competitive funding from the Japanese government for research on metaverse, which is also related to XR, such as VR and AR in Society 5.0. "Society5.0" is a term coined by the Japanese government to describe their vision for a new society that balances economic advancement with the resolution of social challenges by integrating cutting-edge technologies such as metaverse, AI, IoT, and big data into various aspects of people's lives. The goal is to create a human-centered society that enhances the quality of life, promotes sustainability, and empowers individuals to achieve their full potential. This keynote presentation will describe the possibilities and challenges of the metaverse. For example, education can be transformed into a highly interactive and immersive experience in the metaverse. Rather than simply reading textbooks or watching lectures, learners can engage in virtual environments that simulate real-world scenarios and allow hands-on learning. Education in a metaverse offers a new and exciting way for learners to engage with content and acquire knowledge and skills. We expect to see even more innovative educational approaches in virtual environments as technology evolves.



**Biography:** Nobuyuki Ogawa is a professor at the National Institute of Technology (KOSEN), Gifu College. He holds a Ph.D. from the University of Tsukuba. He concurrently holds a part-time professorship at Nagoya University. He has authored many peer-reviewed papers and won several paper awards. He is active in societies such as The Physical Society of Japan (PSJ), the American Physical Society (APS), the Architectural Institute of Japan (AIJ), and KES. In addition, he has received several large amounts of competitive research funds. He is the head or in a critical position in those research projects.

The following is a list of the major ones from his list of competitive funds.

- 2004 Oct.- 2007 Mar. The Support Program for Contemporary Educational Needs (GP) Funding Agency: The Japanese Ministry of Education, Culture, Sports, Science and Technology, Amount: Approx. one million dollars.

- 2014 Oct.- 2019 Mar. The Acceleration Program for Rebuilding of University Education (AP) Funding Agency: The Japanese Ministry of Education, Culture, Sports, Science and Technology, Amount: Approx. one and a half million dollars.
- 2016 Apr.-2019 Mar. Grants-in-Aid for Scientific Research from Japan Society for the Promotion of Science, Construction of biometric information utilization method for virtual space effective active learning (16K00436)
- 2019 Apr.-2023 Mar. Grants-in-Aid for Scientific Research from Japan Society for the Promotion of Science, Construction of Society5.0 oriented problem-solving learning evaluation and feedback system (19K12246)
- 2021 Apr.-Present Grants-in-Aid for Scientific Research from Japan Society for the Promotion of Science, (21H00914) Construction of customizable lecture formats that makes full use of , AI, xRs and self-decoration of textbooks using A-txt technology
- 2022 Apr.-Present Grants-in-Aid for Scientific Research from Japan Society for the Promotion of Science, Cybernetic avatar design for PBL education that expects educational transformation by DX (22K12284)
- 2022 Nov.-Present National University Management Reform Promotion Project, Funding Agency: The Japanese Ministry of Education, Culture, Sports, Science and Technology, Increasing the value of the research and education system and expanding the financial base through the use of the metaverse and resource management at the University of Technologies. Amount: Approx. fifty million dollars for 10 higher education institutions.

# Welcome Drinks Reception and Early Registration

| Welcome Drinks Reception | |
| --- | --- |
| **18:00 - 19:30 EEST** | Royal Olympic Hotel Pool side |

## In-person Timetable – Wednesday 6 September

| Rooms | Main Plenary | Room 2 | Room 3 | Room 4 | Room 5 |
|---|---|---|---|---|---|
| **9:00 - 9:15 EEST** | Opening Ceremony<br>Prof Robert J Howlett & Prof Lakhmi Jain | | | | |
| **09:15 - 10:15 EEST** | Keynote Speaker 1<br>Prof. Manolis Koubarakis<br>National and Kapodistrian University of Athens, Greece<br>Talk Title: Machine Learning Methods for Sensor Data Fusion and Autonomous Systems | | | | |
| **10:15-10:30 EEST** | Networking Break | | | | |

| Rooms | Main Plenary | Room 2 | Room 3 | Room 4 | Room 5 |
|---|---|---|---|---|---|
| **10:30 - 12:30 EEST** | GO1-A<br>Machine Learning, Artificial Neural Networks and Deep Learning<br>Prof. Ahmed Samet | G02-A<br>Knowledge Based and Expert Systems<br>Prof. Anne Hakansson | G03-A<br>Intelligent Information and Engineering Systems<br>Prof. Cecilia Zani-Merk | G04-A<br>Industry Applications<br>Dr. Carlos Toro | IS05-A<br>Interdisciplinary Approaches in Digital Transformation (IADT 2023)<br>Prof. Ralf-Christian Harting & Prof. Ivan Luković |
| **12:30 - 13:30 CEST** | Lunch Break | | | | |

| Rooms | Main Plenary | Room 2 | Room 3 | Room 4 | Room 5 |
|-------|--------------|--------|--------|--------|--------|
| **13:30-14:30 EEST** | Keynote Speaker 2<br>Prof. Dr. Nikolaos G. Bourbakis<br>Wright State University, USA<br>Talk Title: Knowledge-based Navigation of Autonomous Robots | | | | |
| **14:30-15:00 EEST** | Networking Break | | | | |
| **15:00 -17:30 EEST** | GO1-B<br>Machine Learning, Artificial Neural Networks and Deep Learning<br>Prof. Ahmed Samet | G02-A<br>Knowledge Based and Expert Systems<br>Prof. Anne Hakansson | G03-B<br>Intelligent Information and Engineering Systems<br>Prof. Cecilia Zani-Merk | G04-B<br>Industry Applications<br>Dr. Carlos Toro | IS05-B<br>Interdisciplinary Approaches in Digital Transformation (IADT 2023)<br>Prof. Ralf-Christian Harting |

| Rooms | Main Plenary | Room 2 | Room 3 | Room 4 | Room 5 |
|---|---|---|---|---|---|
| Time - TBC | Evening Social - TBC | | | | |

| Rooms | Room 6 | Room 7 | Room 8 | Room 9 |
|---|---|---|---|---|
| 9:00 - 9:15 EEST | Opening Ceremony<br>Prof Robert J Howlett & Prof Lakhmi Jain | | | |
| 09:15 - 10:15 EEST | Keynote Speaker 1<br>Prof. Manolis Koubarakis<br>National and Kapodistrian University of Athens, Greece<br>Talk Title: Machine Learning Methods for Sensor Data Fusion and Autonomous Systems | | | |
| 10:15-10:30 EEST | Networking Break | | | |

| Rooms | Room 6 | Room 7 | Room 8 | Room 9 |
|---|---|---|---|---|
| **10:30 - 12:30 EEST** | IS04-A<br>Knowledge-Based Systems for e-Business<br>Prof. Kazuhiko Tsuda | IS08<br>Smart Education: Learning Environment Using Technology<br>Prof. Nobuyuki Ogawa | IS29<br>(DECREASE) DElving into imbalanCed, oveRlapping and multidimEnsionAl data: recent advanceS and challEnges<br>Dr. Małgorzata Bach | IS14<br>Aspects of Intelligent Learning Systems: e-Learning Across Various Educational Contexts<br>Prof. Hiroshi Ueda |
| **12:30 - 13:30 CEST** | Lunch Break | | | |

| Rooms | Room 6 | Room 7 | Room 8 | Room 9 |
|---|---|---|---|---|
| **13:30-14:30 EEST** | Keynote Speaker 2<br>Prof. Dr. Nikolaos G. Bourbakis<br>Wright State University, USA<br>Talk Title: Knowledge-based Navigation of Autonomous Robots | | | |
| **14:30-15:00 EEST** | Networking Break | | | |
| **15:00 -17:30 EEST** | IS08<br>Smart Education: Learning Environment Using Technology<br>Prof. Nobuyuki Ogawa | IS47<br>New Generation Computing in Engineering, Life Science and Economy<br>Prof. Piotr Nikończuk | IS30 & IS50<br>Computational Intelligence System and its Application to Media Information Technology & Emerging Technologies, Challenges and Solutions for Zero Trust<br>Prof. Yuji Iwahori & Prof. Kuo-Hui Yeh | IS20-C & IS27<br>Digital Transformation in Organizations  ICT & IT innovation as a Source of Entrepreneurship of Companies<br>Assoc. Prof. Klaudia Smoląg & Prof. Jaroslaw Korpysa |

| Rooms | Room 6 | Room 7 | Room 8 | Room 9 |
|---|---|---|---|---|
| Time - TBC | Evening Social - TBC | | | |

## In-person Timetable – Thursday 7 September

| Rooms | Main Plenary | Room 2 | Room 3 | Room 4 | Room 5 |
|---|---|---|---|---|---|
| **09:00 - 10:00 EEST** | Keynote Speaker 3<br>Prof. Lyudmila Mihaylova<br>University of Sheffield, Sheffield, United Kingdom<br>Talk Title: Machine Learning Methods for Sensor Data Fusion and Autonomous Systems | | | | |
| **10:00-10:30 EEST** | Networking Break | | | | |
| **10:30 - 12:30 EEST** | GO1-C<br>Machine Learning, Artificial Neural Networks and Deep Learning<br>Prof. Ahmed Samet | G03-C<br>Intelligent Information and Engineering Systems<br>Prof. Cecilia Zani-Merk | IS39<br>Chance Discovery and Market of Data<br>Prof. Akinori Abe | IS01<br>Networks for Innovation, Knowledge Creation and Sharing<br>Prof. Hironori Takeuchi | IS36<br>Data Pre-processing Strategies and Machine Learning<br>Prof. Ireneusz Czarnowski |

| Rooms | Main Plenary | Room 2 | Room 3 | Room 4 | Room 5 |
|---|---|---|---|---|---|
| 12:30-13:30 EEST | Lunch Break | | | | |
| 13:30 - 14:30 EEST | Keynote Speaker 4<br>Prof. Nobuyuki Ogawa<br>National Institute of Technology (KOSEN), Gifu College. Japan<br>Talk Title: The Potential and Challenges of the Metaverse | | | | |
| 14:30-15:00 EEST | Networking Break | | | | |
| 15:00 - 17:30 EEST | GO1-D<br>Machine Learning, Artificial Neural Networks and Deep Learning<br>Prof. Ahmed Samet | G03-D<br>Intelligent Information and Engineering Systems<br>Prof. Cecilia Zani-Merk | IS03<br>Challenges and Solutions for Knowledge Management in Project Management<br>Assoc. Prof. Tadeusz A. Grzeszczyk | IS06<br>Interdisciplinary Approaches in Data Science Practice (IADSP 2023)<br>Prof. Ivan Luković | IS04-B<br>Knowledge-Based Systems for e-Business<br>Prof. Kazuhiko Tsuda |

| Rooms | Main Plenary | Room 2 | Room 3 | Room 4 | Room 5 |
|-------|--------------|--------|--------|--------|--------|
| **19:00 EEST** | Gala Dinner - Royal Olympic Hotel Roof Top Resturant | | | | |

| Rooms | Room 6 | Room 7 | Room 8 | Room 9 |
|---|---|---|---|---|
| **09:00 - 10:00 EEST** | Keynote Speaker 3<br>Prof. Lyudmila Mihaylova<br>University of Sheffield, Sheffield, United Kingdom<br>Talk Title: Machine Learning Methods for Sensor Data Fusion and Autonomous Systems | | | |
| **10:00-10:30 EEST** | Networking Break | | | |
| **10:30 - 12:30 EEST** | IS12-A<br>Knowledge and Data Engineering in Medicine and Health Care<br>Assoc. Prof. Krzysztof Pancerz | IS49<br>Knowledge engineering and data mining in the creation of intelligent applications<br>Assoc Prof. Agnieszka Nowak-Brzezińska | IS28-A<br>Information, Innovation and Technology as a Basis for Sustainable Business and Society<br>Prof. Katarzyna Szopik-Depczyńska | IS21 & IS02<br>RAI Robust Artificial Intelligence & Artificial Intelligence, Robotics and Human-Machine Systems<br>Dr. Aya Saad & Prof. Rossi Setchi |

| Rooms | Room 6 | Room 7 | Room 8 | Room 9 |
|---|---|---|---|---|
| **12:30-13:30 EEST** | Lunch Break | | | |
| **13:30 - 14:30 EEST** | Keynote Speaker 4<br>Prof. Nobuyuki Ogawa<br>National Institute of Technology (KOSEN), Gifu College. Japan<br>Talk Title: The Potential and Challenges of the Metaverse | | | |
| **14:30-15:00 EEST** | Networking Break | | | |
| **15:00 - 17:30 EEST** | IS12-B<br>Knowledge and Data Engineering in Medicine and Health Care<br>Assoc. Prof. Krzysztof Pancerz | IS43<br>Knowledge-based Data Analysis for Complex Data<br>Prof. Mika Sato-Ilic | IS31-A<br>Computer Science for Green Technologies and Sustainable Development<br>Prof. Adam Sulich | IS13<br>Information Technology and Information Systems in Accounting, Finance and Controlling<br>Assoc. Prof. Arkadiusz Januszewski |

| Rooms | Room 6 | Room 7 | Room 8 | Room 9 |
|---|---|---|---|---|
| 19:00 EEST | Gala Dinner - Royal Olympic Hotel Roof Top Resturant | | | |

## Online Timetable – Thursday 7 September

| Room Type | Room 1<br>VIRTUAL ROOM (Run via KES Online) | Room 2<br>VIRTUAL ROOM (Run via KES Online) | Room 3<br>VIRTUAL ROOM (Run via KES Online) | Room 4<br>VIRTUAL ROOM (Run via KES Online) | Room 5<br>VIRTUAL ROOM (Run via KES Online) | Room 6<br>VIRTUAL ROOM (Run via KES Online) |
|---|---|---|---|---|---|---|
| 09:00 - 10:00 EEST | Keynote Speaker 3<br>Prof. Lyudmila Mihaylova<br>University of Sheffield, Sheffield, United Kingdom<br>Talk Title: Machine Learning Methods for Sensor Data Fusion and Autonomous Systems | | | | | |
| 10:00-10:30 EEST | Networking Break | | | | | |

| Room Type | Room 1 | Room 2 | Room 3 | Room 4 | Room 5 | Room 6 |
|---|---|---|---|---|---|---|
| | VIRTUAL ROOM (Run via KES Online) | VIRTUAL ROOM (Run via KES Online) | VIRTUAL ROOM (Run via KES Online) | VIRTUAL ROOM (Run via KES Online) | VIRTUAL ROOM (Run via KES Online) | VIRTUAL ROOM (Run via KES Online) |
| Parallel session | GO1-F Machine Learning, Artificial Neural Networks and Deep Learning Prof. Ahmed Samet | WS01 Multi-Criteria Decision-Analysis methods – theory and their applications Dr. Wojciech Sałabun | G04-C Industry Applications Dr. Carlos Toro | IS18 - A Classification, Forecasting and Decision Support Dr. Rafal Deja | IS47-B New Generation Computing in Engineering, Life Science and Economy Prof. Piotr Nikończuk | IS07 Software Engineering and Large-Scale Systems Prof. Sergey V. Zykov |
| EEST | 10:30 -12:30 | 10:30 -12:30 | 10:30 -12:30 | 10:30 -12:30 | 10:30 -12:30 | 10:30 -12:30 |
| 12:30 - 13:30 EEST | Lunch Break | | | | | |

| Room Type | Room 1<br>VIRTUAL ROOM<br>(Run via KES<br>Online) | Room 2<br>VIRTUAL ROOM<br>(Run via KES<br>Online) | Room 3<br>VIRTUAL ROOM<br>(Run via KES<br>Online) | Room 4<br>VIRTUAL ROOM<br>(Run via KES<br>Online) | Room 5<br>VIRTUAL ROOM<br>(Run via KES<br>Online) | Room 6<br>VIRTUAL ROOM<br>(Run via KES<br>Online) |
|---|---|---|---|---|---|---|
| 13:30 - 14:30<br>EEST | Keynote Speaker 4<br>Prof. Nobuyuki Ogawa<br>National Institute of Technology (KOSEN), Gifu College. Japan<br>Talk Title: The Potential and Challenges of the Metaverse | | | | | |
| 14:30-15:00<br>EEST | Networking Break | | | | | |

| Room Type | Room 1 VIRTUAL ROOM (Run via KES Online) | Room 2 VIRTUAL ROOM (Run via KES Online) | Room 3 VIRTUAL ROOM (Run via KES Online) | Room 4 VIRTUAL ROOM (Run via KES Online) | Room 5 VIRTUAL ROOM (Run via KES Online) | Room 6 VIRTUAL ROOM (Run via KES Online) |
|---|---|---|---|---|---|---|
| Parallel session | GO1-G Machine Learning, Artificial Neural Networks and Deep Learning Prof. Ahmed Samet | IS48-A Organisational networks based on knowledge, innovation and intelligent systems Associate Professor Eng. Ph.D. Robert Kucęba | IS24-B Intelligent Decision Support and Process Optimization Under Uncertainty Dr. Aleksandra Radomska-Zalas | IS18-B Classification, Forecasting and Decision Support Dr. Rafal Deja | G02-C Knowledge Based and Expert Systems Prof. Anne Hakansson | IS47-C New Generation Computing in Engineering, Life Science and Economy Prof. Piotr Nikończuk |
| EEST | 15:00 - 17:30 | 15:00 - 17:30 | 15:00 - 17:30 | 15:00 - 17:30 | 15:00 - 17:30 | 15:00 - 17:30 |

| Room Type | Room 7<br>VIRTUAL ROOM<br>(Run via KES Online) | Room 8<br>VIRTUAL ROOM<br>(Run via KES Online) | Room 9<br>VIRTUAL ROOM<br>(Run via KES Online) | Room 10<br>VIRTUAL ROOM<br>(Run via KES Online) | Room 11<br>VIRTUAL ROOM<br>(Run via KES Online) |
|---|---|---|---|---|---|
| 09:00 - 10:00 EEST | Keynote Speaker 3<br>Prof. Lyudmila Mihaylova<br>University of Sheffield, Sheffield, United Kingdom<br>Talk Title: Machine Learning Methods for Sensor Data Fusion and Autonomous Systems | | | | |
| 10:00-10:30 EEST | Networking Break | | | | |

| Room Type | Room 7<br>VIRTUAL ROOM (Run via KES Online) | Room 8<br>VIRTUAL ROOM (Run via KES Online) | Room 9<br>VIRTUAL ROOM (Run via KES Online) | Room 10<br>VIRTUAL ROOM (Run via KES Online) | Room 11<br>VIRTUAL ROOM (Run via KES Online) |
|---|---|---|---|---|---|
| Parallel session | IS08<br>Smart Education: Learning Environment Using Technology<br>Prof. Nobuyuki Ogawa | IS09 & IS32<br>Intelligent Methods in Maritime Engineering, Transport and Logistics & Machine Learning for Vision Systems<br>Prof. Andrzej Banaszek & Dr. Laura Falaschett | IS23-A<br>Intelligent Systems in Evaluation and Performance Measurement<br>Prof. Malgorzata Porada-Rochoń | IS37-C<br>Intelligent Management Support Systems (IMSS)<br>Assoc. Prof. Marcin Hernes | IS33-B<br>Innovation Strategies and Digital Transformation<br>Dr. Ilona Pawełoszek |
| EEST | 10:30 -12:30 | 10:30 -12:30 | 10:30 -12:30 | 10:30 -12:30 | 10:30 -13:00 |
| 12:30 - 13:30 EEST | Lunch Break | | | | |

| Room Type | Room 7<br>VIRTUAL ROOM<br>(Run via KES<br>Online) | Room 8<br>VIRTUAL ROOM<br>(Run via KES<br>Online) | Room 9<br>VIRTUAL ROOM<br>(Run via KES<br>Online) | Room 10<br>VIRTUAL ROOM<br>(Run via KES<br>Online) | Room 11<br>VIRTUAL ROOM<br>(Run via KES Online) |
|---|---|---|---|---|---|
| 13:30 - 14:30 EEST | Keynote Speaker 4<br>Prof. Nobuyuki Ogawa<br>National Institute of Technology (KOSEN), Gifu College. Japan<br>Talk Title: The Potential and Challenges of the Metaverse | | | | |
| 14:30-15:00 EEST | Networking Break | | | | |

| Room Type | Room 7<br><br>VIRTUAL ROOM (Run via KES Online) | Room 8<br><br>VIRTUAL ROOM (Run via KES Online) | Room 9<br><br>VIRTUAL ROOM (Run via KES Online) | Room 10<br><br>VIRTUAL ROOM (Run via KES Online) | Room 11<br><br>VIRTUAL ROOM (Run via KES Online) |
|---|---|---|---|---|---|
| Parallel session | IS49-B<br>Knowledge engineering and data mining in the creation of intelligent applications<br>Assoc Prof. Agnieszka Nowak-Brzezińska | IS17<br>Applied Econometrics and Statistics<br>Assoc. Prof. Mariusz Doszyń | IS13-B<br>Information Technology and Information Systems in Accounting, Finance and Controlling<br>Assoc. Prof. Arkadiusz Januszewski | IS23-B<br>Intelligent Systems in Evaluation and Performance Measurement<br>Prof. Malgorzata Porada-Rochoń | IS27-B<br>ICT & IT innovation as a Source of Entrepreneurship of Companies<br>Prof. Jaroslaw Korpysa |
| EEST | 15:00 - 17:30 | 15:00 - 17:30 | 15:00 - 17:30 | 15:00 - 17:30 | 15:00 - 17:30 |

# In-person Timetable – Friday 8 September

| Rooms | Main Plenary | Room 2 | Room 3 | Room 4 | Room 5 |
|---|---|---|---|---|---|
| **09:30-10:00 EEST** | Networking Break | | | | |
| **10:00-12:00 EEST** | GO1-E Machine Learning, Artificial Neural Networks and Deep Learning Prof. Ahmed Samet | IS19-A Modern Technology Reshaping our World Prof. Lenuța Alboaie | IS22-A The 7th Special Session on Eye Movement Data Processing and Analysis (EMDPA) Assoc. Prof. Katarzyna Harezlak | IS10-A Digitalization and Knowledge Management in Health Data Acquisition and Processing Prof. Ralf Seepold | IS11 Computational Culture, Arts and Interaction Assoc. Prof. Ryosuke Yamanishi |
| **12:00 - 13:00 EEST** | Lunch break | | | | |

| Rooms | Main Plenary | Room 2 | Room 3 | Room 4 | Room 5 |
|---|---|---|---|---|---|
| **13:00 - 14:00 EEST** | Keynote Speaker 4<br>Prof. Ireneusz Czarnowski<br>Gdynia Maritime University, Poland<br>Talk Title: Processing of difficult data for machine learning | | | | |
| **14:00 - 14:30 EEST** | Networking Break | | | | |

| Rooms | Main Plenary | Room 2 | Room 3 | Room 4 | Room 5 |
|---|---|---|---|---|---|
| **14:30-16:30 EEST** | | IS44 Intelligent Data Analytics for Internet of Things Environments Dr. Maha Driss | IS22-B The 7th Special Session on Eye Movement Data Processing and Analysis (EMDPA) Assoc. Prof. Katarzyna Harezlak | IS37 Intelligent Management Support Systems (IMSS) Assoc. Prof. Marcin Hernes | WS01 & IS24-A Multi-Criteria Decision-Analysis methods – theory and their applications & Intelligent Decision Support and Process Optimization Under Uncertainty Dr. Wojciech Sałabun & Dr. Aleksandra Radomska-Zalas |
| **16:30 - 16:55 EEST** | Closing Ceremony | | | | |

| Rooms | Room 6 | Room 7 | Room 8 | Room 9 |
|---|---|---|---|---|
| **09:30-10:00 EEST** | Networking Break | | | |
| **10:00-12:00 EEST** | IS46-A Physiological and knowledge-based engineering for social innovation Prof. Atsuko K. Yamazaki | IS26-A Complex and Dispersed Classifiers (CDC 2023) Assoc. Prof. Małgorzata Przybyła-Kasperek | IS37 Intelligent Management Support Systems (IMSS) Assoc. Prof. Marcin Hernes | IS23-C & IS33 Intelligent Systems in Evaluation and Performance Measurement & Innovation Strategies and Digital Transformation Prof. Malgorzata Porada-Rochoń & Dr. Ilona Pawełoszek |
| **12:00 - 13:00 EEST** | Lunch break | | | |

| Rooms | Room 6 | Room 7 | Room 8 | Room 9 |
|---|---|---|---|---|
| **13:00 - 14:00 EEST** | Keynote Speaker 4<br>Prof. Ireneusz Czarnowski<br>Gdynia Maritime University, Poland<br>Talk Title: Processing of difficult data for machine learning | | | |
| **14:00 - 14:30 EEST** | Networking Break | | | |

| Rooms | Room 6 | Room 7 | Room 8 | Room 9 |
|---|---|---|---|---|
| **10:00-12:00 EEST** | IS45 & IS27 Intelligent Critical Infrastructures & ICT & IT innovation as a Source of Entrepreneurship of Companies Dr. Laura Verde & Prof. Paolo Crippa | IS16 Global and Constrained Optimization: Algorithms and Applications (4th Edition) Prof. Abdellah Chehri | IS35 Curative Power of Medical Data Dr. Daniela Gifu | IS15: Cyber Security and Big Data Dr. Francesco Mercaldo |
| **16:30 - 16:55 EEST** | Closing Ceremony | | | |

# Online Timetable – Friday 8 September

| Room Type | Room 1<br>VIRTUAL ROOM (Run via KES Online) | Room 2<br>VIRTUAL ROOM (Run via KES Online) | Room 3<br>VIRTUAL ROOM (Run via KES Online) | Room 4<br>VIRTUAL ROOM (Run via KES Online) | Room 5<br>VIRTUAL ROOM (Run via KES Online) | Room 6<br>VIRTUAL ROOM (Run via KES Online) |
|---|---|---|---|---|---|---|
| Parallel session | GO1-H Machine Learning, Artificial Neural Networks and Deep Learning Prof. Ahmed Samet | G03-E Intelligent Information and Engineering Systems Prof. Cecilia Zani-Merk | IS04 Knowledge-Based Systems for e-Business Prof. Kazuhiko Tsuda | IS12 Knowledge and Data Engineering in Medicine and Health Care Assoc. Prof. Krzysztof Pancerz | IS34 Recent Advances in Biometric Technology Assoc. Prof. Dzati Athiar Ramli | IS47-D New Generation Computing in Engineering, Life Science and Economy Prof. Piotr Nikończuk |
| EEST | 10:30 - 12:30 | 10:30 - 12:30 | 10:30 - 12:30 | 10:30 - 12:30 | 10:30 - 12:30 | 10:30 - 12:30 |

| Room Type | Room 1 VIRTUAL ROOM (Run via KES Online) | Room 2 VIRTUAL ROOM (Run via KES Online) | Room 3 VIRTUAL ROOM (Run via KES Online) | Room 4 VIRTUAL ROOM (Run via KES Online) | Room 5 VIRTUAL ROOM (Run via KES Online) | Room 6 VIRTUAL ROOM (Run via KES Online) |
|---|---|---|---|---|---|---|
| 12:30 - 13:30 | Lunch break | | | | | |
| 13:30 - 14:30 EEST | Keynote Speaker 4 Prof. Ireneusz Czarnowski Gdynia Maritime University, Poland Talk Title: Processing of difficult data for machine learning | | | | | |
| 10:00-10:15 EEST | Networking Break | | | | | |

| Room Type | Room 1 VIRTUAL ROOM (Run via KES Online) | Room 2 VIRTUAL ROOM (Run via KES Online) | Room 3 VIRTUAL ROOM (Run via KES Online) | Room 4 VIRTUAL ROOM (Run via KES Online) | Room 5 VIRTUAL ROOM (Run via KES Online) | Room 6 VIRTUAL ROOM (Run via KES Online) |
|---|---|---|---|---|---|---|
| **Parallel session** | GO1-I Machine Learning, Artificial Neural Networks and Deep Learning Prof. Ahmed Samet | G03-A Intelligent Information and Engineering Systems Prof. Cecilia Zani-Merk | IS48-B Organisational networks based on knowledge, innovation and intelligent systems Associate Professor Eng. Ph.D. Robert Kucęba | IS26-B Complex and Dispersed Classifiers (CDC 2023) Assoc. Prof. Małgorzata Przybyła-Kasperek | IS20-B Digital Transformation in Organizations Assoc. Prof. Klaudia Smoląg | IS47-E New Generation Computing in Engineering, Life Science and Economy Prof. Piotr Nikończuk |
| **EEST** | 14:30 - 16:30 | 14:30 - 16:30 | 14:30 - 16:30 | 14:30 - 16:30 | 14:30 - 16:30 | 14:30 - 16:30 |

| Room Type | Room 1<br>VIRTUAL ROOM<br>(Run via KES<br>Online) | Room 2<br>VIRTUAL ROOM<br>(Run via KES<br>Online) | Room 3<br>VIRTUAL ROOM<br>(Run via KES<br>Online) | Room 4<br>VIRTUAL ROOM<br>(Run via KES<br>Online) | Room 5<br>VIRTUAL ROOM<br>(Run via KES<br>Online) | Room 6<br>VIRTUAL ROOM<br>(Run via KES<br>Online) |
|---|---|---|---|---|---|---|
| 16:00 - 16:15<br>EEST | Closing Ceremony | | | | | |

| Room Type | Room 7<br><br>VIRTUAL ROOM (Run via KES Online) | Room 8<br><br>VIRTUAL ROOM (Run via KES Online) | Room 9<br><br>VIRTUAL ROOM (Run via KES Online) | Room 10<br><br>VIRTUAL ROOM (Run via KES Online) | Room 11<br><br>VIRTUAL ROOM (Run via KES Online) |
|---|---|---|---|---|---|
| **Parallel session** | IS20-A<br>Digital Transformation in Organizations<br>Assoc. Prof. Klaudia Smoląg | IS28-B<br> Information, Innovation and Technology as a Basis for Sustainable Business and Society<br>Prof. Katarzyna Szopik-Depczyńska | IS31-B<br>Computer Science for Green Technologies and Sustainable Development<br>Prof. Adam Sulich | IS38 & IS36-B<br>Quantitative Tools Supporting Financial Decisions & Data Pre-processing Strategies and Machine Learning<br>Prof. Waldemar Tarczyński & Prof. Ireneusz Czarnowski | |
| **EEST** | 10:30 - 12:30 | 10:30 - 12:30 | 10:30 - 12:30 | 10:30 - 12:30 | |
| **12:30 - 13:30** | Lunch break | | | | |

| Room Type | Room 7<br><br>VIRTUAL ROOM (Run via KES Online) | Room 8<br><br>VIRTUAL ROOM (Run via KES Online) | Room 9<br><br>VIRTUAL ROOM (Run via KES Online) | Room 10<br><br>VIRTUAL ROOM (Run via KES Online) | Room 11<br><br>VIRTUAL ROOM (Run via KES Online) |
|---|---|---|---|---|---|
| 13:30 - 14:30 EEST | Keynote Speaker 4<br>Prof. Ireneusz Czarnowski<br>Gdynia Maritime University, Poland<br>Talk Title: Processing of difficult data for machine learning | | | | |
| 10:00-10:15 EEST | Networking Break | | | | |

| Room Type | Room 7<br>VIRTUAL ROOM<br>(Run via KES Online) | Room 8<br>VIRTUAL ROOM<br>(Run via KES Online) | Room 9<br>VIRTUAL ROOM<br>(Run via KES Online) | Room 10<br>VIRTUAL ROOM<br>(Run via KES Online) | Room 11<br>VIRTUAL ROOM<br>(Run via KES Online) |
|---|---|---|---|---|---|
| Parallel session | IS10-B & IS03-B Digitalization and Knowledge Management in Health Data Acquisition and Processing & Challenges and Solutions for Knowledge Management in Project Management Prof. Ralf Seepold & Assoc. Prof. Tadeusz A. Grzeszczyk | IS28-C Information, Innovation and Technology as a Basis for Sustainable Business and Society Prof. Katarzyna Szopik-Depczyńska | IS31-C Computer Science for Green Technologies and Sustainable Development Prof. Adam Sulich | IS19-B & IS25 Modern Technology Reshaping our World & Innovations-Oriented Intelligent Information Processing (3IP 2023) Prof. Lenuța Alboaie & Assoc. Prof. Daocheng Hong | IS46-B Physiological and knowledge-based engineering for social innovation Prof Atsuko K. Yamazaki |
| EEST | 14:30 - 16:30 | 14:30 - 16:30 | 14:30 - 16:30 | 14:30 - 16:30 | 14:30 - 16:30 |

| Room Type | Room 7<br>VIRTUAL ROOM (Run via KES Online) | Room 8<br>VIRTUAL ROOM (Run via KES Online) | Room 9<br>VIRTUAL ROOM (Run via KES Online) | Room 10<br>VIRTUAL ROOM (Run via KES Online) | Room 11<br>VIRTUAL ROOM (Run via KES Online) |
|---|---|---|---|---|---|
| 16:00 - 16:15 EEST | Closing Ceremony | | | | |

# Presentation Schedule – General Tracks

## *G01-A: Machine Learning, Artificial Neural Networks and Deep Learning*
Chair: Prof. Ahmed Samet

Wednesday 6 September: 10:30 - 12:30 EEST
Plenary Room

| PROSE Paper No | Paper Title / Authors |
|---|---|
| k23-050 | FreCDo: A Large Corpus for French Cross-Domain Dialect Identification<br>Ms. Mihaela Gaman, Dr. Adrian-gabriel Chifu, Dr. William Domingues, Dr. Radu Tudor Ionescu |
| k23-062 | A new Classifier Chain method of BERT Models For Multi-label Classification of Arabic Abusive Language on Social Media<br>Mrs. Salma Abid Azzi, Pr. Chiraz Ben Othmane Zribi |
| k23-130 | Pix2Pix Hyperparameter Prediction<br>M.sc. Dirk Hölscher, Professor Nathan Clarke, Dr. Frank Gut, Prof. Dr. Martin Knahl, Prof. Dr. Christoph Reich |
| k23-077 | A Template for SDQ Cube<br>Ms. Junko Hosomi, Prof. Shuichiro Yamamoto |
| k23-088 | A Comparative Study of Machine Learning Algorithm for Predicting Project Management Methodology<br>Dr Ines Ben Kraiem, Dr Mouna Ben Mabrouk, Mr Lucas De Jode |
| k23-137 | Context-aware Acoustic Signal Processing<br>M. Sc. Liane-marina Meßmer, Prof. Dr. Djaffar Ould Abdeslam, Prof. Dr. Christoph Reich |

### *G01-B: Machine Learning, Artificial Neural Networks and Deep Learning*
Chair: Prof. Ahmed Samet

Wednesday 6 September: 15:00 - 17:30 EEST
Plenary Room

| PROSE Paper No | Paper Title / Authors |
| --- | --- |
| **k23-139** | Multi-SPMiner: A Deep Learning Framework for Multi-GraphFrequent Pattern Mining with Application to Spatio-Temporal Graphs <br> Mr. Assaad Zeghina, Prof. Dr. Florence Le Ber, Dr. Aurélie Leborgne, Prof. Dr. Antoine Vacavant |
| **k23-149** | Improving TCPSO Solution Search Performance Using Gaussian Process Regression <br> Mr. Yuki Kashihara, Prof. Tomohiro Hayashida, Prof. Ichiro Nishizaki, Prof. Shinya Sekizaki |
| **k23-158** | The 10 most popular Concept Drift Algorithms: An overview and optimization potentials <br> Mr. Marco Klaiber, Prof. Manfred Rössle, Prof. Andreas Theissler |
| **k23-274** | Interpretable machine learning for heterogeneous treatment effect estimators with Double ML: a case of access to credit for SMEs <br> Mr Kyrylo Medianovskyi, Prof Sadok Ben Yahia, Prof Ausrine Lakstutiene, Mr Aidas Malakauskas |
| **k23-169** | DNN-based Skeleton Independent Motion Retargeting <br> Mr. Syed Muhammad Abrar Akber, Professor Szczesna Agnieszka, Dr Sadia Nishat Kazmi |

### *G01-C: Machine Learning, Artificial Neural Networks and Deep Learning*
Chair: Prof. Ahmed Samet

Thursday 7 September: 10:30 - 12:30 EEST
Plenary Room

| PROSE Paper No | Paper Title / Authors |
|---|---|
| k23-436 | Sentiment classification of annual reports in Slovak language using symbolic, subsymbolic and statistic methods<br>Mgr Lívia Kelebercová, Mgr Nataliia Časnochova Zozuk |
| k23-376 | π-means: Granular Approach towards Interactive Data Exploration<br>Mr. Piotr Lasek, |
| k23-456 | A Novel approach using WGAN-GP and Conditional WGAN-GP for Generating Artificial Thermal Images of Induction Motor Faults<br>Eng. Shahd Hejazi, Professor Ying Liu, Dr Michael Packianather |
| k23-433 | Application and evaluation of sentence embedding and clustering methods in the context of concept hierarchy construction<br>Ms Ranya El Hadri, Mr Julien Boissière, Mrs Sorana Cimpan, Mr Luc Damas |
| k23-469 | Identifying Bus Lines and Outliers in Bus Routes of Rio de Janeiro<br>Mr. Maros Cavojsky |
| k23-471 | QLearning Initialized Brain Storm Optimization for Efficient Community Detection in Social Networks<br>Ms Beldi Zohra, Pr Bessedik Malika |

### *G01-D: Machine Learning, Artificial Neural Networks and Deep Learning*
Chair: Prof. Ahmed Samet

Thursday 7 September: 15:00 - 17:30 EEST
Plenary Room

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-285** | Estimating the distance to an object from static color stereo images using convolutional neural networks<br>Phd Joanna Kulawik |
| **k23-295** | Multi-Source Domain Adaptation with Incomplete Source Label Spaces<br>Dr Keqiuyin Li, Prof. Jie Lu, Prof. Guangquan Zhang, Dr. Hua Zuo |
| **k23-279** | A Hybrid Modelling Approach Based on Deep Learning for the Prediction of the Silicon Content in the Blast Furnace<br>Dr Kayal Lakshmanan, Dr Michael Auinger, Dr Alex Carr, Dr Aurash Karimi, Prof Cameron Pleydell-pearce, Dr Philippe Wauters |
| **k23-365** | Automated System for Breast Cancer Detection and Diagnosis<br>Phd Student Cristiana Moroz-Dubenco, Phd Anca Andreica |
| **k23-339** | Preventing Data Poisoning Attacks in Federated Machine Learning image data by an Encrypted Verification Key<br>Mr. Mahdee Jodayree, Dr. Wenbo He, Dr. Ryszard Janicki |
| **k23-348** | Strategy-Following Multi-Agent Deep Reinforcement Learning through External High-Level Instruction<br>Mr. Yoshinari Motokawa, Prof. Toshiharu Sugawara |

## *G01-E: Machine Learning, Artificial Neural Networks and Deep Learning*
Chair: Prof. Ahmed Samet

Friday 8 September: 10:00 - 12:00 EEST
Plenary Room

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-486** | Domain Adaptation Approach for Arabic Sarcasm Detection in Hotel Reviews based on Hybrid Learning<br>Phd Student Ameur Asma, Proffossor Ben Yahia Sadok, Master Assistant Hamdi Sana |
| **k23-489** | Unsupervised Approach for Learning Behavioral Constraints<br>Ms Rihab Balti, Mr Mourad Abed, Mrs Wided Lejouad Chaari, Mrs Aroua Hedhili |
| **k23-493** | Ingredient Embeddings Constructed by Biased Random Walk on Ingredient-Compound Graph<br>Mr Naoki Yoshimaru, Prof Kenji Hatano, Mr Yusuke Kimura, Mr Kazuma Kusu |
| **k23-502** | Repair Inconsistent DL-Lite Ontology Based on Global Score<br>Phd Student Rim Mohamed, Professor Zied Bouraoui, Professor Faiez Gargouri, Professor Zied Loukil |
| **k23-511** | Fitness Approximation Surrogate-assisted Hyper-heuristic for the Permutation Flowshop Problem<br>Ms Imene Racha Mekki, Ms Karima Benatchba, Ms Fatima Benbouzid-Si Tayeb, Ms Asma Cherrered |

### *G01-F: Machine Learning, Artificial Neural Networks and Deep Learning*
Chair: Prof. Ahmed Samet

Thursday 7 September: 10:30 - 12:30 EEST
KES Online Room 1

| PROSE Paper No | Paper Title / Authors |
| --- | --- |
| k23-126 | Masked Autoencoders for Unsupervised Anomaly Detection in Medical Images<br>Ms Georgescu Mariana-iuliana, |
| k23-076 | Predicted Specified STEAM Student Majors Depending On Many Factors Using Generative Adversarial Networks<br>Phd.student Nibras Othman Abdulwahid, Dr. Ikram Amous, Dr. Sana Fakhfakh |
| k23-131 | Assessing the attractiveness of human face based on machine learning<br>Eng. Adriana Żejmo, Eng. Maciej Gielert, Eng. Marcin Grabski, Prof. Bożena Kostek |
| k23-124 | DGCN: Learning Graph Representations Via Dense Connections<br>Mr Khairi Abidi, Pr Mephu Nguifo Engelbert, Dr Wissem Inoubli |
| k23-138 | Approximation of functions by a wavelet neural network built using a hybrid approach based on the genetic algorithm and the Gram-Schmidt Selection method<br>Dr Abdesselem Dakhli, Dr Chokri Ben Amar, Dr Maher Jebali |
| k23-140 | Trans-Trip: Translation-based embedding with Triplets for Heterogeneous Graphs.<br>Ms Khouloud Ammar, Prof Amel Borji, Doc Wissem Inoubli, Prof Engelbert Mephu Nguifo, Mr Sami Zghal |

### *G01-G: Machine Learning, Artificial Neural Networks and Deep Learning*
Chair: Prof. Ahmed Samet

Thursday 7 September: 15:00 - 17:30 EEST
KES Online Room 1

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-354** | Machine Learning-Based Classification of Skin Cancer Hyperspectral Images<br>Dr. Bernardo Petracchi, Dr. Marco Gazzoni, Prof. Francesco Leporati, Dr. Elisa Marenzi, Dr. Emanuele Torti |
| **k23-355** | Early Diagnosis of Cardiac Diseases using ECG Images and CNN-2D<br>Prof. Lerina Aversano, Prof. Mario Luca Bernardi, Prof. Marta Cimitile, Mrs. Debora Montano, Prof. Riccardo Pecori |
| **k23-334** | Acceleration of Neural Network training algorithms via FPGA devices<br>Drd Zoltan-valentin Gyulai-nagy, |
| **k23-441** | Task duration prediction from a textual description<br>Dr Marek Bazan, Dr Maciej Marchwiany, Eng. Aleksy Migasiewicz |
| **k23-379** | A Novel Recommendation Approach For Groups Based On Aggregating Top-k Lists<br>Dr. Sabrine Ben Abdrabbah, |
| **k23-485** | CREDEEP: Deep Learning-based approaches to detect credibility in Twitter conversations<br>Fadhli Imen Imen, Hlaoua Lobna Lobna, Nazih Omri Mohamed Mohamed |
| **k23-461** | Reliable Sound Re-labeling Approach for Bird Sound Classification<br>Msc. Truong Hoang, Phd. Duc Trong Le, Prof. Hoang Nguyen, Mr. Nghia Nvn, Mr. Alex To |

### *G01-H: Machine Learning, Artificial Neural Networks and Deep Learning*
Chair: Prof. Ahmed Samet

Friday 8 September: 10:30 - 12:30 EEST
KES Online Room 1

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-001** | A Large and Diverse Arabic Corpus for Language Modeling<br>Dr Abbas Ali, Mrs Rema Algunaibet, Mr Hasan Ali, Mr. Muhammad Siddiqui |
| **k23-033** | Deep feature analysis in a transfer learning approach for the automatic COVID-19 screening using chest X-ray images<br>Phd Student Daniel I. Morís, Phd Joaquim De Moura, Phd Jorge Novo, Phd Marcos Ortega |
| **k23-034** | Explainable learning to analyze the outcome of COVID-19 patients using clinical data<br>Phd Joaquim De Moura, Phd Student Daniel I. Morís, Phd Enrique M. Rey, Phd Jorge Novo, Msc Student Daniel Olañeta, Phd Marcos Ortega |
| **k23-039** | Automatic Face Expression Neutralisation and Posture Correction via 3D Contrastive Learning<br>Wiem Wiem Grina, Professor Ali Douik |
| **k23-043** | ConvSNow: A tailored Conv-LSTM architecture for weather nowcasting based on satellite imagery<br>Dr. Vlad-sebastian Ionescu, Meteorologist Trygve Aspenes, Dr. Gabriela Czibula, Student Adelin Mihoc, Meteorologist Eugen Mihulet, Dr. Ioan-gabriel Mircea |
| **k23-053** | Improved accuracy of pulmonary nodule classification on LIDC-IDRI dataset using deep learning<br>Ms. Abeer Shanshool, Dr. Ikram Amous, Dr. Mariam Bouchakwa |

## *G01-I: Machine Learning, Artificial Neural Networks and Deep Learning*
Chair: Prof. Ahmed Samet

Friday 8 September : 14:30 - 16:30 EEST
KES Online Room 1

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-150** | A student modeling method combining Deep Learning and forgetting models with Knowledge Tracing<br>Dr. Shinichi Oeda, Mr. Shunichi Hasegawa |
| **k23-198** | A study on the relevance of semantic features extracted using BERT-based language models for enhancing the performance of software defect classifiers<br>Research Assist. Phd Anamaria Briciu, Professor, Phd Gabriela Czibula, Lecturer, Phd Mihaiela Lupea |
| **k23-199** | Improving radar echo extrapolation models using autoencoder-based perceptual losses<br>Phd Student Alexandra-ioana Albu, |
| **k23-266** | Early Diagnosis of Parkinson's Disease Exploting Motor and Non-Motor Symptoms: Results from the PPMI Cohort<br>Prof. Lerina Aversano, Prof. Mario Bernardi, Prof. Marta Cimitile, Dr. Martina Iammarino, Dr. Antonella Madau, Dr. Chiara Verdone |
| **k23-159** | Evaluation of Deep Learning Models for Continuous Authentication Using Behavioral Biometrics<br>Assoc. Dr. Gülfem Isiklar Alptekin, Assoc. Dr. Ozlem Durmaz Incel, Student Utku Uslu |
| **k23-331** | An unsupervised learning-based methodology for uncovering behavioural patterns for specific types of software defects<br>Phd. Student Ioana-Gabriela Chelaru, Phd. Gabriela Czibula, Phd. Istvan Gergely Czibula, Phd. Arthur Molnar |

## *G02-A Knowledge Based and Expert Systems*
Chair: Prof. Anne Hakansson

Wednesday 6 September: 10:30 - 12:30 EEST
Room 2

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-320** | meta-GRS: A Graph Neural Network for Cross-Domain Recommender System via Meta-Learning<br>Ms. Pham Minh Thu Do, Distinguished Prof. Jie Lu, Dr. Qian Zhang, A/prof. Guangquan Zhang |
| **k23-324** | Modeling evolutionary responses in crowdsourcing MCQ using belief function theory<br>Associate Professor Constance Thierry, Associate Professor Jean-christophe Dubois, Associate Professor Yolande Le Gall, Professor Arnaud Martin |
| **k23-089** | Prescriptive analytics for optimal multi-use battery energy storage systems operation: State-of-the-art and research directions<br>Msc Martin Haug, Ass. Prof. Chiara Bordin, Prof. Sambeet Mishra, Head Of Section Julien Moisan |
| **k23-129** | Breast Cancer Images Segmentation using Fuzzy Cellular Automaton<br>Student Iulia Ion, Professor Anca Andreica, Phd Cristiana Moroz-Dubenco |
| **k23-176** | Phrase2Onto: A Tool to Support Ontology Extension<br>Phd Student Mina Abd Nikooie Pour, Associate Professor Rickard Armiento, Professor Patrick Lambrix, Phd Huanyu Li |

### *G02-B Knowledge Based and Expert Systems*
Chair: Prof. Anne Hakansson

Wednesday 6 September: 15:00 - 17:30 EEST
Room 2

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-237** | Translating Usage Control Policies to Semantic Rules: A Model using OrBAC and SWRL<br>Ms Nouha Laamech, Mr Manuel Munier, Mr Congduc Pham |
| **k23-267** | OLAF: An Ontology Learning Applied Framework<br>Phd Student Marion Schaeffer, Mcf Nicolas Delestre, Mcf Jean-philippe Kotowicz, Phd Student Matthias Sesboüé, Pu Cecilia Zanni-merk |
| **k23-281** | SailGenie: SAiling expertIse to knowLedge Graph through opEN Information Extraction<br>Dr. Sandro Tiddia, Prof. Salvatore Carta, Master Student Pietro Fariello, Ph.d. Alessandro Giuliani, Dr. Leonardo Piano, Ph.d. Alessandro Podda |
| **k23-284** | OntoSoC : An ontology-based approach to battery pack SoC estimation<br>Student Ala Eddine Hamouni, Student Slimane Arbaoui, Phd Ali Ayadi, Phd Franco Giustozzi, Phd Tedjani Mesbahi, Phd Ahmed Samet |
| **k23-291** | Towards the use of post-hoc explainable methods to define and detect semantic situations of importance in medical data<br>Dr. Mathieu Bourgais, Dr. Franco Giustozzi, Pr. Laurent Vercouter, Pr. Cecilia Zanni-merk |
| **k23-293** | On the role of user segmentation in recommender systems' performances<br>Ms. Student Elif Ece Erdem, Dr. Günce Keziban Orman |

## *G02-C Knowledge Based and Expert Systems*
Chair: Prof. Anne Hakansson

Thursday 7 September: 15:00 - 17:30 CET
KES Online Room 5

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-218** | Using Recommendation Systems in Disaster Management: A Systematic Literature Review<br>Miss Sarra Chaiir, Mrs Narjès Bellamine Ben Saoud, Mrs Malika Charrad |
| **k23-349** | Student modeling considering learning behavior history with deep factorization machines<br>Mr. Kakizaki Toma, Dr. Oeda Shinichi |
| **k23-457** | Enhancing downstream tasks in Knowledge Graphs Embeddings: A Complement Graph-based Approach Applied to Bilateral Trade<br>Sr. Diego Rincon-Yanez, Prof. Amira Mouakher, Prof. Sabrina Senatore |
| **k23-030** | Pricing and warranty decisions in a dual-channel supply chain with warranty's quality signal<br>Dr. Min Wang, Ms. Jiayi Zhang |
| **k23-052** | Understanding Sustainable Knowledge-Sharing in Agile Projects: Utilizing Follow-the-Sun Technique (FTS) in Virtual Teams<br>Mr Rodrigo Oliveira De Castro, Dr Levula Andrew, Dr Sanin Cesar, Dr Szczerbicki Edward |

### *G03-A: Intelligent Information and Engineering Systems*
Chair: Prof. Cecilia Zani-Merk

Wednesday 6 September: 10:30 - 12:30 EEST
Room 3

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-025** | Socratic Video Understanding on Unmanned Aerial Vehicles <br> Dr. I. De Zarzà, Professor Carlos T. Calafate, Dr. J. De Curtò |
| **k23-069** | Federated Learning with Differential Privacy on Personal Opinions: A Privacy-Preserving Approach <br> Msc Mirwais Ahmadzai, Assoc. Prof. Giang Nguyen |
| **k23-074** | Algorithms for recognizing formulas with totally nonstable truth values in branching time logic <br> Professor Vladimir Rybakov |
| **k23-087** | Efficiency and Security Trade-offs of Secure Multi-Party Computation for Machine Learning <br> Ing. Oleksandr Lytvyn, Assoc. Prof. Giang Nguyen |
| **k23-105** | An Approach of Interconnecting Romanian Lexical Resources <br> Dr. Liviu Andrei Scutelnicu, |
| **k23-106** | A Word Sense Disambiguatin Approach For Romanian Language <br> Dr. Liviu Andrei Scutelnicu |
| **k23-492** | Enhanced Computer-Aided Diagnosis Model on Ultrasound Images through Transfer Learning and Data Augmentation Techniques for an Accurate Breast Tumors Classification <br> Dr Ikram Ben Ahmed |

## *G03-B: Intelligent Information and Engineering Systems*
Chair: Prof. Cecilia Zani-Merk

Wednesday 6 September: 15:00 - 17:30 EEST
Room 3

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-107** | Word Sense Disambiguatin Corpus Development for Romanian Language<br>Dr. Liviu Andrei Scutelnicu |
| **k23-110** | Selective Exploration Algorithm for Coalition Formation<br>Dr Youcef Sklab, Pr Samir Akinie, Dr Hanane Ariouat |
| **k23-114** | Innovative blockchain-based Agent digital passport solution<br>Dr. Akram Sarhan |
| **k23-118** | Heterogeneous dynamic Graph for Multivariate Time Series forecasting considering spatiotemporal dependencies<br>Ph.d Student Hanen Balti, Professor Feras Al-obeidat, Doctor Ali Ben Abbes, Professor Imed Riadh Farah |
| **k23-211** | An 3D MRI Unsupervised Graph-based Skull Stripping Algorithm<br>Miss Maria Popa |
| **k23-283** | On the use of Pretrained Language Models for Legal Italian Document Classification<br>Dr. Irene Benedetto, Dr. Sara Bertoldo, Prof. Luca Cagliero, Dr. Giuseppe Giacalone, Dr. Gianpiero Sportelli, Dr. Francesco Tarasconi |
| **k23-536** | The architecture of a reasoning technology for Defeasible Deontic Logic<br>Professor Matteo Cristani, Doctor Guido Governatori, Doctor Francesco Olivieri, Doctor Luca Pasetto, Mr Francesco Tubini, Ms Celeste Veronese |

### *G03-C: Intelligent Information and Engineering Systems*
Chair: Prof. Cecilia Zani-Merk

Thursday 8 September: 10:30 - 12:30 EEST
Room 2

| PROSE Paper No | Paper Title / Authors |
|---|---|
| k23-356 | A review on tracking head movement in augmented reality systems<br>Msc Onyeka Nwobodo, Prof.inz.hab. Cyran Krzysztof, Prof.inz.hab. Kamil Wereszczynski |
| k23-393 | Heuristic Optimizations of Boolean Circuits with Application in Attribute-Based Encryption<br>Mr. Alexandru Ionita, Mr. Denis Andrei Banu, Mr. Iulian Oleniuc |
| k23-396 | Open versus Closed: A Comparative Empirical Assessment of Automated News Article Tagging Strategies<br>Mr Michal Pogoda, Mr Bartosz Bojanowski, Mr Marcin Oleksy, Mr Tomasz Walkowiak, Mr Konrad Wojtasik |
| k23-435 | Joint Decision Making in Ant Colony Systems for Solving the Multiple Traveling Salesman Problem<br>Dr Mihaela Breaban, Dr Dorel Lucanu, Dr Raluca Necula, Dr Daniel Stamate |
| k23-439 | A Genetic Algorithm for Optimizing Mobile Stroke Unit Deployment<br>Mr Muhammad Adil Abid, Mr Saeid Amouzad Mahdiraji, Associate Professor Johan Holmgren, Assistant Professor Fabian Lorig, Assistant Professor Radu-Casian Mihailescu, Professor Jesper Petersson |
| k23-446 | Scalable BDI-based Multi-Agent System for Digital Design Reviews<br>M. Eng. Stefan Plappert, B. Sc. Christian Becker, Dr.-ing. Paul Gembarski, Prof. Dr.-ing. Roland Lachmayer |

### *G03-D: Intelligent Information and Engineering Systems*
Chair: Prof. Cecilia Zani-Merk

Thursday 8 September: 15:00 - 17:30 EEST
Room 2

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-475** | Discriminating AI-generated Fake News<br>Dr Diana Trandabat, Dr Daniela Gifu |
| **k23-487** | Using a Correlation Equation to ensure Stability between Personalization and Security in Composing Web Services<br>Dr Abidi Sarra, Professor Guedira Guegan Chirine, Professor Ben Ghezala Henda, Dr Essafi Mehrez, Dr Toumi samir |
| **k23-306** | Relation Extraction Based on BERT and BGRU in the Chinese Music Scene<br>Mr. Chaoguo Wang, Prof. Wei Yan, Prof. Liang Zhang |
| **k23-307** | Modal Logics Close to System $S4.2$ from Knowledge Representation, Unification, Admissible Rules.<br>Professor Vladimir Rybakov |
| **k23-321** | Integrated Approach for Clothing Detection and Comparison using Structural Shape Detection and Texture Analysis<br>Mr Cristian Simionescu, Dr Adrian Iftene, Mr Cristian Vararu |
| **k23-322** | Bimodal Emotion Recognition Based on Vocal and Facial Features<br>Be Mateusz Wozniak, Be Pawel Czapla, Be Kacper Ledwosinski, Be Jakub Rzepkowski, Be Michal Sakowicz, Me Szymon Zaporowski |

### *G03-E: Intelligent Information and Engineering Systems*
Chair: Prof. Cecilia Zani-Merk

Friday 8 September: 10:30 - 12:30 EEST
KES Online Room 2

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-259** | A comparison of the Firefly Algorithm and the Ant Colony Optimization for ship collision avoidance<br>Assoc. Prof. Agnieszka Lazarowska |
| **k23-151** | Unsupervised text feature selection using NSGA II with Hill Climbing local search<br>Ms. Laura Cornei, Prof. Eugen Croitoru, Prof. Henri Luchian |
| **k23-153** | Development of a risk assessment methodology for intelligent technology of diagnosing industrial equipment for complex oil and gas facilities<br>Akhmetovna Galina Samigulina, Ildusovna Zarina Samigulina |
| **k23-171** | An Insight into NeuroEvolution and Genetic Algorithms for Text Classification<br>Mr Kevlyn Kadamala, Dr Josephine Griffith |

## *G04-A: Industry Applications*

Chair: Dr. Carlos Toro

Wednesday 6 September: 10:30 - 12:30 EEST
Room 4

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-002** | Machine Learning Methods for Predicting Adverse Drug Reactions in Hospitalized Patients<br>Phd Patricio Wolff, M.sc Claudio Gonzales, Phd Sebastian Rios |
| **k23-071** | Area Estimation of Forest Fires using TabNet with Transformers<br>Dr. I. De Zarzà, Professor Carlos T. Calafate, Dr. J. De Curtò |
| **k23-154** | AI4HR Recruiter: a job recommender system for internal recruitment in consulting companies<br>M François Mentec, M Sébastien Hervieu, Dr Zoltan Miklos, M Thierry Roger |
| **k23-191** | Recurrent Neural Networks for Daily Estimation of COVID-19 Prognosis with Uncertainty Handling<br>Phd Student Nicholas Rossetti, Prof. Emanuele Foca', Prof. Alfonso Gerevini, Dr. Matteo Olivato, Dr. Luca Putelli, Prof. Ivan Serina |
| **k23-205** | UMAP for Geospatial Data Visualization<br>Dr. I. De Zarzà, Professor Carlos T. Calafate, Dr. J. De Curtò |

### *G04-B: Industry Applications*
Chair: Dr. Carlos Toro

Wednesday 6 September: 15:00 - 17:30 EEST
Room 4

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-248** | Speech recognition and enhancement in underground mines for the use of smart voice assistants<br>Msc Artur Skoczylas, Msc Natalia Duda-mróz, Msc Wioletta Koperska, Msc Maria Stachowiak |
| **k23-273** | Routing Protocol for Healthcare Applications Data Over the 6LoWPAN-based Wireless Sensor Networks<br>Dr Zhongwei Zhang, Dr Hong Hu, Prof Xiaohua Hu |
| **k23-328** | Transfer Learning for Alzheimer's Disease Diagnosis from MRI Slices: A Comparative Study of Deep Learning Models<br>Ms. Georgiana-ingrid Stoleru, Mr. Adrian Iftene |
| **k23-351** | Scalable Remote Cloud Data Center for Vessel Equipment Predictive Maintenance Service-as-a-Product (SaaP)<br>Dr. Wei Chit Tan, Mr. Choon Lim Ho, Mr. Raguram Muthu, Dr. Carlos Toro |

## *G04-C: Industry Applications*
Chair: Dr. Carlos Toro

Thursday 8 September: 10:30 - 12:30 EEST
KES Online Room 3

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-364** | Research on the Intelligent manufacturing Path of Equipment Manufacturing Enterprises Based on Factor Load Matrix Model Associate Professor Jin Yin, Mr. Xin Geng, Associate Professor Hongyan Lin, Professor Zimin Yin, Mr. Boyu Zhang |
| **k23-316** | Smartphone thermal imaging for stressed people classification using CNN+MobileNetV2 M.Sc.Eng. Katarzyna Baran |
| **k23-366** | Automated Heart Murmur Detection using Sound Processing Techniques Phd Student Mihai-andrei Costandache, Msc Graduate Matei-alexandru Cioata, Professor, Phd Adrian Iftene |

# Presentation Schedule – Invited Sessions

## *IS01: Networks for Innovation, Knowledge Creation and Sharing*
Prof. Hironori Takeuchi

Thursday 7th September 2023 - 10:30 - 12:30
Room 4

| PROSE<br>Paper No | Paper Title / Authors |
|---|---|
| k23-031 | Supporting change management of UML class diagrams<br>Professor Atsushi Ohnishi, Mr. Yusuke Numa |
| k23-055 | PKC-- Production Knowledge Chart for Knowledge Transfer<br>Dr. Shuichiro Yamamoto, Dr. Hideo Fujimoto |
| k23-065 | Finding Contributable Activities \\Using Non-Verb Attributes In Events<br>Prof. Haruhiko Kaiya, Dr. Hiroyuki Nakagawa, Dr. Shinpei Ogata, Dr. Shinobu Saito, Prof. Hironori Takeuchi |
| k23-066 | Practice-based Collection of Bad Smells in Machine Learning Projects<br>Prof. Hironori Takeuchi, Prof. Haruhiko Kaiya, Assoc. Prof. Hiroyuki Nakagawa, Assoc. Prof. Shinpei Ogata |
| k23-079 | Data Driven Process-Based Unicage Architecture<br>Research Engineer Buyanjargal Shirnen, Ceo Nobuaki Tounaka, Professor Shuichiro Yamamoto |
| k23-147 | Temporal relation identification in functional requirements<br>Ms. Maiko Onishi, Prof. Daisuke Bekki, Prof. Shinpei Ogata, Prof. Kozo Okano |
| k23-078 | A Manual-based Knowledge Externalization Pattern using ArchiMate<br>Prof Yuko Tahara, Dr Shuichiro Yamamoto |

### *IS02: Artificial Intelligence, Robotics and Human-Machine Systems*
Prof. Rossi Setchi

Thursday 7th September 2023 - 10:30 - 12:30
Room 9

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-254** | AI Generated Recipe and OpenAI Chat Service Website (Smart Cuisine)<br>Ms. Ponrawin Kansaksiri, Mr. Pongpipat Panomkhet, Mr. Natthanet Tantisuwichwong |
| **k23-260** | Integrated Analysis of EEG and eye tracking to measure emotional responses in a simulated healthcare setting<br>Ms Megan Andrews, Professor Rossitza Setchi |

## IS03-A: *Challenges and Solutions for Knowledge Management in Project Management*
Assoc. Prof. Tadeusz A. Grzeszczyk

Wednesday 6th September 2023 - 15:00 - 17:30 EEST
Room 3

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-097** | Task Planning Model of Software Process<br>Dr. Wlodzimierz Wysocki |
| **k23-098** | Macrosimulation Model of Software Development Process<br>Dr. Wlodzimierz Wysocki |
| **k23-128** | Project management professionals suitability for organizational crisis management<br>Ma Marek Gmerski, Ph.d. Eng. Malgorzata Waszkiewicz |
| **k23-161** | Mindset as a barrier of knowledge management in a project teams<br>Phd Hanna Soroka-potrzebna |
| **k23-183** | Knowledge management challenges: case study of the R&D project based organization delivering military products<br>Phd, Dsc Eryk Glodzinski, Msc Jolanta Dybek |
| **k23-251** | T-AGILE: A Guide to Teleworking in Agile Project Management<br>Dr Rebecca Deneckere, M. David Serruya |
| **k23-357** | Application of the semantic network to manage processes in the area of legal regulation of education at the Doctoral School<br>Mgr Andrzej Grenczuk, Prof. UEW, dr Hab Iwona Chomiak-orsa, Prof. UEW, dr Hab. Estera Piwoni-krzeszowska |

### IS03-B: Challenges and Solutions for Knowledge Management in Project Management
Assoc. Prof. Tadeusz A. Grzeszczyk

Friday 8th September 2023 - 14:30 -16:30 EEST
KES Online Room 7

| PROSE Paper No | Paper Title / Authors |
| --- | --- |
| **k23-422** | The Impact of Web Analytics Tools on Knowledge Management<br>M.Sc Thomas Naprawski |
| **k23-474** | Best Practices for Knowledge and Quality Management in IT Projects<br>M.Sc. Thomas Naprawski |
| **k23-569** | Application of rough set theory to identify priorities in project management<br>Assoc. Prof. Karol Kuczera |

### *IS04-A: Knowledge-Based Systems for e-Business*
Prof. Kazuhiko Tsuda

Wednesday 6th September 2023 - 10:30 - 12:30 EEST
Room 6

| PROSE Paper No | Paper Title / Authors |
| --- | --- |
| **k23-232** | Study on the Relationship Between Corporate Culture and Corporate Performance in IT industry in Japan via Text Mining<br>Ms. Eri Uchida, Associate Professor Kino Yasunobu |
| **k23-094** | Estimating Game Dependence with Mobile Traffic Statistics<br>Prof. Nobuo Suzuki |
| **k23-109** | Performance Improvement of Start-ups through External Support - Cohort Comparison-<br>Student Hirotaka Yanada, Professor Setsuya Kurahashi |
| **k23-148** | How to Prepare for Food and Life Supplies of Employees that Ensure the Business Continuity Plan under Disaster Threats and Risks<br>Mr. Gengaku Mashiro, Mr. Kenichi Ichimura, Mr. Setsuya Kurahashi |
| **k23-188** | A Study on Risk Assessment Approach for the Elderly Based on Sarcopenia Criteria<br>Dr. Masakazu Takahashi, Dr. Yoshihiko Kinoshita |

## *IS04-B: Knowledge-Based Systems for e-Business*
Prof. Kazuhiko Tsuda

Thursday 7th September 2023 - 15:00 - 17:30 EEST
Room 5

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-243** | A Study of User Minds for Mobile Payment using Text Mining<br>Dr. Yasunobu Kino, Dr. Caroline S.l. Tan, Dr. Zhu Yi |
| **k23-301** | COVID-19 infection risk in face-to-face meetings in an office<br>Mr. Shohei Yada, Professor Setsuya Kurahashi, Mr. Taisei Mukai, Professor Hideyuki Nagai |
| **k23-235** | Knowledge Discovery to Improve Students Class Achievement from Questionnaire<br>Assistant Prof. Maya Iwano, Prof. Kazuhiko Tsuda |
| **k23-206** | Brute force concept drift detection<br>Dr Kenichi Yoshida |
| **k23-231** | Organization Structure Analysis by Network Analysis of Innovative Japanese Firms<br>Professor Hideki Hayashida, Associate Professor Hiroki Funashima |

### IS04: Knowledge-Based Systems for e-Business
Prof. Kazuhiko Tsuda

Friday 8th September 2023 - 10:30 - 12:30 EEST
KES Online Room 3

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-228** | The influence of sound on the attractiveness of a automobile from a bird's eye view of perceived attractiveness<br>Mr. Takashi Kondo, Dr. Takumi Kato, Prof. Kazuhiko Tsuda |
| **k23-080** | Datetime Feature Recommendation Using Textual Information<br>Prof. Satoshi Masuda, Mr. Toshihiro Takahashi, Mr. Takaaki Tateishi |
| **k23-234** | Analysis of Factors Affecting Local Government Officials' Interest in Digital Technology<br>Associate Prof. Eiji Kano, Prof. Tsuda Kazuhiko |
| **k23-240** | Discovery of features described in advanced improvement integrated reports from GPIF<br>Mr. Ryohsuke Tanaka, Prof. Kazuhiko Tsuda |

*IS05: Interdisciplinary Approaches in Digital Transformation (IADT 2023)*
Prof. Ralf-Christian Harting

Wednesday 6th September 2023 - 10:30 - 12:30 EEST
Room 5

| PROSE Paper No | Paper Title / Authors |
|---|---|
| k23-345 | IT Governance and IT Compliance in Family Firms - the Special Case of Cyber Security<br>Prof. Dr. Patrick Ulrich, M.sc. Felix Stockert |
| k23-045 | Leveraging NLP approaches to define and implement text relevance hierarchy framework for business news classification<br>Dr. Muhammad Arslan, Professor Christophe Cruz |
| k23-162 | Data Lakes in Healthcare: Applications and Benefits from the Perspective of Data Sources and Players<br>Mr. Tobias Gentner, Mr. Felix Gerschner, Mr. Timon Neitzel, Mr. Jacob Schulze, Prof. Andreas Theissler |
| k23-184 | A software framework for virtual testing of a production control system<br>M.eng. Timo Koenig, Prof. Dr. Markus Kley |
| k23-263 | A formal model for reliable digital transformation of water distribution networks<br>Phd Jose Miguel Blanco, Professor Felix Cuadrado, Professor Jose Del Alamo, Professor Juan Dueñas, Professor Mouzhi Ge |
| k23-323 | Impact of Covid-19 on employee satisfaction and trust with focus on working from home<br>Prof. Dr. Joerg Bueechl, Ms. Laura Beltempo, Ms. Chiara Bühner, Ms. Melanie Drechsler, Prof. Dr. Ralf Härting |

### IS05: Interdisciplinary Approaches in Digital Transformation (IADT 2023)
Prof. Ralf-Christian Harting

Wednesday 6th September 2023 - 15:00 - 17:30 EEST
Room 5

| PROSE Paper No | Paper Title / Authors |
| --- | --- |
| **k23-352** | Revolutionizing Management Information Systems with Natural Language Processing for Digital Transformation<br>Dr. Muhammad Arslan, Professor Christophe Cruz, Dr. Zainab Riaz |
| **k23-430** | Impact of home office on motivation and exhaustion<br>M.a. Miriam Gazem, Prof. Dr. Ralf-christian Härting, Dr. Christopher Reichstein |
| **k23-450** | Cybersecurity in SME - Drivers of Cybercrime, Insufficient Equipment and Prevention<br>Prof. Ralf Härting, M.a. Demian Deffner, M.a: Miriam Gazem, Prof. Christoph Karg |
| **k23-587** | Measuring the Digital Transformation: A Key Performance Indicators Literature Review<br>Pr Chehri Abdellah, Dr Sadok Hicham, Mrs Mahboub Houa, Dr Saadane Rachid |
| **k23-032** | Towards Optimal Freight Selection Strategies in Transport Planning<br>Assoc. Prof. Bartosz Marcinkowski, Mr Adam Aszyk, Assoc. Prof. Marek Bednarczyk, Mr Pawel Pisarski, Dr Tadeusz Puzniakowski |

## *IS06: Interdisciplinary Approaches in Data Science Practice (IADSP 2023)*
Prof. Ivan Luković

Thursday 7th September 2023 - 15:00-17:30 EEST
Room 4

| PROSE<br>Paper No | Paper Title / Authors |
|---|---|
| **k23-157** | From Data to Wisdom: A Review of Applications and Data Value in the context of Small Data<br>Mr. Jonas Werner, Mr. Philipp Beisswanger, Mr. Marco Klaiber, Mr. Christoph Schürger, Prof. Andreas Theissler |
| **k23-167** | A generative adversarial network-based data augmentation approach with transient vibration data<br>M.eng. Timo Koenig, B.eng. Luca Cadau, Prof. Dr. Markus Kley, M.sc. Fabian Wagner |
| **k23-333** | Lazy Labels for Chicken Segmentation<br>Mr. Tobias Schiele, Ms. Daria Kern, Mr. Prof. Dr. Ulrich Klauck |
| **k23-347** | Use of Online MIS in Management Accounting - Initial Results from an Empirical Study<br>Prof. Dr. Robert Rieg, Prof. Dr. Carmen Finckh, Prof. Dr. Patrick Ulrich |
| **k23-496** | Understanding the Use of Scientific References in Multilingual Wikipedia across Various Topics<br>Dr. Włodzimierz Lewoniewski, Prof. Witold Abramowicz, Prof. Krzysztof Wecel |

### *IS07: Software Engineering and Large-Scale Systems*
Prof. Sergey V. Zykov


Thursday 7th September 2023 - 10:30 - 12:30
KES Online Room 6

| PROSE Paper No | Paper Title / Authors |
| --- | --- |
| **k23-122** | Finding an optimal trade-off retail price promotion strategy using an agent-based simulation<br>Dr. Boris Ulitin, Prof. Eduard Babkin, Prof. Sergey Zykov |
| **k23-455** | RLReC: Towards Reinforcement Learning-based Dynamic Design of Reconfiguration Control<br>Mrs Amen Ben Hadj Ali, Pr Samir Ben Ahmed |
| **k23-594** | Digital Business Ecosystems: Organizational Model, Roles, and Governance Towards Flexibility<br>Dr. Elena Kornyshova, Mr. Mustapha Kamal Benramdane, Mr. Laurent Boutal |
| **k23-383** | Filtering and Parallel Diffusive Fractal Characterization of 2-Dimensional Images<br>Dr Hafedh Zghidi, Prof Tomasz Blachowicz, Dr Adam Duszenko, Mgr Maksym Walczak |

### *IS08: Smart Education: Learning Environment Using Technology*
Prof. Nobuyuki Ogawa

Wednesday 6th September 2023 - 10:30 - 12:30 EEST
Room 7

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-093** | Proposal of a Cloud Application that can Visualize the Atmosphere of a Remote Class<br>Prof. Shin-nosuke Suzuki, Prof. Katsumi Hirata, Dr. Naoto Hoshikawa, Prof. Takehito Kato, Dr. Yasuhiro Kobayashi, Dr. Akira Okada |
| **k23-099** | Development and issues of recurrent education for general workers to promote digital transformation of the construction industry in local cities<br>Dr. Yutaka Tada, Dr. Seiichi Nishino, Dr. Matsumoto Takashi, Mr. Shoji Tanaka, Dr. Hasegawa Tasuo, Dr. Toyokastu Yuki |
| **k23-146** | Creative teaching using hybrid e-learning and virtual reality<br>Research Professor Dana Barry, Professor Hideyuki Kanematsu, Sr Executive V.p Toshihiro Tanaka |
| **k23-358** | Activities Tracking on Campus for Improving Academic Performance<br>Mr. Iyori Honma, Prof. Ryozo Kiyohara |
| **k23-359** | Proposal of Cyber Range for Control System based on Virtual Commissioning Technology<br>Dr. Kuniaki Yajima, Dr. Toshiyuki Kanmachi, Dr. Jun Sato, Dr. Yamada Satoru, Dr. Sou Takahashi |

## IS08: Smart Education: Learning Environment Using Technology
Prof. Nobuyuki Ogawa

Wednesday 6th September 2023 - 15:00 - 17:30 EEST
Room 6

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-381** | Teaching Orthography using Human-in-the-Loop Machine Learning<br>Prof. Eduardo Mosqueira-rey, Prof. David Alonso-ríos, Mr. Sergio Fernández-castaño, Prof. Eloy López-meneses, Prof. Esteban Vázquez-cano |
| **k23-388** | Fuzzy knowledge based assessment system for K-12 Scientific Reasoning Competencies<br>Dr. Manel Bensassi, Pr Henda Ben Ghezala |
| **k23-490** | The impact of entrepreneurship education on entrepreneurship intention in the engineering studies<br>Dr. Jun Sato, Dr. Ohnishi Hiromasa, Dr. Yajima Kuniaki, Master Karin Kurata, Dr. Takashi Morinaga, Dr. Jun Sato |
| **k23-505** | Business Computer Simulations and its Role in Educational Processes from the Students' Perspective<br>M.eng Katarzyna Hołowińska, Phd Aleksander Binsztok, Phd Beata Butryn, Profesor Mieczysław Owoc, Phd Małgorzata Sobińska |
| **k23-599** | Evaluation Methods and Differences between Three Dimensional And Two Dimensional Movies by Physiological Measurements Using A Commercial 6-Axis Sensor<br>Prof. Hideyuki Kanematsu, Prof. Dana Barry, Prof. Katsuko Nakahira, Prof. Nobuyuki Ogawa, Prof. Shin-nosuke Suzuki, Prof. Kuniaki Yajima |

## *IS08: Smart Education: Learning Environment Using Technology*
Prof. Nobuyuki Ogawa

Thursday 7th September 2023 - 10:30 - 12:30 EEST
KES Online Room 7

| PROSE Paper No | Paper Title / Authors |
| --- | --- |
| k23-119 | Using Excel based war simulator to support tactical wargaming<br>Phd Kalle Saastamoinen, Mms Tuomas Hongisto |
| k23-160 | Designing an Asynchronous Information Literacy Lecture to Change Learning Styles in ICT Utilization<br>Dr. Shin'nosuke Yamaguchi, Dr. Kazunori Nishino, Dr. Yoshimasa Ohnishi, Dr. Tetsuya Oishi |
| k23-170 | Lightness Conversion of Color Images on Equi-Hue Plane by Using Color Vectors<br>Mr Furukawa Shota |
| k23-174 | The Influence of Prior Knowledge and Additional Courses on the Academic Performance of Students in the Introductory Programming Course CS1<br>Mrs. Sabina Katalnikova, Mrs. Natalya Prokofyeva, Mrs. Marina Uhanova, Mrs. Oksana Zavjalova, Mrs. Viktorija Ziborova |
| k23-175 | Possibilities for Organizing Group Work for Computer Science Students<br>Mrs. Sabina Katalnikova, Mrs. Natalya Prokofyeva, Mrs. Marina Uhanova, Mrs. Viktorija Ziborova |
| k23-363 | Analysis of Activity Logs of GakuNin LMS in the Use of the Information Security Course at Gunma University<br>Dr. Hamamoto Nobukuni, Dr. Ueda Hiroshi, Dr. Yamaji Kazutsuna, Dr. Ogawa Koichi, Dr. Furukawa Masako, Dr. Nakamura Motonori |
| k23-380 | Personalization of Distance Learning: Using PLS-SEM for Analyzing the Possibility of Differentiating Students with the Felder-Silverman Learning Style Model<br>Mrs. Sabina Katalnikova, Mrs. Yulia Kolobovnikova, Mrs. Yelena Popova, Mrs. Natalya Prokofyeva, Mrs. Diana Zagulova, Mrs. Viktorija Ziborova |

## *IS09: Intelligent Methods in Maritime Engineering, Transport and Logistics*
Prof. Andrzej Banaszek

Thursday 7th September 2023 - 10:30 - 12:30
KES Online Room 8

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-100** | The Radiocommunication Support Decision System to Use in Distress Situations for Captains of Small Non-conventional Vessels Operating in the Caribbean Sea Area <br> Professor Zut Andrzej Banaszek, Phd. Eng. Andrzej Lisaj |
| **k23-101** | Concept of an Intelligent System for Safety Navigation in Distress Situations using MF-DSC and MF-RTF Radiocommunication Equipment for Non-conventional Vessels Sailing along the Coast of Portugal using ANN Computer System Technology. <br> Professor Zut Andrzej Banaszek, Phd. Eng. Andrzej Lisaj |
| **k23-141** | Decision-support system for the management of truck stays at seaport <br> Mr Christopher Expósito Izquierdo, Mr Iván Castilla Rodríguez, Mr Airam Expósito Márquez, Mr Israel López Plata, Ms Alba Martín-lorenzo |
| **k23-636** | A Smart Parking System Using Surveillance Cameras and Fuzzy Logic: A Case Study at Pardubice University's Campus <br> Msc. Akram Elomiya, Ph.d. Stefan Jovčić, Associate Professor Jiří Křupka |

*IS10-A: Digitalization and Knowledge Management in Health Data Acquisition and Processing*
Prof. Ralf Seepold

Friday 8th September 2023 - 10:00 - 12:00 EEST
Room 4

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-566** | Experiment design for Stress data collection while driving in a simulator.<br>M.sc Wilhelm Daniel Scherz, Dr. Juan Antonio Ortega, Dr. Ralf Seepold |
| **k23-083** | Development of an expert system to overpass citizens technological barriers on smart home and living<br>Msc. Daniel Velez, Dr. Natividad Martinez Madrid, Dr. Ralf Seepold |
| **k23-197** | Accelerometer based system for unobtrusive sleep apnea detection<br>Msc. Andrei Boiko, Dr. Maksym Gaiduk, Prof. Dr. Natividad Martínez Madrid, Prof. Dr. Ralf Seepold |
| **k23-202** | Assessment of the replacement of a subjective measurement of sleep-relevant parameters by a measurement with a sensor under the mattress<br>Dr. Maksym Gaiduk, Prof. Dr. Natividad Martínez Madrid, Prof. Dr. Ralf Seepold |
| **k23-362** | Governmental Anti-Covid Measures Effectiveness Detection<br>Dr. Pavel Zid, Prof. Dr. Michal Haindl, Dr. Vojtech Havlicek |
| **k23-472** | Conception of a home-based sleep apnoea identification and monitoring system<br>Dr. Maksym Gaiduk, Prof.dr. Natividad Martínez Madrid, Prof.dr. Ralf Seepold, Mr. Ángel Serrano Alarcón |

### *IS10-B: Digitalization and Knowledge Management in Health Data Acquisition and Processing*
Prof. Ralf Seepold

Friday 8th September 2023 - 14:30 -16:30 EEST
KES Online Room 7

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-473** | Pre-training considerations for deep learning models to detect obstructive sleep apnea events<br>Msc Ángel Serrano Alarcon, Dr Maksym Gaiduk, Dr Natividad Martínez Madrid, Dr Ralf Seepold |
| **k23-041** | Digital methodology for parental self-assessment of child development (development, implementation and initial results)<br>Mrs Nina Iordanova, Ms Katya Damyanova, Assoc. Prof. Polina Mihova, Assoc. Prof. Margarita Stankova |
| **k23-238** | Performance improvement of cardiorespiratory measurements using pressure sensors with mechanical coupling techniques<br>Phd Akhmadbek Asadov, Prof. Dr. Juan Antonio Ortega, Prof. Dr. Natividad Martínez Madrid, Prof. Dr. Ralf Seepold |

## *IS11: Computational Culture, Arts and Interaction*
Assoc. Prof. Ryosuke Yamanishi

Friday 8th September 2023 - 10:00 12:00 EEST
Room 5

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-189** | Sentiment Analysis of User Reviews Transition in Multimedia Franchise<br>Ms. Yuna Fujii, Mr. Yihong Han, Dr. Yoko Nishihara, Dr. Junjie Shan |
| **k23-223** | Do Appearances Represent Personality of Created Characters?<br>Ms. Fuka Nakashima, Mr. Naoki Fujimoto, Assoc. Prof. Ryosuke Yamanishi |
| **k23-360** | Exploration cycle finding a better dining experience: a framework of meal-plates<br>Ms. China Takahashi, Dr. Mitsunori Matsushita, Dr. Ryosuke Yamanishi |
| **k23-361** | Estimating Story-events of Comics Based on Characteristic Words<br>Mr. Taketo Fujikawa, Dr. Mitsunori Matsushita |
| **k23-367** | A method to construct comic spoiler dataset and the analysis of comic spoilers<br>Mr. Takumi Takaku, Mr. Yoshiki Maki, Prof. Satoshi Nakamura |
| **k23-368** | Validation of Game Advantage Disadvantage Control Considering Color Vision Characteristics: A Basic Study on Among Us with Different Color Settings<br>Mr. Tohya Aoki, Ms. Yuka Fujiwara, Prof. Satoshi Nakamura |

### IS12-A Knowledge and Data Engineering in Medicine and Health Care
Assoc. Prof. Krzysztof Pancerz

Thursday 7th September 2023 - 10:30 - 12:30 EEST
Room 6

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-067** | COVID-19 genomes classification using Deep Imposters approach<br>Prof. Zeev Volkovich, Mr. Kfir Avioz, Mr. On Avioza, Dr. Renata Avros |
| **k23-165** | SART & COVIDSentiRo: Datasets for Sentiment Analysis Applied to Analyzing COVID-19 Vaccination Perception in Romanian Tweets<br>Mrs Alexandra Ciobotaru, Mr Liviu Dinu |
| **k23-180** | Multimodal Machine Learning for Mental Disorder Detection: A Scoping Review<br>Ms Thuy Trinh Nguyen, Dr Fani Deligianni, Dr Duc-Trong Le, Dr Hoang D. Nguyen, Mr Viet Hoang-Quoc Pham, Dr Xuan-Son Vu |
| **k23-424** | Fuzzy deconvolution of neuronal events in Functional Magnetic Resonance Imaging<br>Dr. Alejandro Veloz, Dr. Moraga Claudio, Dr. Marinazzo Daniele, Dr. Wael El-deredy, Dr. Zamora Juan, Dr. Alejandro Weinstein |
| **k23-431** | Knowledge Organization System for Partial Automation to Improve the Security Posture of IoMT Networks<br>Ms Kulsoom Bughio |
| **k23-495** | Using neural networks to personalize immunosuppressive dosing in renal transplanted patients<br>Ms. Rares Arvinte, Dr. Diana Trandabat |

## *IS12-B: Knowledge and Data Engineering in Medicine and Health Care*
Assoc. Prof. Krzysztof Pancerz

Thursday 7th September 2023 - 15:00 - 17:30 EEST
Room 6

| PROSE Paper No | Paper Title / Authors |
|---|---|
| k23-538 | Improving Automatic Recognition of Emotional States Using EEG Data Augmentation Techniques<br>Prof. Agnieszka Wosiak, Ms. Patrycja Szczakowska, Dr. Katarzyna Zykwinska |
| k23-549 | Sensitivity of Standard Evaluation Metrics for Disease Classification and Progression Assessment Based on Whole-Body Imaging<br>Prof. Agnieszka Wosiak, Ms. Malgorzata Krzywicka |
| k23-592 | Computer-aided Diagnosis of Sarcoidosis Based on X-Ray Images<br>Dr Paweł Prokop |
| k23-608 | Determining Reference Spectra for Medical Diagnosis Using Clustering Methods<br>Prof. Krzysztof Pancerz, Prof. Pawel Jakubczyk, Dr Wieslaw Paja |
| k23-609 | A Preliminary Research on Automatic Identification of Melanocytic Skin Lesions from Digital Images<br>Assistant Professor Wiesław Paja, Assistant Professor Magdalena Zychowska, Associate Professor Krzysztof Pancerz, Assistant Jaromir Sarzynski, Assistant Jarosław Szkoła |
| k23-640 | Contribution to Early Diagnosis of Multiple Sclerosis using Optical Coherence Tomography and Support Vector Machine<br>Mr. F. Javier Dongil, Mrs. Elena Garcia-martin, Mr. Daniel Jimeno, Mr. Victor Mayen, Mr. Miguel Ortiz |

## IS12: Knowledge and Data Engineering in Medicine and Health Care
Assoc. Prof. Krzysztof Pancerz

Friday 8th Spetember 2023 - 10:30 -12:30
KES Online Room 4

| PROSE Paper No | Paper Title / Authors |
| --- | --- |
| k23-143 | Challenges of Automatic Speech Recognition for medical interviews - research for Polish language<br>Dr Karolina Kuligowska, Mr Marek Koniew, Mr Maciej Stanusch |
| k23-262 | Applying the SIM Tool in Clinical Practice: a Case Study in Neonatal Resuscitation Simulation<br>Researcher Manuel Striani, Associate Professor Alessio Bottrighi, Associate Professor Marco Guazzone, Associate Professor Giorgio Leonardi, Full Professor Stefania Montani, Full Professor Paolo Terenziani |
| k23-395 | Detection of outliers in ECG signal<br>Phd, Dsc, Agnieszka Duraj, Msc Maciej Socha, Profesor Piotr S. Szczepaniak |
| k23-574 | Characterizing X-Linked Dystonia Parkinsonism Using Clustering Techniques in Data Science<br>Dr. Vincent Peter Magboo, Prof. Ma Sheila Magboo, Dr. Matthew Paul Pasco |

## *IS13: Information Technology and Information Systems in Accounting, Finance and Controlling*
Assoc. Prof. Arkadiusz Januszewski

Thursday 7th September 2023 - 15:00 - 17:30 EEST
Room 9

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-004** | e-Tax Office as an e-communication tool of revenue authorities in Poland<br>Phd Cyryl Kotyla |
| **k23-300** | Adaptive user interface for workflow-ERP system<br>Dr Marcin Smereka, Prof. Grzegorz Kołaczek, Prof. Janusz Sobecki, Dr Adam Wasilewski |
| **k23-421** | Bidding farewell to paper financial reports - are Polish micro businesses coping with the phenomenon<br>Dr Grzegorz Bucior, Dr Elżbieta Jaworska |
| **k23-046** | Digital transformation of a Polish accounting firm: tools, impediments, business performance benefits and implications – case study<br>Msc Beata Kotowska, Msc Marta Sikorska |
| **k23-136** | Auditor Choice Prediction using Machine Learning<br>Ph D Anna Karmańska |
| **k23-201** | Digital transformation in accounting firms in Poland<br>Assoc. Prof. Arkadiusz Januszewski, Msc Natalia Buchalska-sugajska |
| **k23-425** | Valuation of Internet Companies - Selected Issues<br>Prof. Pawel Kossecki, Prof. William Steingartner, Ph.D. Jacek Wachowicz |

## *IS14: Aspects of Intelligent Learning Systems: e-Learning Across Various Educational Contexts*
Prof. Hiroshi Ueda

Wednesday 6 September 2023 - 10:30 -12:30 EEST
Room 9

| PROSE Paper No | Paper Title / Authors |
| --- | --- |
| k23-132 | Students interest in knowledge acquisition in Artificial Intelligence<br>Dr. Petrescu Manuela-Andreea, Dr. Pop Emilia-loredana, Dr. Tudor Mihoc |
| k23-287 | Virtual Hydrogen, a virtual reality education tool in physics and chemistry<br>Prof. Hiroya Suno, Prof. Nobuaki Ohno |
| k23-313 | Online Technology-Based Microteaching in Teacher Education: A Systematic Literature Review<br>Mr. Hayato Sezaki, Prof. Satori Hachisuka, Prof. Kayoko Kurita, Ms. Yanran Lei, Prof. Shin'ichi Warisawa, Ms. Yushan Xu |
| k23-317 | Awareness and learning for initial configuration of an webserver<br>Student Taisei Matsuo, Professor Kenji Matsuura, Professor Hironori Takeuchi |
| k23-319 | Applications of a fuzzy controller in adaptive e-learning content used to evaluate student activity<br>M.eng. Marcin Szczepański, Professor Jacek Marciniak |
| k23-491 | Improving essential knowledge and self-efficacy in computers network course: The potential of chatbots<br>Dr Mohammad Nehal Hasnine, Dr Mahmoud Mohamed Huss Ahmed |
| k23-470 | Implementation of Anonymization Algorithms for Log Data Analysis on a Cloud-Based Learning Management System<br>Associate Professor Osamu Takaki, Professor Kento Aida, Associate Professor Nobukuni Hamamoto, Professor Atsuko Takefusa, Researcher Shigetoshi Yokoyama |

## *IS15: Cyber Security and Big Data*

Dr. Francesco Mercaldo

Friday 8th September - 14:30 - 16:30
Room 9

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-021** | Damage Detection and Localisation using UAV/ Drone with Object Detection<br>Dr Francesco Mercaldo, Dr Francesco Mercaldo, Prof Antonella Santone |
| **k23-022** | Explainable Deep Learning for Face Mask Detection<br>Prof Francesco Mercaldo, Dr Giacomo Iadarola, Dr Fabio Martinelli, Dr Francesco Mercaldo, Prof Antonella Santone |
| **k23-155** | Inferring Emotional Models from Human-Machine Speech Interactions<br>Ph.d. Stefano Marrone, Ph.d. Lelio Campanile, Mrs. Roberta De Fazio, Mr. Michele Di Giovanni, Ph.d. Fiammetta Marulli, Ph.d. Laura Verde |
| **k23-403** | Proposal of a Modified Hash Algorithm to Increase Blockchain Security<br>Abid Ali Alaa Abid Ali, Hazar Manar Hazar, Mabrouk Mohamed Mabrouk, Zrigui Mounir Zrigui |
| **k23-482** | A Blockchain-based approach for secure IoT<br>Phd Sonia Kotel, Phd Lazhar Hamel, Phd Raouda Maraoui Kamoun, Phd Fatma Sbiaa |

### *IS16: Global and Constrained Optimization: Algorithms and Applications (4th Edition)*
Prof. Abdellah Chehri

Friday 8th September 2023 - 14:30 - 16:30
Room 7

| PROSE Paper No | Paper Title / Authors |
| --- | --- |
| k23-194 | Optimizing Forest Fire Prevention: Intelligent Scheduling Algorithms for Drone-Based Surveillance System<br>Dr Mahdi Jemmali, Dr Mafawez T. Alharbi, Dr Hajer Amdouni, Dr Wadii Boulila, Dr Loai Kayed B.melhim |
| k23-311 | Modeling Complex Object Changes in Satellite Image Time-Series: Approach based on CSP and Spatiotemporal Graphs<br>Doctor Zouhayra Ayadi, Associate Professor Wadii Boulila, Professor Imed Riadh Farah |
| k23-420 | Robotic Process Automation (RPA) using a heuristic method and the effective resistance of a graph<br>Prof. Hugo Tremblay, Student Laurie-ann Boily, Student Véronique Du Paul, Student Sophie Lalancette, Prof. Sara Séguin |
| k23-481 | An improved genetic algorithm for solving the multi-objective vehicle routing problem with environmental considerations<br>Phd Student Hamida Labidi, Associate Professor Nadia Ben Azzouna, Associate Professor Mohamed Salah Gouider, Phd Khaled Hassine |
| k23-559 | Deep Learning based Currency Trend Classification Trained on Technical Indicators based Generated Dataset<br>Dr. Tigani Smail, Dr. Chehri Abdellah, Ph.d. Student Makrane Amal, Dr. Saadane Rachid |

## IS17: Applied Econometrics and Statistics
Assoc. Prof. Mariusz Doszyń

Thursday 7th September 2023 - 15:00 -17:00 EEST
KES Online Room 8

| PROSE Paper No | Paper Title / Authors |
|---|---|
| k23-054 | Statistical analysis of chosen aspects of population shifts in Poland 2011-2021 as a component of sustainable urban development systems<br>Ph.d. Sebastian Gnat |
| k23-214 | Land property price dynamics during the COVID-19 pandemic<br>Ma Michał Frej |
| k23-246 | Housing deprivation in Poland: a panel data analysis<br>Phd Agnieszka Wojewódzka-wiewiórska, Professor Hanna Dudek |
| k23-325 | Subjective quality of life in Poland: a structural equation modeling analysis<br>Assoc. Prof. Anna Sączewska-Piotrowska |
| k23-394 | The Analysis And Forecasting Of The Development Of Polish Seaports After Russia's Aggression Against Ukraine (On The Example Of The Port Complex Of Szczecin And Swinoujscie)<br>Dr Wojciech Kuźmiński |
| k23-518 | Econometric models of real estate prices with interactions<br>Prof. Mariusz Doszyn |

## *IS18-A: Classification, Forecasting and Decision Support*
Dr. Rafal Deja

Thursday 7th September 2023 - 10:30 -12:00 EEST
KES Online Room 4

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-015** | Tracking Dialog States in Goal-Oriented Dialogues using a BERT-Based Siamese Network<br>Pr Abdellah Chehri, Dr Hasna Chaibi, Mr Jben Mourad, Dr Rachid Saadane, Dr Smail Tigani |
| **k23-029** | A Graphical Model of Nocturnal Therapy of Juvenile Diabetics<br>Dr Rafal Deja, Prof Grazyna Deja |
| **k23-096** | Total value of claims in the motor multiperil portfolio<br>Prof. Alicja Wolny-Dominiak |
| **k23-239** | Fuzzy, Graphical Model of Diabetic Therapy<br>Dr Rafal Deja, Prof Grazyna Deja |
| **k23-545** | Link Prediction Using Graph Neural Networks for Recommendation Systems<br>Pr Abdellah Chehri, Pr El Madani Yasser El Madani El Alami Yassera, Mrs Safae Hmaidi, Pr Mohamed Lazaar, Dr Rachid Saadane |
| **k23-086** | Impact of Vector Embeddings on the Performance of Tolerance Near Sets-based Sentiment Classifier for Text Classification<br>Dr. Sheela Ramanna, Ms. Tejaswi Hegde, Mr. Sanjay Kalyane, Ms. Ranjana Kambhammettu, Dr. Anand Kumar, Ms Swetha Thomas |

## *IS18-B: Classification, Forecasting and Decision Support*
Dr. Rafal Deja


Thursday 7th September 2023 - 15:00 -17:00 EEST
KES Online Room 4

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-172** | A validation algorithm of applications designed for people with color vision deficiency.<br>Professor Aleksander Dawid, Phd Paweł Buchwald |
| **k23-185** | An algorithm for estimating the number of objects in a selected area of space based on ordinary photos<br>Ph.D. Dorota Zebrowska-Suchodolska, Ph.D. Pawel Hoser |
| **k23-216** | Evaluation of major cities in terms of smart cities: A developing country perspective<br>Mr. Mehmet Ali Taş, Dr. S. Emre Alptekin |
| **k23-371** | Palm Oil Maturity Classification Using K-Nearest Neighbors Based on RGB and L*a*b Color Extraction<br>Prof. Rafal Drezewski, Mr. Felix Andika Dwiyanto, Mr. Mr. Indahyani, Mr. Dessyanto Boedi Prasetyo, Mr. Shoffan Saifullah |
| **k23-373** | Modified Histogram Equalization for Improved CNN Medical Image Segmentation<br>Prof. Rafal Drezewski, Mr. Shoffan Saifullah |
| **k23-454** | Job Seeker Recommendation for Employers: A Graph-Based Recommendation Approach Using Node Embedding<br>Ms Fatma Çallı, Asst. Prof Günce Orman |

### *IS19-A: Modern Technology Reshaping our World*
Prof. Lenuța Alboaie

Friday 8th September 2023 - 10:00 - 12:00 EEST
Room 2

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-290** | BlockchainPedia: A Comprehensive Framework for Blockchain Network Comparison<br>Mr Cosmin Irimia, Mrs Luciana Bejan, Prof. Dr. Adrian Iftene |
| **k23-391** | Hybrid transportation system using trucks and drones<br>Mr Sorin Ionut Conea, Phd Gloria Cerasela Crisan |
| **k23-416** | An Insight of Adaptive Notification Management and User Experience Intelligent Systems for the Blind<br>Mr. Madalin Matei |
| **k23-423** | Experiments with Dimensionality Reduction on Chest X-Ray Images<br>Miss Anca Ignat |
| **k23-453** | Challenges in Optimizing Migration Costs from On-Premises to Microsoft Azure<br>Phd Student Florin Olariu, Proffesor Lenuta Alboaie |

## *IS19: Modern Technology Reshaping our World*
Prof. Lenuța Alboaie

Friday 8th September 2023 - 14:30 - 16:30
KES Online Room 10

| PROSE<br>Paper No | Paper Title / Authors |
|---|---|
| **k23-018** | Organizational performance model based on e-leadership in crisis caused by COVID-19 pandemic<br>Prof. Katarzyna Tworek, Prof. Agnieszka Bieńkowska, Msc Zuzanna Hazubska, Dr Marta Nowakowska |
| **k23-286** | AlzDiagnostics: A Mobile Alzheimer's Diagnosis Solution<br>Ms. Georgiana-ingrid Stoleru, Ms. Andreea Ciocan, Mr. Daniel-andrei Haivas, Mr. Adrian Iftene, Ms. Bianca Ionela Stratianu |
| **k23-509** | V2IP: an assistive system for visually impaired individuals to identify the correct vehicle in public transportation<br>Phd Student Emanuel Achirei, Student Dragoș Aioane, Prof. Phd Lenuța Alboaie |

*IS20-A: Digital Transformation in Organizations*
Assoc. Prof. Klaudia Smoląg

Friday 8th September 2023 - 10:30 - 12:30 EEST
KES Online Room 7

| PROSE Paper No | Paper Title / Authors |
|---|---|
| k23-012 | Assessment of benefits and disadvantages of implementing Cloud-specific solutions in Polish companies on the example of ERP systems<br>Mr Remigiusz Zieliński, Prof. Sebastian Kot, Phd Katarzyna Zielińska |
| k23-038 | An ML-extended conceptual framework for implementing temporal big data analytics in organizations to support their agility<br>Assoc. Prof. Maria Mach-Krol, MSc Bartlomiej Hadasik |
| k23-049 | E-leadership shaped by IT adaptability through Employees' Dynamic Capabilities<br>Prof. Katarzyna Tworek |
| k23-060 | Comparison and Assessment of the Power Distance Index in Generation Z in Trkiye and Poland<br>Prof Mesut Atasever, Prof Witold Chmielarz, Phd Marek Zborowski |
| k23-068 | An assessment of the potential using of an electronic platform in managing information of company resources<br>Phd Katarzyna Grondys, Phd Joanna Górniak |
| k23-102 | Research and development activity as an element of enterprises innovation<br>Dr. Magdalena Biel |

## *IS20-B: Digital Transformation in Organizations*
Assoc. Prof. Klaudia Smoląg

Friday 8th September 2023 - 14:30 - 16:30 EEST
KES Online Room 5

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-182** | The skills members of multicultural teams need to succeed in Industry 5.0 - the opinion of managers from Portugal, France, and Greece<br>Dr Agnieszka Knap-stefaniuk |
| **k23-280** | Enterprises development in context of artificial intelligence usage in main processes<br>Dr. Marta Daroń, Dr. Monika Górska |
| **k23-108** | Optimising order picking efficiency in a warehouse and distribution centre: A flexible flow shop scheduling approach<br>Dr Kateryna Czerniachowska, Phd. Eng. Krzysztof Lutosławski |
| **k23-375** | Adapting Remote Working in Large Enterprises in the Era of the COVID-19 Pandemic<br>Ph.d. Artur Wrzalik, Ph.d. Rafal Niedbal, Ph.d. Adam Sokolowski |

## *IS20-C: Digital Transformation in Organizations*
Assoc. Prof. Klaudia Smoląg

Wednesday 6th September 2023 - 15:00 - 17:30
Room 9

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-338** | The use of an ontology to evaluate the suitability of using Design Thinking in teaching based on the syllabus<br>Mgr Kamila Łuczak, Prof. Ue, Dr Hab. Iwona Chomiak-orsa, Prof. Ue, Dr Hab. Estera Piwoni-krzeszowska |
| **k23-163** | Blockchain for Supply Chain Management: A Literature Review and Open Challenges<br>Mr. Kai Wannenwetsch, Mr. Felix Gerschner, Ms. Isabel Ostermann, Mr. Rene Priel, Prof. Andreas Theissler |
| **k23-582** | Expectations Towards Students? Competencies In The Framework Of Digital Transformation Processes<br>Dr Agata Hilarowicz, Assoc. Prof. Małgorzata Myśliwiec, Assoc. Prof. Beata Zielosko |

## *IS21: RAI - Robust Artificial Intelligence*
Dr. Aya Saad

Thursday 7th September 2023 - 10:30 - 12:30
Room 9

| PROSE<br>Paper No | Paper Title / Authors |
|---|---|
| **k23-586** | A Web-Based Platform for Efficient and Robust Simulation of Aquaculture Systems using Integrated Intelligent Agents<br>Dr. Aya Saad, Dr. Finn Olav Bjørnson, Dr. Biao Su |
| **k23-602** | Towards Robustness Analysis for Adaptive Artificial Intelligence in Multi-Autonomous agent systems<br>Professor Anne Håkansson, Phd Student Yigit Can Dündar, Professor Ronald Hartung |

## *IS22-A: The 7th Special Session on Eye Movement Data Processing and Analysis (EMDPA)*
Assoc. Prof. Katarzyna Harezlak

Friday 8th September 2023 - 10:00 - 12:00 EEST
Room 3

| PROSE Paper No | Paper Title / Authors |
|---|---|
| k23-217 | Linguistic landscaping: Eyetracking multilingual information processing<br>Ms. Anke Tardel, Prof. Dr. Silvia Hansen-schirra, Mr. Dimitrios Kapnas, Prof. Dr. Sylvia Thiele, Dr. Ruth Videsott |
| k23-252 | Pupil vs. Eyelid: Evaluating the Accuracy of Blink Detection in Pupil-based Eye Tracking Devices<br>M.Sc. Wolf Culemann, Prof. Dr. Angela Heine, M.Sc. Leana Neuber |
| k23-264 | Detection of Alcohol Inebriation from Eye Movements<br>Dr. Silvia Makowski, B.sc. Annika Bätz, Prof. Dr. Lena Jäger, Dr. Paul Prasse, Prof. Dr. Tobias Scheffer |
| k23-289 | What is supposed to help, actually hinders: about the impact of the GUI dynamics on the efficiency of gaze text entry<br>Mr Jakub Szwarc, Ms Joanna Koziara, Prof. Jacek Matulewski, Dr Anna Rasmus |
| k23-310 | Evaluation of several gaze control methods for a board game with no time pressure<br>Ba Julia Grech, Prof. Jacek Matulewski |

*IS22-B: The 7th Special Session on Eye Movement Data Processing and Analysis (EMDPA)*
Assoc. Prof. Katarzyna Harezlak

Friday 8th September 2023 - 14:30 -16:30 EEST
Room 3

| PROSE Paper No | Paper Title / Authors |
| --- | --- |
| **k23-326** | Upsampling eye movement signal using Convolutional Neural Networks<br>Assoc. Prof. Pawel Kasprowski, Assoc. Prof. Katarzyna Harezlak |
| **k23-434** | Expert-adapted language models improve the fit to reading times<br>Msc Iza Skrjanec, Bsc Frederik Yannick Broy, Prof. Vera Demberg |
| **k23-451** | Discovering the distribution of attention in destination marketing using 360° video: the eye-tracking study.<br>Miss Yulia Rogoleva, Mr Artem Kovalev, Mrs Galina Menshikova, Mrs Marina Shilina, Mrs Julia Wirth |
| **k23-506** | Adaptive key time selection for eye typing<br>Associate Professor Katarzyna Harezlak, Msc Pawel Basek, Associate Professor Pawel Kasprowski |
| **k23-476** | Optical registration of eye microtremor: results and potential use<br>Prof Irina Shoshina, Prof Mikhail Ivanov, Ms Alisa Karlova, Ms Alisa Kosikova, Mr Ivan Lyapunov, Mr Sergey Lyapunov |

## *IS23-A: Intelligent Systems in Evaluation and Performance Measurement*
Prof. Malgorzata Porada-Rochoń

Thursday 7th September 2023 - 10:30 - 12:30
KES Online Room 9

| PROSE Paper No | Paper Title / Authors |
|---|---|
| k23-044 | Crowdfunding and behavioral finance. How to help participants of crowdfunding campaigns? <br> Prof Ph.d Agnieszka Szewczyk |
| k23-085 | Industrial Automation: Understanding the Potential Disappointment Behind Recent Global Advancements <br> Dr Marcin Gryczka |
| k23-312 | The use of electroencephalography (EEG) in a study into the effectiveness of advertising communication <br> Dr Barbara Wąsikowska |
| k23-127 | A multi-agent based simulation model of consumer behaviour in the health and wellness food market <br> Dr Agata Wawrzyniak |
| k23-186 | Innovators performance measurement. Evidence based on intellectual assets utilization of enterprises in Poland. <br> Phd Piotr Szklarz |
| k23-236 | Evaluation of the Level of Innovativeness of Listed Companies Managed by Female Managers in Poland <br> Dr Joanna Kowalik, Dr Justyna Simińska |

*IS23-B: Intelligent Systems in Evaluation and Performance Measurement*
Prof. Malgorzata Porada-Rochoń

Thursday 7th September 2023 - 15:00 - 17:30 EEST
KES Online Room 10

| PROSE Paper No | Paper Title / Authors |
| --- | --- |
| **k23-413** | Measuring the effectiveness of digital communication - social media performance: an example of the role played by AI-assisted tools at a university<br>Ph.d. Dsc Edyta Gołąb-Andrzejak |
| **k23-415** | Poland's innovation performance: drivers, challenges, and policy implications<br>Phd Joanna Brzyska |
| **k23-531** | The role of education in the economics of sustainable development<br>Prof Beata Sadowska, Mc Ceslovas Bartkus, Prof Małgorzata Porada Rochon |
| **k23-298** | Method of selecting borrowers' features for credit risk assessment<br>mgr inz. Krzysztof Lorenz |
| **k23-532** | Assessing the effects of the Covid-19 pandemic on energy poverty in EU countries using the Index of Energy Poverty<br>Dr Izabela Szamrej-Baran |

## *IS23-C: Intelligent Systems in Evaluation and Performance Measurement*
Prof. Malgorzata Porada-Rochoń

Friday 8th September 2023 - 10:00 - 12:00 EEST
Room 9

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-091** | Hospital website as an element of digital transformation - comparative analysis of 2014, 2018 and 2022<br>Dr Magdalena Sobon |
| **k23-390** | Multispectral Texture Benchmark<br>Bc. Pavel Kriz, Prof. Dr. Michal Haindl |
| **k23-409** | Investment decisions based on the financial performance of related parties<br>Dr Edyta Mioduchowska-jaroszewicz |

*IS24-A: Intelligent Decision Support and Process Optimization Under Uncertainty*
Dr. Aleksandra Radomska-Zalas

Friday 8th September 2023 - 14:30 - 16:30 EEST
Room 5

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-026** | On Selected Properties of Uninorm Petri Nets and Their Application in Modeling Knowledge-Based Systems<br>Prof. Zbigniew Suraj |
| **k23-200** | Comparison of selected nature-inspired metaheuristic algorithms in process optimization of the parameters of the water-abrasive cutting process<br>Phd Jerzy Podhajecki, Prof. Stanislaw Rawicki |

## IS24-B: Intelligent Decision Support and Process Optimization Under Uncertainty
Dr. Aleksandra Radomska-Zalas

Thursday 7th September 2023 - 15:00 - 17:30 EEST
KES Online Room 3

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-133** | The Whale Optimization Algorithm in Abrasive Water Jet Machining of Tool Steel<br>Dr Elzbieta Kawecka |
| **k23-134** | Optimization of Abrasive Water Jet (AWJ) cutting process accuracy<br>Prof. Dr. Andrzej Perec |
| **k23-028** | Application of the WASPAS method in a selected technological process<br>Dr Aleksandra Radomska-zalas, |
| **k23-643** | Application of VMCM method to assess the implementation of Sustainable Development Goal 7 in EU countries<br>Dr Piotr Ogonowski |
| **k23-212** | Decision support for autonomous drone flight based on satellite navigation signal<br>Phd Łukasz Lemieszewski, Eng. Szymon Prochacki |
| **k23-220** | A SERM based framework to optimize the identification of mandatory relationships<br>Dr Magdalena Krakowiak |
| **k23-337** | Comparison of multi-criteria decision aiding methods in the problem of employee recruitment<br>Dsc Paweł Ziemba, |
| **k23-414** | Predictive Accuracy Index in evaluating the dataset shift (case study)<br>Assoc. Prof. Jaroslaw Becker, Dr Aneta Becker |

## *IS25: Innovations-Oriented Intelligent Information Processing (3IP 2023)*
Assoc. Prof. Daocheng Hong

Friday 8th September 2023 - 14:30 - 16:30
KES Online Room 10

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-164** | An analysis and assessment model for children's mental health based on home intelligent voice devices: a feasibility research<br>Ms. Zhang Yongyan Zhang, Mr. Zhu Tingshao Zhu |
| **k23-308** | A Diffusion of Innovation Perspective for Digital Transformation on Education<br>Dr. Wang Yilei, Dr. Hong Daocheng, Dr. Jun Huang |

### *IS26-A: Complex and Dispersed Classifiers (CDC 2023)*
Assoc. Prof. Małgorzata Przybyła-Kasperek

Friday 8th September 2023 - 10:00 - 12:00 EEST
Room 7

| PROSE Paper No | Paper Title / Authors |
| --- | --- |
| **k23-192** | Obstacle Detection Algorithm for Railroad-Road Crossings Based on Video Stream Analysis<br>Dr Eng. Przemysław Kudłacik, Msc. Tomasz Wesołowski |
| **k23-369** | Focused ACO with node relocation procedure for solving large TSP instances<br>Dr Rafał Skinderowicz |
| **k23-548** | Decision rules for dispersed data using a federated learning approach<br>Associate Professor Małgorzata Przybyła-Kasperek, Msc Kingsley Opoku |
| **k23-552** | Dimensionality reduction for real sports data from the German Bundesliga and English Premier League<br>Mgr Szymon Głowania, Dr Przemysław Juszczuk, Prof. Jan Kozak |

### *IS26-B: Complex and Dispersed Classifiers (CDC 2023)*

Assoc. Prof. Małgorzata Przybyła-Kasperek

Friday 8th September 2023 - 14:30 - 16:30 EEST
KES Online Room 4

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-327** | A preliminary study on the dispersed classification system for recognizing safety of drivers' maneuvers<br>Dr Tomasz Orczyk, Assoc. Prof. Rafal Doroz, Prof. Piotr Porwik |
| **k23-398** | Predicting Students at Risk of Early Dropping Out from Course Using Ensemble Classification Methods<br>Mrs. Janka Pecuchova, Doc. Martin Drlik |
| **k23-406** | A new concept drift detection method based on the ranking of features in a data stream<br>Phd Krzysztof Wrobel, Msc Benjamin Mensah Dadzie, Phd Tomasz Orczyk, Professor Piotr Porwik |
| **k23-542** | MAB-optimized binary PSO-based feature selection for enhanced classification performance<br>Msc Arkadiusz Nowakowski, Phd Łukasz Strak, Prof. Wojciech Wieczorek |
| **k23-550** | Knowledge graphs to an analysis and visualization of texts from scientific articles<br>Ph.d Barbara Probierz, Prof. Jan Kozak |

## *IS27-A: ICT & IT innovation as a Source of Entrepreneurship of Companies*
Prof. Jaroslaw Korpysa

Wednesday 6th September 2023 - 15:00 - 17:30 EEST
Room 9

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-428** | ChatGPT as an innovative tool for increasing sales in online stores<br>Mr. Michał Orzoł, Prof. Katarzyna Szopik-Depczyńska |
| **k23-530** | Entrepreneurship Determinants: Literature Review<br>Mr Waluyohadi Waluyohadi, Ms Febriarohma Anggun Hasti, Ms Agnieszka Lopatka, Mrs Eri Naharani Ustazah, Mr Bambang Tristiyono |
| **k23-629** | Flexicurity in Polish IT companies - study results<br>Dr Lopatka Agnieszka |
| **k23-630** | The evolution of the concept of risk management in IT+ organizations<br>Msc Kinga Kramarz, Prof Jaroslaw Korpysa |

### IS27-B: ICT & IT innovation as a Source of Entrepreneurship of Companies
Prof. Jaroslaw Korpysa

Thursday 7th Spetember 2023 - 15:00 - 17:30 EEST
KES Online Room 11

| PROSE Paper No | Paper Title / Authors |
| --- | --- |
| **k23-117** | The strive to social innovation that thrives on the mobile application. A Case Study of Too Good To Go<br>Msc Maciej Lewandowski |
| **k23-225** | Competitive Intelligence as a Lever of Added Value<br>Prof. Ph.d Celina Olszak, Ph.d. Kamila Bartuś, Assoc. Prof. Anna Sączewska-Piotrowska |
| **k23-247** | Digital transformation of healthcare and job roles changes<br>Dr Michal Banka, Dr Andrzej Kaminski, Prof Mariusz Kostrzewski, Dr Magdalena Marczewska, Dr Michal Mijal |
| **k23-399** | Usability research of an online store using eye tracking: a comparison of product specification formats<br>Master Of Science Adrianna Mateja |
| **k23-463** | Co-working Space vs. Support For Start-Ups Under Accelerator Programmes<br>Dr Michal Banka, Mgr Boulange Piotr, Student Izabela Suplewska, Dr Adrianna Trzaskowska Dmoch |
| **k23-528** | Identify Customer Element Through Empathy Map and User Persona<br>MM Puti Sinansari, Dr Syarifa Hanoum, Dr Agnieszka Lopatka, SM Syauqina Hening Salsabila, - Wojciech Wlodarski |
| **k23-619** | Unlocking the potential of ICT innovation in veterinary healthcare: The pathway to improve practices and business model<br>Dr Karolina Beyer |
| **k23-427** | Reasons for the creation of spin-off companies based on the experience of a medical university<br>Phd Hubert Pachciarek |

### *IS28-A: Information, Innovation and Technology as a Basis for Sustainable Business and Society*
Prof. Katarzyna Szopik-Depczyńska

Thursday 7th September 2023 - 10:30 - 12:30 EEST
Room 8

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-607** | Transformation towards sustainability on the example of the SME's steel processing enterprise<br>Msc, Radosław Depczyński |
| **k23-543** | Meaningful Typology of Gamification Components: Towards a Sustainable Research Framework on Gamification<br>Dr Hab. Jakub Swacha |
| **k23-529** | Development trends in e-commerce sector<br>Mr. Michał Orzoł, Prof. Katarzyna Szopik-Depczyńska |
| **k23-196** | The development of crowdfunding in Poland in the years 2012-2022<br>Prof. Katarzyna Kozioł-Nadolna |

*IS28-B: Information, Innovation and Technology as a Basis for Sustainable Business and Society*
Prof. Katarzyna Szopik-Depczyńska

Friday 8th September 2023 - 10:30- 12:30 EEST
KES Online Room 8

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-135** | Environmental labels in e-commerce<br>Phd Bartlomiej Kabaja, Prof. Erica Varese, Prof. Magdalena Wojnarowska |
| **k23-418** | Digitalization of small ports as a step in achieving sustainable goals<br>Dr Monika Klein, Dr Monika Spychalska |
| **k23-242** | Hydrogen energy as a key player in Poland's Energy Policy 2040: A roadmap for System Transformation<br>Mr Jakub Dowejko |
| **k23-278** | Digitalization of herbarium collections as a tool for the commercialization of scientific knowledge<br>Dr Joanna Markiewicz, Prof Piotr Niedzielski |
| **k23-309** | The use of smartphone applications when buying public transport and paid parking zone tickets on the example of Szczecin<br>Phd Artur Pomianowski |

### *IS28-C: Information, Innovation and Technology as a Basis for Sustainable Business and Society*

Prof. Katarzyna Szopik-Depczyńska

Friday 8th September 2023 - 14:30 - 16:30 EEST
KES Online Room 8

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-524** | Trust in startups implementing foreign expansion: leader's perspective<br>PhD Monika Różycka |
| **k23-397** | The business services sector - further directions of change and development in the West Pomeranian region in Poland<br>Phd Magdalena Ławicka |
| **k23-541** | Success factors and barriers to digital co-creation between HEIs and NGOs<br>Dr Katarzyna Łobacz, Ms Marie Schirrmacher, Dr Roman Tylzanowski, Dr Katrin Uude |
| **k23-382** | Customer experiences drive the need of innovation in veterinary practices<br>Dr Karolina Beyer |

*IS29: (DECREASE) DElving into imbalanCed, oveRlapping and multidimEnsionAl data: recent advanceS and challEnges*
Dr. Małgorzata Bach

Wednesday 6th September 2023 - 10:30 - 12:30 EEST
Room 8

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-024** | Problems with Deep Learning Application to Medical Data: Automatic Segmentation of Corneal Endothelium Layer<br>Profesor Karolina Nurzynska |
| **k23-557** | A review on tracking head movement in augmented reality systems<br>Msc Onyeka Nwobodo, Prof.inz.hab. Krzysztof Cyran, Prof.inz.hab. Kamil Wereszczynski |
| **k23-558** | Data loss in quantum image representation methods<br>Mr. Krzysztof Werner, Mr Krzysztof Cyran, Mr Michał Kordasz, Ms Agnieszka Michalczuk |
| **k23-584** | CLEANSE - Cluster-based Undersampling Method<br>Dr. Małgorzata Bach, Dr Daniel Kostrzewa, Dr Aleksandra Werner |

## IS30: *Computational Intelligence System and its Application to Media Information Technology*

Prof. Yuji Iwahori

Wednesday 6th September - 15:00 - 17:30
Room 8

| PROSE Paper No | Paper Title / Authors |
| --- | --- |
| k23-145 | Automating Lexicon Generation: A Comprehensive Review of Alternative Approaches<br>Mr. Julien Pierre Edmond Ghali, Doctor Nobuhiro Inuzuka |
| k23-297 | Estimating QOL from Car View Scene using Deep Neural Network and Clustering Approach<br>Prof. Yuji Iwahori, Prof. Shinji Fukui, Dr. Pittipol Kantavat, Prof. Boonserm Kijsirikul, Prof. Akihiko Okazaki, Mr. Naoki Watanabe |
| k23-303 | Polyp Size and Shape Estimation by Using an Endoscopic Hood Information<br>Mr. Ryo Kikuchi, Prof. M. Bhuyan, Dr. Kenji Funahashi, Prof. Yuji Iwahori, Prof. Naotaka Ogasawara, Dr. Aili Wang |
| k23-253 | A Systematic Review of Social Media Data Mining on Android<br>Ing Houssem Lahiani, Pr Mondher Frikha |

### IS31-A: Computer Science for Green Technologies and Sustainable Development

Prof. Adam Sulich

Thursday 7th September - 15:00 - 17:30
Room 8

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-072** | Study of Uncertainty and Inaccuracies of the Income for Inequality Paradox through Fuzzy logic for Sustainable Development<br>Ing Sudha Prathyusha Jakkaladiki, Ing Martina Janeckova |
| **k23-116** | Evaluating the Economic and Sustainability Impacts of Drones in Viticulture using BPMN-based Simulation<br>Mr. M.sc. Martin Schieck, Prof. Dr. Bogdan Franczyk, Mrs. M.sc. Anika Oertel, Mr. M.sc. Ingolf Roemer |
| **k23-178** | Modelling and Use of Adaptive Control Using Petri Nets<br>Mr. Kristian Fodor, Prof. Zoltán Balogh, Dr. Maros Cavojsky, Prof. Martin Drozda, Dr. Ján Francisti |
| **k23-224** | Key decision factors in the shared economy decision-making model<br>Dr Ewa Walaszczyk, Dr Maja Leszczyńska, Dr Michał Nadolny |
| **k23-437** | Creating good practice in effective sustainability management by implementing the EFQM model<br>Phd Joanna Martusewicz, Prof Iwona Chomiak |
| **k23-440** | Sustainable Development of AI applications in Agriculture: A Review<br>M. Sc. Sebastian Zürner |
| **k23-523** | Tools for considering ESG factors in business valuation<br>Ph.D. Joanna Koczar, Professor Venera Vagizova, Ph.D. Dimitry Zakhmatov |

*IS31-B: Computer Science for Green Technologies and Sustainable Development*
Prof. Adam Sulich

Friday 8th September 2023 - 10:30 - 12:30 EEST
KES Online Room 9

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-392** | Strategic management in Polish startups: strategy vs business model approach - research results<br>Phd Jakub Drzewiecki |
| **k23-401** | Digitization of the enterprise - prospects for process automation with using RPA and GPT integration<br>Dr Katarzyna Jasinska, Rpa Developer Michal Lewicz, Rpa Developer Mateusz Rostalski |
| **k23-402** | Industry 4.0 business strategic risks based on the scalability 4.0 concept. Artificial Intelligence area<br>Phd Rafal Trzaska, Associate Professor Aleksandra Sus |
| **k23-404** | Use of hydrogen and AI as an opportunities to increase energy autarky and create business more sustainable<br>Professor Grzegorz Krzos, Master Of Arts Jakub Kowalski, Professor Estera Piwoni-krzeszowska, Professor Gunnar Klaus Prause |
| **k23-458** | Leadership 4.0. New definition and distinguishing features<br>Phd Michal Organa, Beng, Phd, Dsc Aleksandra Sus |

*IS31-C: Computer Science for Green Technologies and Sustainable Development*
Prof. Adam Sulich

Friday 8th September 2023 - 14:30 - 16:30 EEST
KES Online Room 9

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-540** | Tools for considering ESG factors in business valuation<br>Ph.d. Joanna Koczar, Professor Venera Vagizova, Ph.d. Dimitry Zakhmatov |
| **k23-622** | How To Teach Artificial Intelligence To Manage Our Organizations?<br>Mr Piotr Śliwa, Prof Grzegorz Krzos |
| **k23-467** | Startups and Lean Startup approach in building innovative companies creating unique market values - theoretical considerations<br>Msc Krystian Olek |
| **k23-261** | VR educational game in public awareness campaign preventing the spread of COVID-19 - pilot study<br>Mr Konrad Biercewicz, Dr Anna Borawska, Prof Mariusz Borawski, Dr Jarosław Duda |

### *IS32: Machine Learning for Vision Systems*
Dr. Laura Falaschetti

Thursday 7th September 2023 - 10:30 - 12:30 EEST
KES Online Room 8

| PROSE<br>Paper No | Paper Title / Authors |
| --- | --- |
| **k23-577** | An U-Net Semantic Segmentation Vision System on a Low-Power Embedded Microcontroller Platform<br>Dr. Laura Falaschetti, Dr. Michele Alessandrini, Dr. Giorgio Biagetti, Student Sara Bruschi, Prof. Paolo Crippa, Prof. Claudio Turchetti |

*IS33-A: Innovation Strategies and Digital Transformation*
Dr. Ilona Pawełoszek


Friday 8th September 2023 - 10:00 - 12:00 EEST
Room 9

| PROSE<br>Paper No | Paper Title / Authors |
|---|---|
| **k23-007** | Investment strategies based on detected anomalies in financial time series of cryptocurrencies<br>Prof. Marcin Hernes, Mr. Jędrzej Rudkiewicz |
| **k23-405** | Exploring Stock Traders' Cognitive Biases: Research Design and Simulator Framework<br>Doctor Pawe&#322; Weichbroth, Msc Maciej Tkacz, Professor Jozef Zurada |

## *IS33-B: Innovation Strategies and Digital Transformation*
Dr. Ilona Pawełoszek

Thursday 7th September 2023 - 10:30 - 13:00
KES Online Room 11

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-468** | Shaping a Strategy for Developing Applications of GIS Tools for the Smart City<br>Phd Tomasz Turek, Phd Cezary Stępniak |
| **k23-567** | Potential Uses of Abstract Spaces in Smart City Management<br>Mr. Cezary Stepniak, Mr. Tomasz Turek |
| **k23-601** | Blockchain in OER: students' perspectives on the use of blockchain technology for credential authentication<br>Ph.D. Dariusz Dudek |
| **k23-195** | Digital Transformation of Polish micro-enterprises: Lessons from the COVID-19 Era<br>Phd Ilona Pawełoszek, Assoc.prof. Beata Czarnacka-chrobot, Phd Jędrzej Wieczorkowski |
| **k23-048** | Cloud Computing in Terms of Sustainable Development - Evaluation and Mutual Relations<br>Prof. Paula Bajdor |
| **k23-111** | A systematic review on the use of augmented reality in management and business<br>Dr Leszek Ziora, Msc Dorota Walentek |
| **k23-112** | Digital transformation in creating employee learning environments<br>MSc Eng Anna Nowacka |
| **k23-181** | Environmental uncertainty and changes in digital innovation strategy<br>Prof. Dorota Jelonek |

## *IS34: Recent Advances in Biometric Technology*
Assoc. Prof. Dzati Athiar Ramli

Friday 8th September 2023 - AM
KES Online Room 5

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-249** | Training Learning Weights of Elman Neural Network Using Salp Swarm Optimization Algorithm<br>Dr Abdullah Khan, Ms Maria Ali, Ms Qaedah Ali Musaeed Naji Mahdi, Dr Saima Anwar Lashari, Dr Dzati Athiar Ramli, Mr Muhammad Nouman Atta |
| **k23-269** | Usability study of various biometric techniques in bank branches<br>Arkadiusz Harasimiuk, Andrzej Czyżewski |
| **k23-479** | Possibilistic Reasoning based No-Reference Iris Image Quality Assessment<br>Dr Mouna Medhioub, Assistant Professor Sonda Ammar Bouhamed |
| **k23-591** | Improving Student Performance Prediction Using a PCA-based Cuckoo Search Neural Network Algorithm<br>Dr Abdullah Khan, Ms Maria Ali, Mr Muhammad Nouman Atta, Dr Saima Anwar Lashari, Mr Muhammad Daniyal Liaquat, Dr Dzati Athiar Ramli |

## *IS35: Curative Power of Medical Data*
Dr. Daniela Gifu

Friday 8th September 2023 - 14:30 - 16:30
Room 8

| PROSE<br>Paper No | Paper Title / Authors |
|---|---|
| **k23-245** | Crowdsourcing in Biomedicine using a Multi-use Floating Platform<br>Assoc.prof.dr. Bosneagu Romeo, Dr. Lupu Carmen Elena,<br>Assoc.prof.dr. Daniela Gifu, Dr. Scurtu Ionut Cristian, Researcher<br>Rusu Iulius Liviu, Dr. Lupu Sergiu |
| **k23-408** | Veracity Analysis of Romanian Fake News<br>Prof.phd Dinu Liviu, Assoc.phd Gifu Daniela, Student Fusu Elena<br>Casiana |
| **k23-504** | Efficient RFID Scheme in Healthcare Systems<br>Prof.PhD Tiplea Ferucio Laurentiu, PhD Hristea Cristian, CS II PhD<br>Gifu Daniela |

*IS36-A: Data Pre-processing Strategies and Machine Learning*
Prof. Ireneusz Czarnowski

Thursday 7th September 2023 - 10:30 - 12:30
Room 5

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-063** | Design and prototype development of an AI-based application for predictive maintenance using smart device and airborne noise data<br>Prof. Dr. Manfred Rössle, Prof. Dr. Marc Fernandes, M. Sc. Michael Hirschmiller, M. Sc. Kevin Schlosser |
| **k23-090** | Agent-based population learning algorithm for over-sampling in the classification of imbalanced data streams<br>Prof. Ireneusz Czarnowski |
| **k23-142** | Explicit Aspect Annotation via Transfer and Active Learning<br>Ms Maroua Boudabous, Assistant Professor Anna Pappa |
| **k23-350** | Link prediction in time-evolving organizational social networks<br>Msc Paweł Szyman, Prof. Dariusz Barbucha |
| **k23-494** | An Analysis of Effective Per-instance Tailored GAs for the PFSP<br>Phd Student Sarra Zohra Ahmed Bacha, Professor Karima Benatchba, Professor Fatima Benbouzid-si Tayeb |
| **k23-533** | Comparative analysis of selected algorithms for qualitative data clustering<br>Prof. Agnieszka Nowak-brzezinska, Eng. Jakub Krolik |
| **k23-581** | The similarity of the similarity measures in the context of clustering algorithms for categorical data<br>Prof. Agnieszka Nowak-brzezinska, Eng. Wojciech Ogieglo |

### IS36-B: Data Pre-processing Strategies and Machine Learning
Prof. Ireneusz Czarnowski

Friday 8th September 2023 - 10:30 - 12:30 EEST
KES Online Room 11

| PROSE Paper No | Paper Title / Authors |
| --- | --- |
| **k23-027** | An ensemble learning algorithm based on discretized Time Series: application on smartphone-inertial measurement<br>Mrs Taktak Mariem, Mrs Ltifi Hela, Mr Triki Slim |
| **k23-343** | An application for collecting and mining reports referring vulnerabilities and exposures in physical systems: A comparative study of selected clustering methods<br>Master Krzysztof Sadowski, Phd Engineer, Profes Ireneusz Czarnowski, Master Paweł Wolski |

## *IS37-A: Intelligent Management Support Systems (IMSS)*
Assoc. Prof. Marcin Hernes

Friday 8th September 2023 - 10:00 - 12:00
Room 8

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-010** | Research on the behaviour of Bluetooth Low Energy protocol in the heart rate monitoring application<br>Msc Eng Zuzanna Balas, Msc Eng Tomasz Guzniczak, Phd Eng Krzysztof Tokarz, Dsc Eng Bartłomiej Zielinski |
| **k23-037** | Real-Time Control and Optimization of Internal Logistics Systems with Collaborative Robots<br>Naveen Sharma, Rafal Cupek |
| **k23-040** | Wearables and Sustainable Development: Outlining Future Implications for the Green Jobs and Green Labor Market<br>Phd Eng Adam Sulich, Phd Lukasz Kozar |
| **k23-051** | Identification and authorization with single accelerometer data - implications from "Wearables in Arthritis" project<br>Phd Pawel Mielnik, Professor Marcin Fojcik, Phd Anja Myhre Hjelle, Professor Bjarte Pollen, Professor Krzysztof Tokarz |
| **k23-056** | The default of leasing contracts prediction using machine learning<br>Dr Ewa Walaszczyk, Msc Agata Kozina, Prof Łukasz Kuźmiński, Msc Karolina Miałkowska, Dr Nadolny Michał, Dr Piotr Tutak |
| **k23-103** | Benefits and Challenges of Self-Service Business Intelligence Implementation<br>Mgr Marcin Pałys, Phd Andrzej Pałys |
| **k23-120** | The Concept of an Intelligent Decision Support System for Ore Transportation in Underground Mine<br>Msc Artur Skoczylas, Dr Wiesława Gryncewicz, Dr Artur Rot, Dr Paweł Stefaniak |

## *IS37-B: Intelligent Management Support Systems (IMSS)*
Assoc. Prof. Marcin Hernes

Friday 8th September 2023 - 14:30 - 16:30
Room 4

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-177** | A proposed guidance approach for BP performance improvement<br>Phd Student Sarra Mejri, Professor Sonia Ayachi Ghannouchi |
| **k23-179** | Towards a Secure Future: A Bibliometric Analysis of the Relations Between Cybersecurity and Sustainable Development<br>Prof. Adam Sulich, Prof. Lumír Kulhánek, Mgr inz. Tomasz Zema |
| **k23-292** | Implementation of OPC UA communication traffic control for analog values in an automation device with embedded OPC UA servers<br>Phd Dsc Rafal Cupek, Phd Marek Drewniak, Msc Marcin Fojcik, Phd Dsc Marcin Hernes, Msc Olav Sande |
| **k23-296** | AI in HRM: case study analysis. Preliminary research<br>Msc. Agnieszka Pilch, Dr Wiesława Gryncewicz, Dr Ryszard Zygała |
| **k23-442** | Application of creative problem-solving methods in remote learning. Bibliometric analysis<br>Mgr Andrzej Greńczuk, Mgr Kamila Łuczak, Prof. Uew, Dr Hab Iwona Chomiak-orsa, Prof. Pcz, Dr Hab. Klaudia Smoląg |
| **k23-462** | Artificial Intelligence and Sustainable Development in Business Management Context - Bibliometric Review<br>Phd Eng Adam Sulich, Mr Sebastian Grzesiak, Phd Eng Letycja Soloducho-pelc |
| **k23-527** | Integrating Machine Learning for Football Injury Prediction: A Concept for an Intelligent System<br>Mr Marcin Prys, Mr Rafał Buryta, Mr Łukasz Radzimiński, Ms Izabela Rejer, Mr Przemysław Różewski, Mr Łukasz Rosiński |

## *IS37-C: Intelligent Management Support Systems (IMSS)*
Assoc. Prof. Marcin Hernes

Thursday 7th September 2023 - 10:30 -12:30
KES Online Room 10

| PROSE<br>Paper No | Paper Title / Authors |
| --- | --- |
| k23-006 | A method of top-performing product identification<br>Dr Kateryna Czerniachowska |
| k23-019 | Computer simulation of processes as a tool supporting business decisions in the implementation of multi-stage production automation projects. Use case for the FlexSim simulation environment<br>Mr Jaroslaw Mackow |
| k23-047 | Implementing Robotic Process Automation in small and medium-sized enterprises - implications for organisations<br>Ph.d. Paula Pypłacz, Prof. Jan Žukovskis |
| k23-152 | The use of social media by Polish and Slovak students and their digital competences<br>Associate Professor Marek Szajt, Associate Professor Zuzana Hajduová, Associate Professor Klaudia Smolag |
| k23-277 | The use of Digital Twin in the sustainable development of the city on the example of managing parking resources<br>Assistant Professor Krzysztof Hauke, Professor Iwona Chomiak-orsa, Professor Kazimierz Perechuda, Professor Maciej Pondel |

## IS38: Quantitative Tools Supporting Financial Decisions
Prof. Waldemar Tarczyński

Friday 8th September 2023 - 10:30 - 12:30 EEST
KES Online Room 11

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-123** | The potential of convolutional neural networks for the analysis of stock charts<br>Dr Grzegorz Wojarnik |
| **k23-219** | Analysis of Environmental, Social, and Governance Performance in Indonesia: Role of ESG on Corporate Performance<br>Ms. Ninditya Nareswari, Mr. Rizqi Umar Al Hashfi, Prof. Malgorzata Tarczynska-Luniewska |
| **k23-272** | Prices and the activities of financial investors in global commodities markets in the 21st century<br>Prof. Sebastian Majewski, Prof. Jerzy Dudzinski |
| **k23-314** | Application of multi-criteria Vector Measure Construction Method (VMCM) to assess importance of foreign direct investment (FDI) to host country's regional economy<br>Phd Arkadiusz Marchewka |

## *IS39: Chance Discovery and Market of Data*
Prof. Akinori Abe

Thursday 7th September 2023 - 10:30 - 12:30 EEST
Room 3

| PROSE Paper No | Paper Title / Authors |
| --- | --- |
| **k23-057** | Empirical study on cognitive bias in stress condition - improving the working capabilities of gantry crane operations<br>Professor Jun Nakamura, Professor Sanetake Nagayoshi |
| **k23-578** | Risk communication on COVID-19 with the dialogue among the public: Sketching out the figures of the persons concerned<br>Professor Yumiko Nara, CEO Sumito Sirane, Dr. Keiichiro Tahara |
| **k23-589** | Moving Direction Entropy as Index for Inter-community Activity<br>Prof. Yukio Ohsawa, Prof. Sae Kondo, Dr Kaira Seki, Mr. Yi Sun |
| **k23-617** | Combination of Visual Thinking Strategies and Information Offering Makes Art Appreciation Better<br>Prof Akinori Abe, Mr. Shunsei Tokida |
| **k23-634** | The impact of online communication and the factors that contribute to productivity and creativity<br>Associate Professor Sae Kondo, Ms. Hiroko Ohno, Mr. Kotaro Onishi |

*IS42: Signal Processing Algorithms and Pattern Recognition Techniques for Embedded Systems*
Prof. Paolo Crippa

Friday 8th September 2023 - 14:30 - 16:30 EEST
Room 6

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-270** | Should supervised discretisation always be trusted unreservedly? On combining characteristics of supervised and unsupervised discretisation algorithms in two-step processing<br>Dr Urszula Stanczyk, Dr Grzegorz Baron |
| **k23-444** | Localization of Multiple Directional Transmitters in Cognitive Radio Context<br>Ms Zeinab Kteish, Dr Jad Abou Chaaya, Prof Ali Mansour, Dr Abbass Nasser, Dr Koffi-clement Yao |

## *IS43: Knowledge-based Data Analysis for Complex Data*
Prof. Mika Sato-Ilic

Thursday 7th September 2023 - 15:00 -17:30
Room 7

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-168** | An approach for ontology-based research and recommendation on systems engineering projects<br>Ms. Mouna El Alaoui, Mr. Vincent Chapurlat, Mr. Robert Plana, Ms. Souad Rabah, Mr. Victor Richet |
| **k23-204** | Ridge parameter optimization using a modified Cp statistic in multivariate generalized ridge regression for the GMANOVA model<br>Professor Hirokazu Yanagihara, Dr Keisuke Fukui, Mst Yuta Hijikawa, Dr Isamu Nagai |
| **k23-340** | Hierarchical Support Vector Machine based Classifier for Autocoding<br>Ms Yukako Toko, Prof. Mika Sato-ilic |
| **k23-534** | Knowledge-based statistical data analysis for deep learning and voting classifiers merger<br>Assoc. Prof. Dr. Smaranda Belciug, Lect Cristina Comanescu, Prof. Dominic Gabriel Iliescu, Dr. Renato Constantin Ivanescu, Drd Andrei Nascu, Assoc. Prof. Mircea Sebastian Serbanescu |
| **k23-302** | Fuzzy cluster-scaled principal component analysis for mixed data and its application of educational effect based on device selection<br>Prof. Mika Sato-ilic, Prof. Peter Ilic |
| **k23-250** | Additive Poisson regression via forced categorical covariates and generalized fused Lasso<br>Dr. Mariko Yamamura, Dr. Mineaki Ohishi, Dr. Hirokazu Yanagihara |
| **k23-512** | Interaction Modelling of High Dimensional Production Data<br>Student Sara Hoshino, Assistant Professor Sumika Arima, Student Kyo Watanabe |

## IS44: Intelligent Data Analytics for Internet of Things Environments
Dr. Maha Driss

Friday 8th September 2023 - 14:30 16:30 EEST
Room 2

| PROSE Paper No | Paper Title / Authors |
|---|---|
| k23-017 | Monitoring Solar Energy Production based on Internet of Things with Artificial Neural Networks Forecasting<br>Pr Abdellah Chehri, Dr Mohamed El Aroussi, Dr Asmaa El Fahli, Dr Adila Elmaghraoui, Mr Younes Ledmaoui, Dr Rachid Saadane |
| k23-412 | Revolutionizing Disease Diagnosis: A Microservices-Based Architecture for Privacy-Preserving and Efficient IoT Data Analytics Using Federated Learning<br>Mrs Safa Ben Atitallah, Dr Henda Ben Ghézala, Dr Maha Driss |
| k23-445 | Unlocking the Potential of Medical Imaging with ChatGPT's Intelligent Diagnostics<br>Mr. Ayyub Alzahem, Dr. Wadii Boulila, Prof. Anis Koubaa, Dr. Shahid Latif |
| k23-637 | Dealing with Unbalanced Data in Leaf Disease Detection: A Comparative Study of Hierarchical Classification, Clustering-based Undersampling and Reweighting-based Approaches<br>Dr Haythem Ghazouani, Dr Walid Barhoumi, Dr Ezzeddine Chakroun, Dr Abdellah Chehri |
| k23-645 | Sustainable Palm Tree Farming: Leveraging IoT and Multi-Modal Data for Early Detection and Mapping of Red Palm Weevil<br>Mrs. Yosra Hajjaji, Mr. Ayyub Alzahem, Dr. Wadii Boulila, Prof. Imed Riadh Farah, Prof. Anis Koubaa |

## *IS45: Intelligent Critical Infrastructures*
Dr. Laura Verde

Friday 8th September 2023 - 14:30 16:30 EEST
Room 6

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-282** | Object Detection and Localisation in Thermal Imaging by means of UAV/Drone<br>Dr Francesco Mercaldo, Dr Fabio Martinelli, Prof Antonella Santone |
| **k23-389** | Supporting the Development of Digital Twins in Nuclear Waste Monitoring Systems<br>Mr. Michele Di Giovanni, Dr. Lelio Campanile, Dr. Fiammetta Marulli, Dr. Mauro Romoli, Prof. Carlo Sabbarese, Dr. Laura Verde |
| **k23-410** | Crafting ad-Hoc Malicious MQTT Network Traffic to Evaluate Resilience of Industrial Control Systems Cyber-Security Defences<br>Prof. Fiammetta Marulli, Dr. Laura Verde |
| **k23-432** | GENERATIVE ADVERSARIAL NETWORKS - based DATA AUGMENTATION in the design of ANOMALY DETECTION for the RAILWAY SYSTEMS<br>Prof. Fiammetta Marulli, Miss. Roberta De Fazio, Prof. Stefano Marrone, Dr. Vincenzo Reccia, Dr. Laura Verde, Dr. Fabrizio Zoleo |

## *IS46-A: Physiological and knowledge-based engineering for social innovation*
Atsuko K. Yamazaki

Friday 8th September 2023 - 10:00 - 12:00 EEST
Room 6

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-579** | TABIMAE Mind Search System: Exploring Best Tourist Sightseeing Spots Match Mental Values before Travel<br>Mr. Teppei Honda, Prof. Hiroshi Hasegawa, Ms. Kimika Yamamoto |
| **k23-580** | Redefinition creative and inventive design support system: DX application design process<br>Ms. Yuki Otsuka, Prof. Hiroshi Hasegawa |

*IS46-B: Physiological and knowledge-based engineering for social innovation*
Atsuko K. Yamazaki

Friday 8th September 2023 - 14:30-16:30 EEST
KES Online Room 11

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-600** | A preliminary study of experiment to evaluate the virtual tourism contents for the elderly<br>Mr. Zhenyu Wang, Dr. Muhammad Anuardi, Prof. Kayoko Murakami, Prof. Atsuko Yamazaki |
| **k23-606** | Analysis of cerebral blood flow on direction recognition of sound generated by 3D audio technology<br>Mr. Kosuke Tashiro, Dr. Hirokazu Miura |
| **k23-612** | A Preliminary Study of An Experiment to Activate the Brain Functions of the Elderly<br>Mr. Wei Liu, Prof. Muhammad Anuardi, Prof. Kayoko Murakami, Prof. Atsuko Yamazaki |
| **k23-615** | Proposals and Methods for Foreign Language Learning Using Machine Translation and Large Language Model<br>Mr. Kohei Sugiyama, Ph.d. Tsukasa Yamanaka |

### *IS47-A: New Generation Computing in Engineering, Life Science and Economy*
Prof. Piotr Nikończuk

Wednesday 6th September 2023 - 15:00 - 17:30
Room 7

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-624** | The concept of a neural predictive model of changes in range of the electric refrigerated vehicle extended by a knowledge base<br>Msc Norbert Lech, Professor Piotr Nikończuk, Phd Wojciech Tuchowski |
| **k23-332** | Sustainable Waste Management for Implementation of a Circular Economy Model in a Port<br>Phd Agnieszka Deja, Prof. Wojciech Ślączka, Phd Paweł; Weichbtoth |
| **k23-386** | Analysis of material deprivation in Poland: a machine learning approach<br>Phd Agnieszka Wojewódzka-wiewiórska, Professor Hanna Dudek, Phd Urszula Grzybowska |
| **k23-590** | Analysis of computer-aided tools for the freight transport options on selected examples<br>Roma Strulak-wójcikiewicz |

*IS47-B: New Generation Computing in Engineering, Life Science and Economy*
Prof. Piotr Nikończuk

Thursday 6th September - 10:30 - 12:30 EEST
KES Online Room 5

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-064** | The use of an artificial neural network for acoustic selections headphone filters<br>Dr Hab. Inz Prof. Pk Tomasz Krolikowski, Dr Inz. Andrzej Blazejewski, Inz Milosz Fiolek, Dr Inz. Sebastian Pecolt |
| **k23-213** | Measuring station for testing on-ear headphones, made by 3D printing used in Industry 4.0<br>Dr Hab. Inz Prof Pk Tomasz Krolikowski, Dr Inz Andrzej Blazejewski, Mgr Inz Milosz Fiolek, Dr Inz Sebastian Pecolt, Mgr Inz Piotr Zmuda Trzebiatowski |
| **k23-275** | Temperature based flow control algorithm for heat recovery ventilators<br>Dr Hab. Inz Prof Pk Tomasz Krolikowski, Dr Inz Andrzej Blazejewski, Dr Inz Kazimierz Kamiski, Dr Inz Sebastian Pecolt |
| **k23-330** | Application for testing and optimising the performance of electric power systems in a hybrid "MELEX" vehicle<br>Dr Hab. Inz. Prof Pk Tomasz Krolikowski, Dr Inz. Andrzej Blazejewski, Dr Inz. Kazimierz Kaminski, Mgr Inz. Pawel Krupski, Dr Inz. Sebastian Pecolt |
| **k23-335** | The Surface Division Method as variability measure of discrete and continuous time series<br>Ph.d. Grzegorz Przekota, Ph.d. Anna Szczepanska-Przekota |
| **k23-336** | Mapping the environment in a closed room using a mobile robot<br>Dr Hab. Inz. Prof Pk Tomasz Krolikowski, Dr Inz. Andrzej Blazejewski, Dr Inz. Kazimierz Kaminski, Dr Inz. Sebastian Pecolt |
| **k23-341** | Project of Innovative Open Multi-domain Early Warning Platform Enviwise for Adverse Events in Water Bodies and Streams<br>Dr Hab. Inz. Prof Pk Tomasz Krolikowski, Mgr Inz Filip Bielicki, Dr Inz. Andrzej Blazejewski, Mgr Inz. Maciej Grunt, Dr Inz. Sebastian Pecolt |

## *IS47-C: New Generation Computing in Engineering, Life Science and Economy*
Prof. Piotr Nikończuk

Thursday 6th September - 15:00 - 17:30 EEST
KES Online Room 6

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-342** | An attempt at the possibility of using multi-output paraunitary filters for image processing for astrophotography trackers<br>Prof. Robert Suszynski, Dr Pawel Poczekajlo |
| **k23-344** | The use of modern methods of virtualization and shared network functions to optimize the resources used<br>Prof. Robert Suszynski, Msc Andrzej Antosz, Dr Pawel Poczekajlo |
| **k23-417** | Modelling and simulation of the energy regenerative system for active horizontal seat suspension driven by an induction motor<br>Dr Hab. Inz. Prof Pk Tomasz Krolikowski, Prof. Dr Hab. Inz. Tomasz Krzyzynski, Dr Hab. Inz. Prof Pk Igor Maciejewski, Dr Inz. Sebastian Pecolt |
| **k23-438** | Implementation of the SMC control strategy to an active horizontal seat suspension system<br>Dr Hab. Inz. Prof Pk Tomasz Krolikowski, Mgr Inz. Bartosz Jereczek, Prof. Dr Hab. Inz. Tomasz Krzyzynski, Dr Hab. Inz Prof Pk Igor Maciejewski |
| **k23-459** | Selected feature selection methods for classifying patients with Hepatitis C<br>Ms. Malgorzata Zdrodowska, Professor Agnieszka Dardzinska-Glebocka, Ms. Anna Kasperczuk |
| **k23-497** | A Multi-Criteria Optimisation Algorithm for the Evaluation of Scientific Activity<br>Dr Hab. Inz Prof Pk Tomasz Krolikowski, Dr Inz. Aneta Olga Hapka, Dr Inz. Rafal Wojszczyk |
| **k23-513** | Performance analysis of extracting object structure from source code<br>Dr Hab. Inz. Prof Pk Tomasz Krolikowski, Dr Inz. Aneta Hapka, Dr Inz. Rafal Wojszczyk |

*IS47-D: New Generation Computing in Engineering, Life Science and Economy*
Prof. Piotr Nikończuk

Friday 8th September 2023 - 10:00 - 12:00
KES Online Room 6

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-519** | Application of smart watches for monitoring the health state of professional drivers<br>Dr Hab. Inz Prof Pk Tomasz Krolikowski, Dr Hab. Inz Prof. Pk Norbert Chamier-gliszczynski, Mgr Inz. Szymon Machala |
| **k23-520** | Mobility-as-a-Service (MaaS) as a solution platform for the city and the region: case study<br>Dr Hab. Inz Prof Pk Tomasz Krolikowsk, Dr Hab. Inz. Prof Pk Norbert Chamier-gliszczynski, Mgr Inz Joanna Dyczkowska, Dr Marcin Olkiewicz |
| **k23-521** | Quality management in organizations within the framework of standardized management systems<br>Dr Hab. Inz Prof Pk Tomasz Krolikowski, Dr Hab. Inz. Prof Pk Norbert Chamier-gliszczynski, Mgr Inz. Joanna Dyczkowska, Dr Marcin Olkiewicz |
| **k23-522** | The range IT technologies used in the West Pomeranian microenterprises<br>Dr Hab. Inz Prof Pk Tomasz Krolikowski, Dr Hab. Inz. Prof Pk Norbert Chamier-gliszczynski, Mgr Inz Joanna Dyczkowska, Dr Marcin Olkiewicz |
| **k23-570** | Examples of the application of the SERVQUAL and fuzzy SERVQUAL methods for the assessment of the quality of financial services in the field of Insurance coverage - as a factor determining the financial efficiency of entities from the Insurance sector<br>Msc Karolina Smętek, Dr Agnieszka Strzelecka, Prof. Danuta Zawadzka |
| **k23-571** | Application of discriminant models in predicting bankruptcy of energy sector companies in Poland<br>Dr. Agnieszka Moskal, Dr. Ewa Szafraniec-siluta, Prof. Danuta Zawadzka |
| **k23-572** | Application of factor analysis to reduce the dimensionality of the determinants of equity capital return on European Union farms<br>Dr Ewa Szafraniec-siluta, Dr Roman Ardan, Dr Agnieszka Strzelecka, Prof. Danuta Zawadzka |

## *IS47-E: New Generation Computing in Engineering, Life Science and Economy*
Prof. Piotr Nikończuk

Friday 8th September 2023 - 14:30 - 16:30
KES Online Room 6

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-573** | The use of Chi-squared Automatic Interaction Detector (CHAID) analysis to identify characteristics of agricultural households at risk of financial self-exclusions <br> Dr Agnieszka Strzelecka, Prof. Danuta Zawadzka |
| **k23-575** | Application of mixed logistic regression models in the evaluation of internal and external determinants of the effectiveness of commodity funds <br> Dr Agnieszka Moskal, Dr Agnieszka Strzelecka, Prof. Danuta Zawadzka |
| **k23-585** | ChatGPT - opportunities or threats in the educational process <br> Dr Hab. Inz. Prof Pk Tomasz Krolikowski, Dr Hab. Inz Prof Zut Agnieszka Ubowska |
| **k23-605** | Designing an optimal ship course-keeping system for an unknown plant model via adaptive dynamic programming approach <br> Prof. Zenon Zwierzewicz, Phd Lech Dorobczyński, Phd Sławomir Jaszczak |
| **k23-616** | Decision support in the area of Logistics 4.0 <br> Dr Hab. Inz Prof Pk Tomasz Krolikowski, Dr Hab. Inz Prof. Pk Norbert Chamier-gliszczynski, Mgr Inz Joanna Dyczkowska, Dr Marcin Olkiewicz |
| **k23-633** | Application of multi-level analysis in modeling economy productivity <br> Ph.d. Grzegorz Przekota, Ph.d. Anna Szczepanska-przekota |

*IS48-A: Organisational networks based on knowledge, innovation and intelligent systems*
Associate Professor Eng. Ph.D. Robert Kucęba

Friday 7th September - 10:30 - 12:30 EEST
KES Online Room 3

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-095** | Food companies' innovations in creating sustainable product packaging on the Polish market<br>Dr. Eng. Tomasz Trojanowski |
| **k23-203** | Classification of key human factors in the area of information resources security management in small enterprises in Poland<br>Phd Dsc Paweł Kobis |
| **k23-230** | Can Industry 5.0 be seen as a remedy for the problem of waste in industrial companies?<br>Dr Hab. Agata Mesjasz-lech, |
| **k23-353** | Cross-cultural marketing management: foundations of formation, content, and role in the development of the information economy<br>Dr Hab., Prof Tomasz Czapla, D.sc., Prof Viacheslav Chebotarov, Dr, Assistant Prof Iegor Chebotarov, Dr Hab., Prof Beata Glinkowska-krauze |
| **k23-374** | Blockchain Technology Awareness Among Managers of Large Enterprise<br>Ph.d. Adam Sokołowski, Ph.d. Rafał Niedbał, Ph.d Artur Wrzalik |
| **k23-378** | Students' Use of the Artificial Intelligence Language Model in their Learning Process<br>Ph.d. Rafal Niedbal, Ph.d. Adam Sokolowski, Ph.d. Artur Wrzalik |
| **k23-448** | Determinants of the Attractiveness of Startups as Innovative Entities for External Investors in Polish Economic Practice<br>Associate Professor Waldemar Jedrzejczyk |

### IS48: Organisational networks based on knowledge, innovation and intelligent systems
Associate Professor Eng. Ph.D. Robert Kucęba

Friday 8th September 2023 - 14:30 - 16:30
KES Online room 3

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-508** | Relations between organizational factors and innovativeness of large enterprises in Poland<br>Prof. Felicjan Bylok |
| **k23-539** | A network collaboration platform as an accelerator for diffusion of eco-innovation on the example of Small and Medium-Sized Enterprises of the Baltic Sea Region countries<br>Prof. Robert Kucęba, Ph.D. Grzegorz Chmielarz, Ph.D. Dariusz Dudek |
| **k23-565** | Specificity of Decentralized Autonomous Organizations as the Implementation of Blockchain Technology<br>Prof. Uddsw Andrzej Brzeziński |
| **k23-632** | Project management in a partner network in the context of teamwork and project team selection<br>Ph.d. Edyta Kulej-dudek |
| **k23-639** | The Role of Knowledge Management in the Internationalization of Enterprises<br>Ph.d. Eng Tomasz Lis, Prof. Pcz. Dr Hab. Marek Lis, Ph.d. Aleksandra Ptak |

## *IS49-A: Knowledge engineering and data mining in the creation of intelligent applications*

Assoc Prof. Agnieszka Nowak-Brzezińska

Thursday 6th September - 10:30 - 12:30 EEST
Room 7

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-058** | Complexity of Rule Sets Mined from Incomplete Data Using Probabilistic Approximations Based on Characteristic Sets<br>Phd Teresa Mroczek, Msc Patrick Clark, Prof. Jerzy Grzymala-Busse, Prof. Zdzislaw Hippe |
| **k23-233** | How Normalization Strategies Affect the Quality of Rank Aggregation Methods in Recommendation Systems<br>Msc Michał Bałchanowski, Professor Urszula Boryczka |
| **k23-329** | ACO and generative art - artificial music<br>Prof. Urszula Boryczka, Prof. Mariusz Boryczka, Mgr Pawel Chmielarski |
| **k23-370** | TCR-M: A Topic Change Recognition-based Method for Data Stream Learning<br>Dr. Kun Wang, Dr. Anjin Liu, Prof. Jie Lu, Prof. Guangquan Zhang |
| **k23-547** | Decision Rules Induced From Sets of Decision Trees<br>Assoc. Prof. Beata Zielosko, Ms. Anna Glid, Prof. Mikhail Moshkov, Msc Evans Tetteh |
| **k23-568** | A New Branch and Bound Algorithm for Mining Frequent Conceptual Links in Social Networks<br>Phd Student Hadjer Djahnit, Professor Malika Bessedik |

*IS49-B: Knowledge engineering and data mining in the creation of intelligent applications*
Assoc Prof. Agnieszka Nowak-Brzezińska

Thursday 6th September - 15:00 - 17:30 EEST
KES Online Room 7

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-222** | New Approaches for String Site-Removal Problem<br>Dr Lukasz Strak, Msc Arkadiusz Nowakowski, Dr Wojciech Wieczorek |
| **k23-268** | Detecting outliers in rule-based knowledge bases using Self-Organizing Map and Local Outlier Factor algorithms<br>Msc Czeslaw Horyn, Prof. Agnieszka Nowak-brzezinska |
| **k23-305** | Object Detection with YOLOv5 in Indoor Equirectangular Panoramas<br>Msc Sebastian Pokucinski, Phd, Dsc Dariusz Mrozek |
| **k23-477** | An Interactive Tool to Bootstrap Semantic Table Interpretation<br>Phd Student Baazouzi Wiem, Dr Kachroudi Marouen, Pr Faiz Sami |
| **k23-525** | Extending LUNAR method with COF chaining distances<br>Phd, Dsc, Agnieszka Duraj, Msc Wojciech Mosienski, |

*IS50: Emerging Technologies, Challenges and Solutions for Zero Trust*
Prof. Kuo-Hui Yeh

Wednesday 6th September 2023 - 10:30 - 12:30 EEST
Room 9

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-583** | LWO vs LWE Lattice Problems in Human-Computable Passwords Protocol<br>Msc Slawomir Matelski |
| **k23-625** | Designing a Mobile Payment-Driven Mobility-as-a-Service Architecture for Bus Transportation<br>Dr. Kuongho Chen, Ms. Tzu-yuan Kao, Dr. Kuo-hui Yeh |

### WS01: *Multi-Criteria Decision-Analysis methods – theory and their applications*
Dr. Wojciech Sałabun

Thursday 6th September - 10:30 - 12:30 EEST
KES Online Room 2

| PROSE Paper No | Paper Title / Authors |
|---|---|
| k23-611 | Implementation of a hybrid certificate approach: enhancing efficiency and credibility in ICDL certification process<br>Dr Grzegorz Szyjewski |
| k23-613 | Modeling the Impact of Habituation and Breaks in Exploitation Process on Multi-Armed Bandits Performance<br>Phd Kamil Bortko, Phd Piotr Bartków, Professor Jarosław Jankowski |
| k23-614 | Modeling the Impact of Video Dynamics on User Engagement and Eye Tracking Patterns<br>It Engineer Kacper Fornalczyk, PhD Kamil Bortko, PhD Aneta Disterheft, Professor Jarosław Jankowski |
| k23-620 | Evaluating the Performance of Subjective Weighting Methods for Multi-Criteria Decision-Making using a novel Weights Similarity Coefficient<br>Mr. Andrii Shekhovtsov |
| k23-627 | Comparison of multi-criteria decision methods for customer-centered decision making: A practical study case<br>Mr. Andrii Shekhovtsov, Dr. Larisa Dobryakova |
| k23-638 | Stochastic Triangular Fuzzy Number (S-TFN) Normalization: A New Approach for Nonmonotonic Normalization<br>Mr. Bartłomiej Kizielewicz, Phd. Larisa Dobryakova |
| k23-642 | Exploring the Impact of Random Distribution Choices on Particle Swarm Optimization: An Initial Analysis<br>Phd Joanna Kolodziejczyk, Prof. Piotr Sulikowski, Student Yuliia Tarasenko |

***WS01: Multi-Criteria Decision-Analysis methods – theory and their applications***
Dr. Wojciech Sałabun

Friday 8th September 2023 - 14:30 - 16:30 EEST
Room 5

| PROSE Paper No | Paper Title / Authors |
|---|---|
| **k23-447** | How transformations of representation for input data can affect the properties of induced decision reducts and rules<br>Dr Urszula Stanczyk |
| **k23-449** | Methods for solving balanced fuzzy systems of equation<br>Dr Zofia Matusiewicz |

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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.*

## KES CONFERENCES

**For over 25 years KES has run conferences in different countries of the world on leading edge topics -**

**Intelligent Systems** -- *Intelligent Decision Technologies -- Intelligent Interactive Multimedia Systems and Services -- Agent and Multi Agent Systems -- Smart Technology based Education and Training*
**Sustainable Technology** -- *Sustainability in Energy and Buildings, Smart Energy -- Sustainable Design and Manufacturing*.
**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 Journa*l *-- InImpact: the Journal of Innovation Impact -- Sustainability in Energy and Buildings: Research Advances -- Advances in Smart Systems Research*

## KES TRANSACTIONS -- THE KES OPEN ACCESS LIBRARY

KES Transactions is a book series containing the results of applied and theoretical research on a range of leading-edge topics. The series accepts conference proceedings, edited books and research monographs. Papers contained in KES Transactions may also appear in the KES Open Access Library (KOALA), our own online gold standard open access publishing platform.
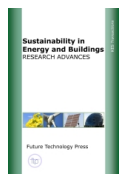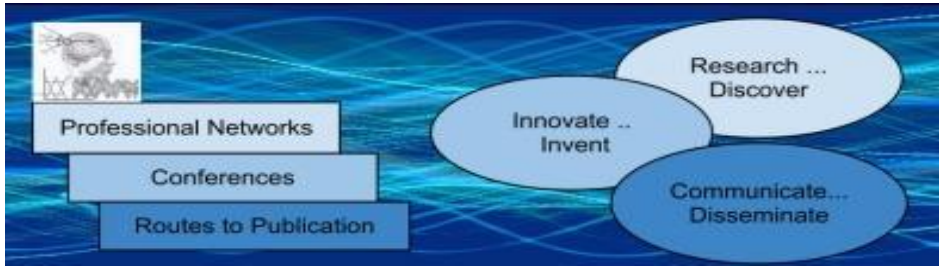
### TRAINING AND SHORT COURSES

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.

### DISSEMINATION OF RESEARCH RESULTS

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.

### THE KES-IKT KNOWLEDGE ALLIANCE

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.
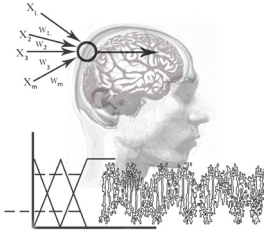
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