



iiWAS 2024



MoMM 2024

The 26th International Conference on Information Integration and Web Intelligence
(iiWAS2024)

The 22nd International Conference on Advances in Mobile Computing & Multimedia Intelligence
(MoMM2024)

2 - 4 December 2024, Bratislava - Slovakia



PROGRAM BOOK



FACULTY OF MANAGEMENT
Comenius University
Bratislava



The 26th International Conference on Information
Integration and Web Intelligence
(iiWAS2024)

and

The 22nd International Conference on Advances
in Mobile Computing & Multimedia Intelligence
(MoMM2024)

2 – 4 December 2023
Bratislava, Slovakia



CONTENT

Welcome Messages:

- from iiWAS & MoMM 2024 Steering Committee 1
- from Host University 2

The Organisation 5

Keynotes Speakers 6

Conferences Program Schedule 8

Social Events 17

Welcome Message



Gabriele Kotsis

We are thrilled to have you join us at this year's iiWAS and MoMM conferences. It's hard to believe that iiWAS began 26 years ago, driven by the need for a dedicated international platform to explore the ever-evolving world of information integration and web-based applications. Just four years later, in 2003, MoMM was born, expanding the conversation to include mobile multimedia's role in enhancing these applications.

Today, both iiWAS and MoMM are at the forefront of innovation. These conferences have become vital gatherings for researchers and professionals from around the globe to exchange ideas, present new findings, and explore the latest trends in technology. Together, we have fostered collaboration, sparked innovation, and built a community that continues to shape the future of web applications and mobile multimedia.



Ismail Khalil

As organizers, it's incredibly rewarding to reflect on how far we've come. What started as a small academic meeting in Indonesia has grown into a global event that, over the years, has welcomed more than 3,000 international participants, featured renowned speakers, and hosted esteemed guests. The success of iiWAS and MoMM 2024 is a testament to the hard work and commitment of many, including the Web Applications Society (@WAS), the Institute of Telecooperation at Johannes Kepler University Linz, and the Faculty of Management at Comenius University Bratislava. We are deeply grateful for their support and dedication.

This year, we're excited to offer three unique experiences:

- **A Learning Experience:** With 75 presentations across 23 sessions and three keynote talks from distinguished speakers, this year's program promises to inspire and challenge your thinking.
- **A Networking Experience:** You'll have the chance to build meaningful connections and friendships with scholars from 34 countries and over 80 research and academic institutions. The diversity of our participants creates a rich environment for collaboration.
- **A Motivational Experience:** Emerging researchers will be introduced to cutting-edge discoveries, sparking new ideas and inspiring future breakthroughs. Plus, we have a great social lineup, including a Welcome Reception and Conference Dinner.



Pari Delir Haghighi

We'd like to extend our sincere thanks to the program committee chairs and all committee members for their hard work in reviewing paper submissions and crafting such an engaging program. We are confident that the presentations and discussions will inspire you and lead to exciting future collaborations. We are also honored to welcome our keynote speakers: Prof. Toshiyuki Amagasa from the University of Tsukuba, Japan; Prof. Antonio Liotta from the Free University of Bozen-Bolzano, Italy; and Prof. Martin Homola from Comenius University in Bratislava, Slovakia.



Michal Greguš

Finally, a heartfelt thank you to the organizing committee at Comenius University's Faculty of Management. Your tireless efforts have ensured that iiWAS and MoMM 2024 will be an enriching and memorable experience for all. Every detail has been carefully considered to ensure your comfort and enjoyment. The dedication of everyone involved – both those in the spotlight and behind the scenes – creates the warm, welcoming atmosphere that makes iiWAS and MoMM feel like a true homecoming.

Welcome to Bratislava, and thank you for being part of iiWAS and MoMM 2024. We hope you have a fantastic time!

December 2024,
- The Committee iiWAS2024 & MoMM2024 -



Welcome Message

Message from the host university, Faculty of Management, Comenius University Bratislava



Peter Štarchoň

On behalf of the Faculty of Management, Comenius University Bratislava, Slovakia, we are thrilled to welcome you to the iiWAS/MoMM 2024 conferences, taking place from December 2nd to 4th, 2024. It is an honor to host this prestigious event in our dynamic city. Comenius University, as Slovakia's largest and oldest university, is home to more than 23,000 students and 2,500 faculty members, and we are delighted to share our academic community with you during this special occasion.

This conference gathers leading researchers, practitioners, and academics from around the world to discuss groundbreaking developments in database systems, AI, big data, and machine learning. Our rich and diverse program includes keynote presentations from renowned experts, technical sessions showcasing cutting-edge research, and numerous opportunities for networking and collaboration.

We believe the convergence of these fields presents immense opportunities to drive innovation and tackle complex challenges across various sectors. This conference not only offers a platform to share knowledge but also to foster new partnerships and inspire future research.

Our local organizing committee has worked hard to ensure a seamless and memorable experience for all participants. From carefully planned sessions to thoughtfully chosen venues for social events, every detail has been designed to create an engaging and productive environment.

We extend our sincere thanks to our sponsors, partners, and volunteers for their invaluable support, which has made this conference possible.

We encourage you to fully immerse yourself in the rich program and take the time to explore the beauty, culture, and hospitality of our city.

Thank you for joining us, and we wish you a successful and enjoyable conference.

Warm regards,

Peter Štarchoň, Dean of the Faculty of Management, Comenius University Bratislava

Lucia Kocisova, Chair of the Organizing Committee



The Organisation

Steering Committee:

- Gabriele Kotsis, Johannes Kepler University Linz, Austria
- Ismail Khalil, Johannes Kepler University Linz, Austria
- Natalia Kryvinska, Comenius University Bratislava, Slovakia
- Peter Štarchoň, Comenius University Bratislava, Slovakia
- Syopiansyah Jaya Putra, Universitas Islam Negeri, Indonesia
- Dirk Draheim, Tallinn University of Technology, Estonia

Program Committee Chairs:

- Pari Delir Haghighi, Monash University, Australia
- Michal Greguš, Comenius University Bratislava, Slovakia
- Solomiia Fedushko, Lviv Polytechnic National University, Ukraine & Comenius University Bratislava, Slovakia

@WAS Organizing Committee:

- Hesti Sudjana, @WAS Organization/Johannes Kepler University Linz, Austria
- Paul Wiesinger, Johannes Kepler University Linz, Austria
- Heriansyah, Johannes Kepler University Linz, Austria

Host University Organizing Committee:

- Lucia Kocisova, Comenius University Bratislava, Slovakia
- Vincent Karovič, Comenius University Bratislava, Slovakia
- Martin Krajčík, Comenius University Bratislava, Slovakia
- Iryna Ivanochko, Comenius University Bratislava, Slovakia
- Ondrej Vozár, Comenius University Bratislava, Slovakia

Co-Organizers & Sponsors:

- Web Application Society (@WAS)
- Institute for Telecooperation, Johannes Kepler University Linz (JKU Linz)
- Faculty of Management, Comenius University Bratislava, Slovakia



Keynote Speakers

Keynote Talk (iiWAS2024)

Monday, 2 December 2024 – 10:30 – 11:30



Harnessing Large Language Models for Entity Processing in Resource-Constrained Environments

Toshiyuki Amagasa, University of Tsukuba, Japan

Abstract

Data preprocessing, particularly named-entity recognition (NER) and entity matching (EM), has long posed significant challenges in data engineering. While traditional methods have made strides, the advent of large language models (LLMs) has ushered in a new era of possibilities, potentially surpassing conventional approaches in both NER and EM tasks. However, the practical application of LLMs faces several hurdles, most notably the constraints of limited training data and computational resources.

This talk explores these challenges and discusses strategies to leverage the power of LLMs for entity processing within resource-limited settings. We will delve into 1) the current landscape of NER and EM in data preprocessing, 2) the transformative potential of LLMs in these areas and real-world constraints hampering LLM adoption, and 3) promising approaches to optimize LLM performance under resource limitations.

Short Bio

Toshiyuki Amagasa received B.E., M.E., and Ph.D from the Department of Computer Science, Gunma University in 1994, 1996, and 1999, respectively. He is currently a full professor at the Center for Computational Sciences, University of Tsukuba. His research interests cover database systems, data mining, and database application in scientific domains. He is a senior member of IPSJ, IEICE, and IEEE, a board member of DBSJ, and a member of ACM.

Keynote Talk (MoMM2024)

Monday, 2 December 2023 – 11:30 – 12:30



Automatic Speech Recognition in Adverse Acoustic Conditions

Antonio Liotta, Free University of Bozen-Bolzano, Italy

Abstract

Automatic speech recognition (ASR) is crucial to the development of effective voice-controlled applications. In fact, significant progress has been made in the last few years, and ASR multi-language models are readily available. But have these really reached near-human accuracy? And what is missing in the quest for super-human performance under broad acoustic conditions? In this talk, I revisit the status of ASR systems, which are typically trained on millions of hours of ordinary voice samples. I consider the strength of some of the most popular models, looking also at their promises and limitations. To get a more complete panorama of ASRs, I explore their effectiveness under a range of adverse acoustic conditions. As it turns out, ASRs do not yet meet some essential requirements, particularly when it comes to voices that are somewhat impaired or pathological. By means of a recent pilot study on "ASR for pathological voices", I discuss experimental results, considering diverse models, languages and datasets. ASRs do degrade rapidly in face of typical disturbances, pointing to a number of interesting research propositions.

Keynote Speakers

Short bio

Antonio Liotta is Full Professor at the Faculty of Engineering, Free University of Bolzano (Italy), where he teaches Data Science and Machine Learning. He is the chairman of the Data-Driven Artificial Intelligence research area and the director of the PhD school in Computer Science.

Antonio's passion for artificial intelligence, has driven his academic career through the meanders of artificial vision, e-health, intelligent networks and intelligent systems. Antonio's team is renowned for his contributions to micro-edge intelligence and miniaturized machine learning, which have significant potential in harnessing data-intensive systems, for instance in the context of smart cities, cyber-physical systems, Internet of Things, smart energy, and machine learning with humans in the loop. He has led the international team that has recently made a breakthrough in artificial neural networks, initiating a new research strand on "sparse neural networks for embedded learning". Antonio was the founding director of the Data Science Research Centre at the University of Derby. He has set up several cross-border virtual teams, and has been credited with over 350 publications involving, overall, more than 150 co-authors. Antonio is Editor-in-Chief of the Springer Internet of Things book series, and associate editor of several prestigious journals. He is co-author of the books "Networks for Pervasive Services: six ways to upgrade the Internet" and "Data Science and Internet of Things".

Keynote Talk (iiWAS2024), Tuesday, 3 December 2024 – 09:00 – 10:00



Towards Explainable AI-Powered Malware Detection

Martin Homola, Comenius University Bratislava, Slovakia

Abstract:

Malware analysis has become more and more challenging due to the rapid evolution of attack techniques, and an ever-increasing volume of new malware samples. Indeed, traditional signature-based approaches struggle with this load and machine learning has steadily gained ground in this application area due to its effectiveness and classification power. However, much as in other domains, malware experts lack the confidence and trust in opaque machine learning models that provide classification of the sample but little or no justifications to support and explain such decisions. The lecture will delve into the novel explainable AI methods and techniques and illustrate their benefits and the trade-offs on the malware detection use case.

Short bio

Martin Homola earned his PhD from Comenius University Bratislava, Faculty of Mathematics Physics and Informatics in 2010, in the area of distributed ontologies. During 2009–2012 he was a postdoc at Fondazione Bruno Kessler, Trento, Italy, where he worked in the Data & Knowledge Management Group on contextualized knowledge representation. After returning to his alma mater, he joined the Department of Applied Informatics. He earned his habilitation in 2018. He currently serves as the head of the KR research group, the head of the AI section of the department, and as the vice-dean for IT, PR and industrial collaboration of the faculty. His current research interests include knowledge representation in general, explainable AI, and applications of knowledge representation in information security, education, and other areas.



Conferences Program Schedule

The conferences are taking place at the Faculty of Management, Comenius University Bratislava, Slovakia.

Address:

Comenius University in Bratislava

Faculty of Management

Odbojárov 10

P.O.BOX 95, 820 05 Bratislava 25

Slovak Republic



Day 1: Monday, 2 December 2024

| Time | | | |
|---------------|--|--|--|
| 09:00 – 10:00 | Registration & Morning Coffee <i>@Foyer of room: D2 - Auditorium Faculty of Management, -1 fl. (UG)</i> | | |
| 10:00 – 10:30 | Plenary session @room: D2 - Auditorium Faculty of Management, -1 fl. (UG) | | |
| 10:30 – 11:30 | <ul style="list-style-type: none"> • Opening • Keynote Talk 1 (iiWAS2024) “Harnessing Large Language Models for Entity Processing in Resource-Constrained Environments” <i>Toshiyuki Amagasa, University of Tsukuba, Japan</i> | | |
| 11:30 – 12:30 | <ul style="list-style-type: none"> • Keynote Talk 2 (MoMM2024) “Automatic Speech Recognition in Adverse Acoustic Conditions” <i>Antonio Liotta, Free University of Bozen-Bolzano, Italy</i> | | |
| 12:30 – 13:30 | Lunch break @Cafeteria Faculty of Management, -1 fl. (UG) | | |
| | Track 1 Room: C4, 4 th fl. | Track 2 Room: C5, 4 th fl. | Track 3 Room: C6, 4 th fl. |
| 13:30 – 15:00 | MoMM – 1 Motion and Sensor-Based Applications | iiWAS – 1 Machine Learning for Prediction | iiWAS – 2 Conversational Agents and Chatbots |
| 15:00 – 15:30 | Coffee break @reception foyer 4th fl. | | |
| 15:30 – 17:00 | MoMM – 2 Medical Data and Cognitive Analysis | iiWAS – 3 Web Intelligence and Search | iiWAS – 4 Data Science in E-commerce and Recommendation Systems |
| 18:00 – 20:00 | Welcome Reception Moyzes Hall, Faculty of Arts, Comenius University Bratislava Address: Gondova Street No. 2, SK-811 02 Bratislava 1, Slovakia | | |



Conferences Program Schedule

Day 2: Tuesday, 3 December 2024

| Time | | | |
|---------------|---|--|--|
| 08:30 – 09:00 | Registration @Foyer of Room: D2 - Auditorium Faculty of Management, -1 fl. (UG) | | |
| 09:00 – 10:00 | Plenary session - @room: D2 - Auditorium Faculty of Management, -1 fl. (UG) <ul style="list-style-type: none"> • Keynote Talk 3 “Towards Explainable AI-Powered Malware Detection” Martin Homola, Comenius University Bratislava, Slovakia | | |
| 10:00 – 10:30 | Coffee break @Foyer of Room: D2 - Auditorium Faculty of Management, -1 fl. (UG) | | |
| | Track 1 Room: C4, 4 th fl. | Track 2 Room: C5, 4 th fl. | Track 3 Room: C6, 4 th fl. |
| 10:30 – 12:30 | MoMM – 3 Mobile User Experience and Interaction | iiWAS – 5 AI for Web and Financial Applications | iiWAS – 6 Data-Driven Modeling and Feature Extraction |
| 12:30 – 13:30 | Lunch break @Cafeteria Faculty of Management, -1 fl. (UG) | | |
| 13:30 – 15:00 | MoMM – 4 Environmental and Eco-Innovations | iiWAS – 7 AI in Natural Language Processing | iiWAS – 8 AI and Ethics |
| 15:00 – 15:30 | Coffee break @reception foyer of 4 th fl. | | |
| 15:30 – 17:00 | iiWAS – 9 Digital Twins and Knowledge Graphs | iiWAS – 10 Time Series and Sequential Data Analysis | iiWAS – 11 AI for Social Issues |
| 19:00 – 22:00 | Conference Dinner and Best Paper Award Announcement Historical Building of Slovak National Council (Župný Dom) Address: Župné námestie 591, 811 03 Bratislava, Slovakia | | |

Day 3: Wednesday, 4 December 2024

| Time | | | |
|---------------|---|---|---|
| 08:30 – 09:00 | Registration @Reception foyer 4 th fl. | | |
| | Track 1 Room: C4, 4 th fl. | Track 2 Room: C5, 4 th fl. | Track 3 Room: C6, 4 th fl. |
| 09:00 – 10:30 | MoMM – 5 Data Generation and Software Systems | iiWAS – 12 Graph Mining and Classification | iiWAS – 13 Digital Transformation in Organizations |
| 10:30 – 11:00 | Coffee break @reception foyer 4 th fl. | | |
| 11:00 – 12:30 | MoMM - 6 Virtual Reality and Multimedia | iiWAS – 14 Blockchain and Cryptocurrencies | iiWAS – 15 Information Integration and Data Mining |
| 12:30 – 13:30 | CLOSING @room: D2 - Auditorium Faculty of Management, -1 fl. (UG) and LUNCH @Cafeteria Faculty of Management, -1 fl. (UG) | | |



Conferences Program Schedule

DAY 1: Monday, 2 December 2024

09:00 – 10:00 Registration & Morning Coffee

Foyer of room D2, -1 fl.(UG)
Auditorium Faculty of Management

10:00 - 10:30 **Plenary sessions**

• **Opening**

10:30 - 11:30 • **Keynote Talk 1 (iiWAS2024)**

“Harnessing Large Language Models for Entity Processing in Resource-Constrained Environments”

Toshiyuki Amagasa, *University of Tsukuba, Japan*

Session Chair: Gabriele Kotsis

Room: D2, -1 fl.(UG)
Auditorium Faculty of Management

11:30 - 12:30 **Plenary sessions**

• **Keynote Talk 2 (MoMM2024)**

“Automatic Speech Recognition in Adverse Acoustic Conditions”

Antonio Liotta, *Free University of Bozen-Bolzano, Italy*

Session Chair: Gabriele Kotsis

Room: D2, -1 fl.(UG)
Auditorium Faculty of Management

12:30 - 13:30 **Lunch break @Cafeteria Faculty of Management, -1 fl. (UG)**

===== Paper Presentations =====

13:30 – 15:00 **MoMM – 1**

Room: C4, 4th fl.

Motion and Sensor-Based Applications

Session Chair: Yusuke Gotoh

• **Investigating Choking Under Pressure in Dance Performance with Motion and Physiological Information Analysis**

Shuheii Tsuchida, Ayumi Ohnishi, Kae Mukai, Ken Watanabe, Katsumi Watanabe, Tsutomu Terada, Masahiko Tsukamoto
Japan

• **A Method for Embedding Information into Acceleration Data using Resonant Frequency Sound to Capacitive Accelerometers**

Takeru Yokoyama, Kazuya Murao
Japan

• **A method for Estimating the Force Applied on the forearm using PPG Sensors**

Ryo Watabe, Kazuya Murao
Japan

13:30 – 15:00 **iiWAS – 1**

Room: C 5, 4th fl.

Machine Learning for Prediction

Session Chair: Douglas Scheftner

• **FIEAP: A Machine Learning Approach for Fair and Interpretable Employee Attrition Prediction**

Ginel Dorleon
France

• **A Data Science Approach for Predicting Soccer Passes Using Positional Data**

Sebastian Eigenrauch, Jonas Bischofberger, Arnold Baca, Erich Schikuta
Austria

• **Vision Transformer Approach to Customer Churn Prediction Radar Chart Image Classification for non-subscription-based e-commerce**

Sion Coolwijk, Seyed Sahand Ziabari, Francesco Angileri
Netherlands

• **Sustainability and High-Performance Computing**

Elio Masciari, Enea Vincenzo Napolitano
Italy



Conferences Program Schedule

- 13:30 – 15:00 **iiWAS – 2** Room: C6, 4th fl.
Conversational Agents and Chatbots
Session Chair: Vineeta Jain
- **Evolving Applications of Conversational Agents in Healthcare: A Literature Review**
Vincenza Carchiolo, Michele Malgeri
Italy
 - **Integrating Conversational Pathways with a Chatbot Builder Platform**
Varshini Prakash, Alex Lambe Foster, Jasmine Noble, Osmar R. Zaiane
Canada
 - **Active Utterance Collection based on Multi-Armed Bandits for Natural Language Understanding in Dialog Systems**
Rui Yang, Kei Wakabayashi
Japan
 - **Finding Adequate Additional Layer of Auxiliary Task in BERT-Based Multi-Task Learning**
Takuto Kitamura, Yu Suzuki
Japan
- 15:00 – 15:30 **Coffee break @Reception foyer, 4th fl.**
- 15:30 – 17:00 **MoMM – 2** Room: C4, 4th fl.
Medical Data and Cognitive Analysis
Session Chair: Piotr Urbaniec
- **Mild Cognitive Impairment Prediction Using Facial and Speech Data**
Chien-Cheng Lee, Wei-Chieh Huang, Yi-Fang Chuang
Taiwan
 - **A Genetic Algorithm-Based Scheduling Method Considering Working Hours for Medical Doctors**
Subaru Narahashi, Eiji Hirakawa, Akira Uchiyama, Yusuke Gotoh
Japan
 - **Comparing training of Sparse to Classic Neural Networks for Binary Classification in Medical Data**
Laura Erhan, Antonio Liotta, Lucia Cavallaro
Italy, Netherlands
- 15:30 – 17:00 **iiWAS – 3** Room: C5, 4th fl.
Web Intelligence and Search
Session Chair: Abdulrauf Aremu Gidado
- **Towards Website X-Ray for Europe's Municipalities: Unveiling Digital Transformation with Multimodal Embeddings**
Jonathan Gerber, Bruno Kreiner, Jasmin Saxer, Andreas Weiler
Switzerland
 - **Automatic Extraction of RML-star Mappings from Property Graphs**
Julián Arenas-Guerrero, Paola Espinoza-Arias
Spain
 - **Top-k on Sequences: A New Approach to Enhanced Similarity Search**
Sara Jarrad, Hubert Naacke, Stéphane Gançarski
France
- 15:30 – 17:00 **iiWAS – 4** Room: C6, 4th fl.
Data Science in E-commerce and Recommendation Systems
Session Chair: Werner Winiwarter
- **Tailored Trip: Advanced Route Planning with Personalization Levels in Focus**
Rintaro Hirosawa, Kun Yi, Qiang Ma
Japan



Conferences Program Schedule

- 15:30 – 17:00 • **Mining Historical Multi-behavior Sequential Patterns for E-commerce Recommendation**
S. Bandreddy, C. I. Ezeife, Abdulrauf Gidado
Canada
- **A Serendipitous Recommendation System Considering User Curiosity**
Zhelin Xu, Atsushi Matsumura
Japan
- 18:00 – 20:00 **Welcome Reception**
Moyzes Hall, Faculty of Arts, Comenius University Bratislava
Address: Gondova Street No. 2, SK-811 02 Bratislava 1, Slovakia

DAY 2: Tuesday, 3 December 2024

- 08:30 – 09:00 Registration Foyer of room D2, -1 fl.(UG)
Auditorium Faculty of Management
Room D2, -1 fl. (UG)
Auditorium Faculty of Management
- 09:00 – 10:00 **Plenary sessions**
• **Keynote Talk 3 (iiWAS2024)**
“Towards Explainable AI-Powered Malware Detection”
Martin Homola, Comenius University Bratislava
Slovakia
Session Chair: Toshiyuki Amagasa
- 10:00 – 10:30 **Coffee break @Foyer of Auditorium Faculty of Management, -1 fl. (UG)**

===== Paper Presentations =====

- 10:30 – 12:30 **MoMM – 3** Room: C4, 4th fl.
Mobile User Experience and Interaction
Session Chair: Jaroslav Kobiela
- **Good Vibes! Towards Phone-to-User Authentication Through Wristwatch Vibrations**
Jakob Dittrich, Rainhard Dieter Findling
Austria
- **Correlation between gamification and intrinsic motivation with a mobile job-market application**
Niklas Grossmann, Helmut Hlavacs
Austria
- **MEUSec – Method for Enhancing User Experience and Information Security**
Max Sauer, Christoph Becker, Andreas Oberweis, Simon Pfeifer, Jan Sürmeli
Germany
- **Toward the Implementation of a Cooking Support System Complementing Nonexistent Objects with Virtual Objects**
Taiki Nihanda, Shoji Sano
Japan
- 10:30 – 12:30 **iiWAS – 5** Room: C5, 4th fl.
AI for Web and Financial Applications
Session Chair: Vincenza Carchiolo
- **RUVA - a Radical Universal Visual Annotation for Web-Based Language Learning**
Werner Winiwarter
Austria
- **Hybrid edge-cloud federated learning: the case of lightweight smoking detection**
Amirhossein Douzandeh Zenoozi, Babak Majidi, Lucia Cavallaro, Antonio Liotta
Italy, Iran



Conferences Program Schedule

- 10:30 – 12:30 • **Supporting Data Foragers in Scientific Computing Community Ecosystems for life Sciences**
Hasan M. Jamil
USA
- **Financial News Classification Using Language Learning Models and Reinforcement Learning**
William Beckhauser, Renato Fileto
Brazil
- 10:30 – 12:30 **iiWAS – 6** Room: C6, 4th fl.
Data-Driven Modeling and Feature Extraction
Session Chair: Ginel Dorleon
- **Advanced Topic Modeling in Genomics: Towards Personalized Dietary Recommendations Through BERTopic Analysis**
Giovanni M. De Filippis, Antonio M. Rinaldi, Cristiano Russo, Cristian Tommasino
Italy
- **Anonymization of Unstructured Health Data in Spanish**
Sergio Ilarri, Carlos Tellería, Marta Morales
Spain
- **Enhancing Soil Pollution Prediction through Expert-Defined Risk Zones and Machine Learning: A Case Study in the Netherlands**
Jasper Braakman, Seyed Sahand Mohammadi Ziabari, Ron Korver
Netherlands
- **Multi-Target Feature Selection Method for Predicting User-Level Psychological Status from Text**
Danmeng Cai, Kei Wakabayashi, Shaoyu Ye
Japan
- **A Data Model of a Data Lineage Management System for Database Repair and Simulation**
Wei Jun Wong, Kyoko Yasuda, Qiong Chang, Jun Miyazaki
Japan
- 12.30 – 13.30 **Lunch break @Cafeteria Faculty of Management, -1 fl. (UG)**
- 13.30 – 15.00 **MoMM – 4** Room: C4, 4th fl.
Environmental and Eco-Innovations
Session Chair: Vitaliy Yakovyna
- **Query by Trash: Encouraging Green Attitudes and Behavior through Eco-News Retrieval in Smart Trash Bins**
Momo Takeuchi, Yoshiyuki Shoji, Yusuke Yamamoto
Japan
- **Evaluation of the clustering method used to analyze the proximity of mobile devices using indirect geolocation indicators**
Jaroslav Kobiela, Piotr Urbaniec
Poland
- **Application of Benford's law to the identification of non-authentic digital images**
Jaroslav Kobiela, Piotr Dzierwa
Poland
- 13.30 – 15.00 **iiWAS – 7** Room: C5, 4th fl.
AI in Natural Language Processing
Session Chair: Naoko Kosugi
- **CLOR - QA: Cross-Lingual Open-Retrieval Question Answering Model with Dynamic Database Integration**
Sonia Khetarpaul, Vedanta Vivek Patil, Mitra Abhi Sura, Shrey Sharma, Pooja Singh
India
- **Feature Extraction for Claim Check-Worthiness Prediction Tasks Using LLM**
Yuka Teramoto, Takahiro Komamizu, Mitsunori Matsushita, Kenji Hatano
Japan

**Conferences Program Schedule**

- **ExtractGPT: Exploring the Potential of Large Language Models for Product Attribute Value Extraction**

*Alexander Brinkmann, Roe Shraga, Christian Bizer
Germany, USA*

13:30 – 15:00

**iiWAS – 8
AI and Ethics****Room: C6, 4th fl.****Session Chair: Tatsuo Nakajima**

- **When Good Enough is the Best Option: Use of Digital Sufficiency to Fight Climate Change**

*Nicolas Tirel, Sergio Ilarri, Philippe Roose, Adel Nouredine, Olivier Le Goaër
Spain, France*

- **TippyMirror: Recollecting People's Positive Moments based on Mirror Metaphor**

*Yukina Kato, Risa Kimura, Tatsuo Nakajima
Japan*

- **Traffic Congestion-aware Tourist Route Planning**

*Hiroyuki Tanaka, Hidekazu Kasahara, Qiang Ma
Japan*

- **Training Data for Dialogue Generation Considering Philosophies**

*Masaya Sueyoshi, Tetsuya Kitahata, Akiyo Nadamoto
Japan*

15:00 – 15:30

Coffee break @reception foyer 4th fl.

15:30 – 17:00

**iiWAS – 9
Digital Twins and Knowledge Graphs****Room: C4, 4th fl.****Session Chair: Amin Jalali**

- **Using the Digital Twin Collage Model in CollectiveEyes**

*Risa Kimura, Tatsuo Nakajima
Japan*

- **A Method for Integrating Heterogeneous Data into a Knowledge Graph**

*Christoph Göpfert, Sheeba Samuel, Martin Gaedke
Germany*

- **Predicting Knowledge Graph Updates from Edit Histories**

*Maiki Okura, Toshiyuki Amagasa
Japan*

15:30 – 17:00

**iiWAS – 10
Time Series and Sequential Data Analysis****Room: C5, 4th fl.****Session Chair: Jaroslav Pokorný**

- **SISIS: Sequence Indexing for Similarity Search**

*Sara Jarrad, Hubert Naacke, Stéphane Gançarski
France*

- **Exploratory Data Analysis of Time Series using Pre-segmented Clustering**

*Vineeta Jain, Zihao Huang, Anna Richter, Ulf Wetzker, Andreas Frotzschner
Germany*

- **Uncovering patterns in object-centric process mining: An approach using drill-down and roll-up techniques**

*Najmeh Miri, Amin Jalali
Sweden*

- **Integrating the biological knowledge from protein databases into spatial RNA sequencing analyses**

*Anna Leśniewska, Szymon Dzięgielewski, Elena Melnyk, Michał Jerzy Okoniewski, Robert Wrembel
Poland, Switzerland*



Conferences Program Schedule

- 15:30 - 17:00 **iiWAS – 11** **AI for Social Issues** Room: C6, 4th fl.
Session Chair: Pooja Singh
 • **HOCON34k: A corpus of Hate speech in Online Comments from German Newspapers**
Max-Emanuel Keller, Maximilian Auch, Alexander Döschl, Fabian Vlk, Julian Quernheim, Mike Hartmann, Peter Mandl, Alexander Kaul, Markus Franz
 Germany
 • **Echo Chambers Detection Through Echo Chambers Equilibrium**
Amin Mahmoudi
 Poland
 • **Online Digital Investigative Journalism using SocialLens**
Hasan M. Jamil, Sajratul Y. Rubaiat
 USA
- 19:00 – 22:00 **Conference Dinner and Best Paper Award Announcement**
Historical Building of Slovak National Council (Župný Dom)
 Address: Župné námestie 591, 811 03 Bratislava, Slovakia

DAY 3: Tuesday, 4 December 2024

- 08:30 – 09:00 **Registration @Reception Foyer 4th fl.**
- ===== **Paper Presentations** =====
- 09:00 – 10:30 **MoMM – 5** **Data Generation and Software Systems** Room: C4, 4th fl.
Session Chair: Max Sauer
 • **Cross-Project Software Defect Prediction using Ensemble Model with Individual Data Balancing and Feature Selection**
Vitaliy Yakovyna, Oleh Nesterchuk
 Ukraine, Poland
 • **AUTO-DataGenCARS+: An Advanced User-Oriented Tool to Generate Data for the Evaluation of Recommender Systems**
María del Carmen Rodríguez Hernández, Sergio Ilarri, Marcos Caballero, Raquel Trillo Lado, Ramón Hermoso, Rafael del Hoyo Alonso
 Spain
 • **A Method for Eliminating False Positives of Acceleration-based Gesture Recognition Using Eye Tracking**
Hinase Kawano, Kazuya Murao
 Japan
- 09:00 – 10:30 **iiWAS –12** **Graph Mining and Classification** Room: C5, 4th fl.
Session Chair: Amin Mahmoudi
 • **Combining GraphSAGE and Label Propagation for Node Classification in Graphs**
Dolly Sharma, Sonia Khetarpaul, Chinmayi Verma, Prateek Jain
 India
 • **Person Identification and Position Estimation with Multiple Moving Spherical Cameras**
Hiroki Oda, Shohei Yokoyama
 Japan
 • **Texture-Based Classification of Geo-Fossils**
Amal Saif, Eman Alnagi, Ashraf Ahmad
 Jordan
 • **Integrative Mining Pipeline for Improved Reflections of Course Feedback**
Prateek Prateek, Neil Allister Pais, Ritu Chaturvedi
 Canada



Conferences Program Schedule

- 09:00 – 10:30 **iiWAS – 13** **Digital Transformation in Organizations** Room: C6, 4th fl.
Session Chair: Hirotaka Yoshioka
- **Assessing the Suitability of Artificial Intelligence to Accomplish Organizational Finance Tasks**
Gabriel Smith, Workneh Yilma Ayele
Sweden
 - **Exploring the Role of UML in Data Modelling for NoSQL Databases: Position paper**
Mohammed el Habib Maicha, Jaroslav Pokorný
Algeria, Czech Republic
 - **Research and Development of an AI Music Therapist - Toward Digital Therapeutics of Music Therapy -**
Naoko Kosugi, Kentaro Ishii, Naoki Kodama
Japan
 - **Facilitating End-User Development of Websites with Micro-Frontends**
Jan Ingo Haas, Sheeba Samuel, Martin Gaedke
Germany
- 10:30 – 11:00 **Coffee break @reception foyer 4th fl.**
- 11:00 – 12:30 **MoMM – 6** **Virtual Reality and Multimedia** Room: C4, 4th fl.
Session Chair: Kei Wakabayashi
- **Evaluating the Impact of Color and Sound Combinations on Cognitive Performance in Virtual Reality**
Ryoma Nakao, Tatsuo Nakajima
Japan
 - **Efficient moving object detection from Ultra-High Resolution omnidirectional video**
Takuro Ohashi, Shohei Yokoyama
Japan
- 11:00 - 12:30 **iiWAS – 14** **Blockchain and Cryptocurrencies** Room: C5, 4th fl.
Session Chair: Alexander Brinkmann
- **Ponzi scheme detection and prevention in blockchain platforms using machine learning: A systematic literature review**
Karen Esther Castro Severiche, Agnes Wahlqvist Odenman, Amin Jalali
Sweden
 - **Incentivise Peer Review without Rewarding: Using OSS-like Citation Pull Request**
Chiaki Miura, Kensuke Ito
Japan
 - **Cross-Chain Personal Data Exchange on EVM Platforms: Enhancing Transparency, and Equity**
Triet M. N., Bang L. K., Khanh H. V., Anh T. N., Nhi T. L., Nghiem, P. T., Khiem H. G., Nam T. B.
Vietnam
- 11:00 - 12:30 **iiWAS – 15** **Information Integration and Data Mining** Room: C6, 4th fl.
Session Chair: Amal Saif
- **Railway systems' ontologies: A literature review and an alignment proposal**
David Camarazo, Ana Roxin, Mohammed Lalou
France
 - **Synchronization Options and Their Performance Benefits for Spatial Index on Persistent Memory**
Hirotaka Yoshioka, Yuto Hayamizu, Kazuo Goda, Masaru Kitsuregawa
Japan
- 12:30 - 13:30 **Closing and Lunch**
Room D2 - Auditorium Faculty of Management, -1 fl. (UG) and
Cafeteria Faculty of Management, -1 fl. (UG)



Social Events

Welcome Reception

*Monday, 2 December 2024, 18:00 – 20:00 pm at Moyzes Hall, Faculty of Arts, Comenius University
Address: Gondova Street No. 2, SK-811 02 Bratislava 1, Slovakia*

Following the final session on the first day, all participants are invited to a Welcome Reception at Moyzes Hall – a stunning, richly decorated Art Nouveau venue in the main building of the Faculty of Arts, Comenius University Bratislava, near the Danube River. The hall is named in honor of Slovak composer Alexander Moyzes (1906–1984).

This event serves as an icebreaker, offering participants a chance to expand their professional networks while enjoying the evening in one of Bratislava's historical landmarks.

Public Transport from Faculty of Management to Moyzes Hall: Take Bus 78 (towards Nové SND; 6 stops). Board at Tipos Arena bus stop and disembark at Nové SND. Walk west to Gondova no. 2. The journey takes approximately 10 to 15 minutes.



Conference Dinner

*Tuesday, 3 December 2024, 19:00 – 22:00, at the Historical Building of Slovak National Council (Župný dom)
Address: Župné námestie 591, 811 03 Bratislava, Slovakia*

The Conference Dinner will be the hi-light social event during the conference when the program committee chair of iiWAS 2024 and MoMM 2024 will announce the Best Paper Award winners. All participants are invited to the dinner at one of the important and historical places for Slovak people, the National Council of the Slovak Republic (Župný dom).

In the first one and a half years after the birth of the Slovak Republic in 1993, the National Council was seated in the Župný dom also known as The Zhupa House on Župné square in the centre of Bratislava, from the year 1939 until 1994. Previously, it was the seat for Slovak Parliaments. The current National Council building is located on Dubček square, on the Castle Hill.

The Conference dinner will take place at the historical National Council building, The Zupha Hause or Zupný Dom



