CAiSE'24

MONDAY 🔲 JUNE 3, 2024

08:00 - 9:00	Registration			
09:00 - 10:30	**EMMSAD + BPMDS** (Joint keynote) Room: Panorama		**HybridAIMS** Welcome and Keynote Room: Megaron G	**BC4IS+B4TDS** Room: Megaron B
	Joint Keynote BPMDS / EMMSAD: Resource Optimization in Business Processes - Remco Dijkman		Welcome and introduction *Dr. Emanuele Laurenzi* (20 min) Keynote: How six levels of enterprise modeling could help in visualizing applications and limitations of symbolic and sub-symbolic AI *Steven Alter,* Professor Emeritus at the University of San Francisco (45 min + 15 min Q&A)	9:00 Joint Workshop Introduction - *Victor Amaral de Sousa and Alessandro Marcelletti* Blockchain for Information Systems (BC4IS) and Blockchain for Trusted Data Sharing (B4TDS) 9:10 - Keynote *Claudio Di Ciccio* "I'm still/ I'm still / Chaining from the Block": An Outlook of the Ongoing and Future Relationship between Blockchain Technologies and Process - aware Information Systems 10:00 Paper Presentation *Yuntian Ding, Nicolas Herbaut and Daniel Négru* A conceptual model for blockchain-based trust in digital ecosystems Chaired by *Alessandro Marcelletti*
10:30 -11:00	**C O F F E E B R E A K**			
11:00 - 12:30	**EMMSAD** **Evaluation of Modeling Methods** Room: Panorama	**BPMDS** **Large Language Model Applications** Room: Megaron A	**HybridAIMS** **Session 1** Room: Megaron G	**BC4IS+B4TDS** Room: Megaron B
	Enhancing our Understanding of Business Process Model Comprehension using Biometric Data *John Krogstie and Kshitij Sharma* A Method for Digital Business Ecosystem Design: Evaluation of Two Cases in the Maritime Dataspaces *Chen Hsi Tsai, Ben Hellmanzik, Jelena Zdravkovic, Janis Stirna and Kurt Sandkuhl* Technology for Automatic Usability Evaluation using Model Driven Engineering *Susel Matos Claro, Leydis Lamoth Borrero, Jenny Ruiz de La Peña and Monique Snoeck*	Evaluating Large Language Models in Process Mining: Capabilities, Benchmarks, Evaluation Strategies, and Future Challenges *Alessandro Berti, Humam Kourani, Hannes Häfke, Chiao-Yun Li and Daniel Schuster* Mapping the Landscape: Exploring Large Language Model Applications in BusinessProcess Management *Bedilia Estrada-Torres, Adela del-Río-Ortega and Manuel Resinas*	Student Performance Prediction Model Based on Course Description and Student Similarity (20 min presentation + 5 min Q&A) *David Mäder, Maja Spahic-Bogdanovic and Hans Friedrich Witschel* An Explanation User Interface for a Knowledge Graph-based XAI approach to Process Analysis (20 min presentation + 5 min Q&A) *Anne Füßl, Volker Nissen and Stefan Horst Heringklee* A Survey Study to Evaluate the Completeness and Correctness of a Morphological Box for AI Solutions (20 min presentation + 5 min Q&A) *Jack Daniel Rittelmeyer and Kurt Sandkuhl*	Chaired by **Victor Amaral de Sousa** 11:00 Paper Presentation *Ankur Lohachab and Visara Urovi* A Blockchain-based Approach for Model Card Accountability and Regulatory Compliance 11:30 Paper Presentation *Alessandro Bigiotti, Maria Paola Francesca Bottoni and Giacomo Nalli* Blockchain in E-Learning Platform to Enhance Trustworthy and Sharing of Micro-Credentials 12:00 Paper Presentation *Rongxin Guan, Ji Qi. Tianxiang Shen, Sen Wang, Gong Zhang and Heming Cui* High-Performance Confidentially- Preserving Blockchain via GPU-Accelerated Fully Homomorphic Encryption
12:30-14:00	**L U N C H B R E A K**			

MONDAY · JUNE 3, 2024

14:00 - 15:30	EMMSAD Model-driven Engineering & AI 1 Room: Panorama	BPMDS Process Model Extraction, Analysis, and Visualization Room: Megaron A	HybridAIMS Session 2 Room: Megaron G	Agile-ISE Building bridges in Agile Room: Megaron B
	Towards Taming Large Language Models with Prompt Templates for Legal-GRL Modeling *Sybren de Kinderen and Karolin Winter*	Designing a User Interface to Explore Collections of Directly-Follows Graphs for Process Mining Analysis *María Salas-Urbano, Carlos Capitán-Agudo, Cristina Cabanillas and Manuel Resinas*	Integrating Generative Artificial Intelligence into Supply Chain Management using the SCOR Model (20 min presentation + 5 min Q&A) *Joachim Ehrenthal, Phillip Gachnang, Louisa Loran, Hellmer Rahms and Fabian Schenker*	User Stories: Past, Present and Future *Palash Bera, Yves Wautelet and Geert Poels*
	Process Modeling with Large Language Models *Humam Kourani, Alessandro Berti, Daniel Schuster and Wil van der Aalst*	Precision - Guided Minimization of Arbitrary Declarative Process Models *Eduardo Goulart Rocha and Wil van der Aalst*	Enhancing Research Clarity: Ontology-Based Modeling of Argumentation in RPML (20 min presentation + 5 min Q&A) *Knut Hinkelmann, Valeriia Afonina and Devid Montecchiari*	Agile Development: The Promise, The Reality, The Opportunity *Jon W. Beard, Veda C. Storey, Binny Samuel, Roman Lukyanenko, Anna Wiedemann, David Schuff, Shawn Ogunseye, Zohra Islamzada and Fereshta Islamzada*
	Could a Large Language Model Contribute Significantly to Requirements Analysis? *Steven Alter*	Leveraging Data Augmentation for Process Information Extraction *Julian Neuberger, Lars Ackermann, Leonie Doll, Benedikt Engelmann and Stefan Jablonski*	A Hierarchical Knowledge Framework for Digital Twins of Buildings and their Energy Systems (Short Paper: 15 min presentation + 5 min Q&A) *James Allan, Edrisi Munoz Mata, Sergio Acero González, Hassan Bazazzadeh, Federica Bellizio, Hanmin Cai, Reto Fricker, Philipp Heer, Mina Montazeri, Sascha Stoller and Georgios Mavromatidis*	Insights on Agile Contracting: Bridging Theory and Practice *Bert de Brock, Konstantinos Tsilionis and Aleksis Mogilnijs*
	Building BESSER: an open-source low-code platform *Iván Alfonso, Aaron Cornardy, Armen Sulejmani, Atefeh Nirumand, Fitash Ul Haq, Marcos Gomez-Vazquez, Jean-Sebastien Sottet and Jordi Cabot*		Towards Explainable Public Sector AI: An Exploration of Neuro-Symbolic AI and Enterprise Modeling (Short Paper: 15 min presentation + 5 min Q&A) *Václav Pechtor*	

15:30 - 16:00	COFFEE BREAK

MONDAY ● JUNE 3, 2024

16:00 - 17:30	**EMMSAD** **Model-driven** **Engineering & AI 2** Room: Panorama	**BPMDS** **Panel Discussion** Room: Megaron A	**HybridAIMS** **Session 3** Room: Megaron G	**Agile-ISE** **Reconciling Agile with** **modeling** Room: Megaron B
	Fast And Sound: Accelerating Synthesis-Rules-Based Process Discovery *Tsung-Hao Huang, Enzo Schneider, Marco Pegoraro and Wil van der Aalst*	BPM in the Age of Agents, Assistants, and Co-Pilots	Panel Discussion & Closing Session: Discussed topic: How will the convergence of Enterprise Modelling and Hybrid Artificial Intelligence (Symbolic AI + Sub-Symbolic AI) contribute to information systems of the future?	Agile MERODE: a model-driven software engineering method for user-centric and value-based development *Monique Snoeck and Yves Wautelet*
	Navigating the Data Model Divide in Smart Manufacturing: An Empirical Investigation for Enhanced AI Integration *István Koren, Matthias Jarke, Judith Michael, Malte Heithoff, Leah Tacke Genannt Unterberg, Max Stachon, Bernhard Rumpe and Wil van der Aalst*		Panelists: *Prof. Dr. Dimitris Karagiannis,* University of Vienna, Austria *Prof. Dr. Oscar Pastor*, Valencia University of Technology, Spain *Prof. Dr. Giancarlo Guizzardi*, University of Twente, The Netherlands	Experiences from Combining Merode and Scrum *Yaimara Granados, Monique Snoeck, Jenny Ruiz and Gheisa Ferreira*
	MAIS: A Multi-dimensional Model for the Design and Development of Analytical Information Systems *Maribel Yasmina Santos and Ana León*		*Dr. Alessandro Oltramari,* Bosch Research and Carnegie Bosch Institute, USA *Dr. Peter Haase*, Metaphatcs, Germany Chair and moderator: **Dr. Emanuele Laurenzi**	The Impact of Model-Driven Development on Agile Practices within Knowledge-Intensive Systems Engineering *Ghazaleh Aghakhani, Konstantinos Tsilionis and Sara Shafiee*

19:00	**WORKSHOPS & COLLOCATED EVENTS DINNER - DEPARTURE FROM VENUE 19:00**

TUESDAY ⬡ JUNE 4, 2024

08:30 - 09:00	Registration			
09:00 - 10:30	**EMMSAD** **Modeling and Sustainability** Room: Panorama	**BPMDS** **Paper Session: User Preferences and Agile Processes** Room: Megaron A	**KG4SDSE** Room: Megaron G	**EOMAS** **Process Modeling** Room: Megaron B
	Situational environmental, social and governance accounting: from ethical value elicitation to sustainability reporting *Vijanti Ramautar, Sjaak Brinkkemper, Oscar Pastor and Sergio España*	A Generic Approach Towards Adapting User Preferences in Business Process Execution *Sebastian Petter and Stefan Jablonski*	09:00 - 9:20 - Opening **Robert Buchmann** Chairs' Welcome Message	09:00 Introduction **Molhanec, Merunka** 09:05 Invited lecture **Pavel Malyženkov**
	Realizing the Accountability of Algorithms in the Public Sector: a Reference Method for Algorithm Registers *Nena Schuitemaker, Martijn van Vliet, Sjaak Brinkkemper, Sergio España and Inge van de Weerd*	Introducing Agile Controllability in Temporal Business Processes *Roberto Posenato, Marco Franceschetti, Carlo Combi and Johann Eder*	09:20 - 10:20 Keynote: **Loizos Michael** Neuro - Coachable AI is the Answer! What is the Question?	09:30 Comparing Process Models Beyond Structural Equivalence *Nicolai Schützenmeier, Stefan Jablonski and Stefan Schönig*
	Requirements for a Digital Twin for Energy, Social, and Governance Data of Commercial Buildings *Joseph Chungath and Simon Hacks*	Reviewing Conformance Checking Uses for Run - Time Regulatory Compliance *Finn Klessascheck, Tom Knoche and Luise Pufahl*		10:00 Process-Specific Extensions for Enhanced Recommender Systems in Business Process Management *Sebastian Petter and Stefan Jablonski*
10:30 - 11:00	**C O F F E E B R E A K**			
11:00 - 12:30	**EMMSAD** **Enterprise modeling** Room: Panorama	**BPMDS** **Paper Session: Process Discovery and Analysis** Room: Megaron A	**KG4SDSE** Room: Megaron G	**EOMAS** **Session 2** **Business Modeling** Room: Megaron B
	Understanding Organizational Capability Progression: A Model for Defining Maturity Levels for Capability-based Maturity Models *Ginger Korsten, Baris Ozkan, Banu Aysolmaz, Daan Mul and Oktay Türetken*	Visual Representation of Resource Analysis Insights for Process Mining *Alana Hoogmoed, Maxim Vidgof, Djordje Djurica, Christoffer Rubensson and Jan Mendling*	11:00 - 11:25 - Full paper LLMs for Knowledge-Graphs enhanced Task-Oriented Dialogue Systems: Challenges and Opportunities *Vasile Ionuț Remus Iga and Gheorghe Cosmin Silaghi*	11:00 - 11:30 Analyzing Customer Sentiments: A Comparative Evaluation of Large Language Models for Enhanced Business Intelligence *Pavel Beránek and Vojtech Merunka*
	Using Enterprise Modeling to Analyze and Design a "Fit" between Activities in an Enterprise *Ilia Bider and Erik Perjons*	Process Variant Analysis Across Continuous Features: A Novel Framework *Ali Norouzifar, Majid Rafiei, Marcus Dees and Wil van der Aalst*	11:25 - 11:50 - Full paper An Ontology Based Meta-modelling Approach for Semantic-Driven Building Management Systems *Emanuele Laurenzi, James Allan, Nathalie Campos and Sascha Stoller*	11:30 - 12:00 A Meta-Design Method for Modeling Customer Value *William Sniekers and Ben Roelens*
	Technology - Aware Enterprise Modeling: Challenging the Model-Driven Architecture Paradigm *Irina Rychkova, Eddy Kiomba Kambilo, Nicolas Herbaut, Oscar Pastor, Rene Noel and Carine Souveyet*	A Novel Contextualization Method for Process Discovery Using Activity Specialization Hierarchies *Zahra Ahmadi, Jochen De Weerdt and Estefanía Serral*	11:50 - 12:15 - Full paper Understanding the SQL Semantic Transducer *Théo Abgrall and Enrico Franconi*	12:00 - 12:30 Customizing a Generic Digital Transformation Objectives Model onto a Telecommunication Company *Ghazaleh Aghakhani, Ke Xu, Yves Wautelet, Konstantinos Tsilionis and Manuel Kolp*
12:30 - 14:00	**L U N C H B R E A K**			

TUESDAY JUNE 4, 2024

14:00 - 15:30	EMMSAD Room: Panorama	KG4SDSE Room: Megaron G	EOMAS Conceptual Modeling Room: Megaron B	DigPro Room: Megaron A
	Short research presentations (papers or projects, 2 slides, 5min each) EMMSAD Future Development Discussion EMMSAD 2024 closing and awards	14:00 - 14:25 - Full paper Knowledge Graph for Reusing Research Knowledge on Related Works in Data Analytics *Aritha Kumarasinghe and Marite Kirikova* 14:25 - 14:50 - Full paper Improving the Service Quality in Fitness Industry by Using a Knowledge Graph based Modeling Toolkit *Vasile Ionut Remus Iga and Ana-Maria Ghiran* 14:50 - 15:05 - Short paper Property Graphs at Scale: A Roadmap and Vision for the Future *Haridimos Kondylakis, Vasilis Efthymiou, Georgia Troullinou, Elisjana Ymeralli and Dimitris Plexousakis* 15:05 - 15:20 - Short paper Enhancing Complex Linguistic Tasks Resolution through Fine-tuning LLMs, RAG and Knowledge Graphs *Filippo Bianchini, Marco Calamo, Francesca De Luzi, Mattia Macrì and Massimo Mecella*	14:00 - 14:30 Deriving Object Oriented Normalisation from Conceptual Normalisation *Martin Molhanec* 14:30 - 15:00 Conceptual data normalisation from the practical view of using graph databases *Vojtech Merunka, Himesha Wijekoon and Pavel Beranek* 15:00 - 15:30 BPMN for displaying the progression of musical harmony and chords - Case study *Josef Pavlicek and Petra Pavlickova*	Keynote: *Sander Leemans* Process Mining without Process Models **Abstract:** In process mining, we aim to provide business analysts with the tools to analyse recorded process data, with the ultimate aim of improving business processes. In this keynote, we'll have a look at the rough edges of process mining: Where process models are too complex, too large or too unstructured for a human analyst to understand. How can we then still derive process insights from such models? Online Next Activity Prediction Under Concept Drifts *Thaddeus Kosciuszek and Marwan Hassani*
15:30 -16:00	**COFFEE BREAK**			
16:00 - 17:30	IFIP 8.1 & EMEA Working Group Business Meeting Room: Panorama	KG4SDSE Room: Megaron G	EOMAS Room: Megaron B	DigPro Room: Megaron A
		Closing discussion with the Workshop participants: Metamodeling and Abstraction in the Era of LLMs: Challenges and Opportunities *Dimitris Karagiannis* (moderator)	Round table and discussion, moderate: *Molhanec and Merunka*	Overstock Problems in a Purchase-to-Pay Process: An Object-Centric Process Mining Case Study *Dina Kretzschmann, Gyunam Park, Alessandro Berti and Wil M.P. van der Aalst* Exploring Object Centric Process Mining with MIMIC IV: Unlocking Insights in Healthcare *Anukriti Tripathi, Aneesh Nan, Yuvraj Shivam, Swetank Pandey, Aamod Vyas and O. P. Vyas* Empirical Insights into Context-Aware Process Predictions: Model Selection and Context Integration *Marc C. Hennig*
19:00 - 20:30	**WELCOME COCKTAIL**			

WEDNESDAY JUNE 5, 2024

08:30 - 09:00	Opening

09:00 - 10:20

Keynote Speaker - *J. Mark Bishop*   Room: Panorama
Chair: Giancarlo Guizzardi

The colour of cognition: from abstract computation to the lived mind

Abstract: Ever since CPP Snow's Rede Lecture of 1959, there has been a general perception amongst educated people of life lived in two cultures: "On the one hand the departments of the arts and humanities dealing with 'the living and experiential' in a world of meaningful cognition; information as semantics; communication through language; signs and interpretations and on the other hand the sciences and mathematics dealing with the non-living and mechanical in a world of artificial cognition; information as statistics; communication through signals; energy, forces and matter all governed by strict laws. In this light these two cultures live in enforced ontological separation; they do not share the same reality".

Conversely, modern approaches to cognitive science, emphasising the body and its interactions with environment and society, offer new tools with which to bridge this ontological gap and in so doing open up a new, shared reality: a reality of neurons living in the brain; the brain living in the body; the body living in the world & society. This radical, holistic approach to cognition focuses on the development of four research themes in cognitive science – the so-called '4E's; the 'embodied, embedded, enactive and ecological' – each of which has its own vibrant research programme; but which also come together to form a larger, coherent, trans-disciplinary whole.

In this talk I will present my evidence concerning Artificial Intelligence and [Turing Machine] Functionalism, which fatally undermines the idea of mind as mere computational mathesis, and contrast with modern cognitive science, wherein mind is coextensive with life.

10:20 - 10:30	**DC pitches**

10:30 -11:00	**C O F F E E B R E A K**

11:00 - 12:30

Session 1 **Process Alignment, Comparison and Discovery** **Chair: Barbara Weber** Room: Panorama	**Session 2** **Graphs and Graph Networks** **Chair: Maribel Santos** Room: Atrium B	**Tutorial 1** Room: Megaron G	**Tutorial 2** Room: Megaron B
Object - Centric Conformance Alignments with Synchronization *Alessandro Gianola, Marco Montali and Sarah Winkler*	A Graph Language Modeling Framework for the Ontological Enrichment of Conceptual Models *Syed Juned Ali and Dominik Bork*	How to Conduct Valid Information Systems Engineering Research? *Henrik Leopold*	Engineering Information Systems with LLMs and AI-based techniques *Massimo Mecella*
Process Comparison based on Selection-projection Structures *Tobias Brockhoff, Merih Seran Uysal and Wil van der Aalst*	PGTNet: A Process Graph Transformer Network for Remaining Time Prediction of Business Process Instances *Keyvan Amiri Elyasi, Han van der Aa and Heiner Stuckenschmidt*		
Stochastic Process Discovery: Can it be Done Optimally? *Sander J.J. Leemans, Tian Li, Marco Montali and Artem Polyvyanyy*	Multi-Perspective Concept Drift Detection: Including the Actor Perspective *Eva Klijn, Felix Mannhardt and Dirk Fahland*		

12:30 -14:00	**L U N C H B R E A K**

14:00 - 15:30	**Session 3** **Process Discovery, Monitoring and Correction** **Chair: Monique Snoeck** Room: Panorama	**Session 4** **Data Preparation, Sharing, and Architecture** **Chair: Henderik Proper** Room: Atrium B	**Tutorial 3** Room: Megaron B
	Reinforcement Learning-based Streaming Process Discovery under Concept Drift *Rujian Cai, Chao Zheng, Jian Wang, Duantengchuan Li, Chong Wang and Bing Li* Enhancing Predictive Process Monitoring with Time-related Feature Engineering *Rafael Seidi Oyamada, Gabriel Marques Tavares, Sylvio Barbon Junior and Paolo Ceravolo* Stochastic Directly - Follows Process Discovery Using Grammatical Inference *Hanan Alkhammash, Artem Polyvyanyy and Alistair Moffat*	Implementation Patterns for Zone Architectures in Enterprise-Grade Data Lakes *Corinna Giebler, Christoph Gröger, Eva Hoos, Holger Schwarz and Bernhard Mitschang* Improving Undestandability and Control in Data Preparation: A Human-centered Approach *Emanuele Pucci, Camilla Sancricca, Salvatore Andolina, Cinzia Cappiello, Maristella Matera and Anna Barberio* Data friction: physics-inspired metaphor to evaluate the technical difficulties in trustworthy data sharing *Matteo Falconi, Giacomo Lombardo, Pierluigi Plebani and Sebastian Werner*	Designing Virtual Knowledge Graphs *Diego Calvanese and Davide Lanti*

15:30 -16:00	**COFFEE BREAK**

16:00 - 17:30	**Session 5** **Process Modelling and Management** **Chair: Massimo Mecella** Room: Panorama	**Session 6** **Requirements** **Chair: Xavier Franch** Room: Atrium B	**DC 1** Room: Megaron B	**Journal First 1** **Graphs, Social Media and Cloud** **Chair: John Krogstie** Room: Megaron G
	On the Flexibility of Declarative Process Specifications *Carl Corea, Paolo Felli, Marco Montali and Fabio Patrizi* Towards a Multi-Model Paradigm for Business Process Management *Anti Alman, Fabrizio Maria Maggi, Stefanie Rinderle-Ma, Andrey Rivkin and Karolin Winter* Model-based Recommendations for Next-best Actions in Knowledge-intensive Processes *Anjo Seidel, Stephan Haarmann and Mathias Weske*	Assuring Runtime Quality Requirements for AI-based Components *Dan Chen, Jingwei Yang, Shuwei Huang and Lin Liu* Designing military command and control systems as System of Systems – an analysis of stakeholder needs and challenges *Jan Lundberg, Janis Stirna and Kent Andersson* Improving Requirement Traceability by Leveraging Video Game Simulations in Search-Based Software Engineering *Javier Verón, Raúl Lapeña, Carlos Cetina, Óscar Pastor and Francisca Pérez*	Introduction (15 min) **Group 1 presentations** (45 min) Integrating LLMs with Knowledge Graphs-enhanced Task-Oriented Dialogue Systems. *Vasile Ionut Remus Iga [mentor: Barabara Weber]* Selecting Adequate Machine Learning Methods for Human-Computer Interaction Data Sets: Guidelines and a Conceptual Structure by *Anna Christina Weigand [mentor: Hajo A. Reijers]* From Adoption to Endurance: Exploring the Dynamics of AI Adoption Across Time and Contexts by *Jordan Abras [mentor: Monique Snoeck]* **Group 1 discussions** (30 min, 3 parallel sessions)	Understanding the Structure of Knowledge Graphs with ABSTAT Profiles *Blerina Spahiu, Matteo Palmonari, Renzo Arturo Alva Principe and Anisa Rula* Pipeline Design for Data Preparation for Social Media Analysis *Carlo Alberto Bono, Cinzia Cappiello, Barbara Pernici, Edoardo Ramalli and Monica Vitali* Intent - Driven Orchestration: Enforcing Service Level Objectives for Cloud Native Deployments *Thijs Metsch, Magdalena Viktorsson, Adrian Hoban, Monica Vitali and Erik Elmroth*

17:45	**TOUR AND CONFERENCE DINNER**

THURSDAY ● JUNE 6, 2024

08:30 - 9:00	Registration

09:00 - 10:20

Keynote Speaker - *Sören Auer*   Room: Panorama
Chair: Flavia Santoro
Towards Neuro-Symbolic AI with Knowledge Graphs and Generative AI

Abstract: In this talk, we delve into the cutting-edge realm of Neuro-Symbolic Artificial Intelligence (AI), focusing on the synergistic integration of Knowledge Graphs and Generative AI such as Large Language Models. Neuro-Symbolic AI represents a transformative approach that combines the robust, interpretable reasoning capabilities of symbolic AI with the adaptive, data-driven strengths of neural networks.
The talk will illuminate how this fusion offers a promising pathway towards more intelligent, explainable, and reliable AI systems. As a showcase of our approach towards neuro-symbolic AI we will demonstrate Corporate Memory, an enterprise ready Knowledge Graph and Neuro-Symbolic AI platform used by major Enterprises as well as the Open Research Knowledge Graph. The ORKG is representing research contributions in a structured and semantic way as a knowledge graph. The advantage is that information represented in a knowledge graph is readable by machines and humans.

For creating the knowledge graph representation, we rely on a mixture of manual (crowd/expert sourcing) and (semi-) automated techniques leveraging Large Language Models. Only with such a combination of human and machine intelligence, we can achieve the required quality of the representation to allow for novel exploration and assistance services for enterprises and researchers. As a result, a scholarly knowledge graph such as the ORKG can be used to give a condensed overview on the state-of-the-art addressing a particular research quest, for example as a tabular comparison of contributions according to various characteristics of the approaches.

10:20 -10:30   **Forum promo**

10:30-11:00	COFFEE BREAK

11:00 - 12:30

Session 7 **Prediction and Planning** Chair: Adela del Rio Ortega Room: Panorama	Session 8 **Model-Driven Engineering** Chair: Steven Alter Room: Atrium B	DC 2 Room: Megaron B	Tutorial 4 Room: Megaron G
Towards learning the optimal sampling strategy for suffix prediction in predictive monitoring *Efren Rama-Maneiro, Fabio Patrizi, Juan Vidal and Manuel Lama*	Comparing MDD and CcD in the Bug Localization Context: An Empirical Evaluation in Video Games *Isis Roca, África Domingo, Oscar Pastor, Carlos Cetina and Lorena Arcega*	**Panel** - (45 m) - Choosing the Right Path: Exploring Research Methodologies in Information Systems Engineering *Panelists: Diego Calvanese, Xavier Franch, Monique Snoeck, Jelena Zdravkovic*	FAIR Data Train: A FAIR-compliant distributed data and services platform *Luiz Olavo Bonino*
Improving Simplicity by Discovering Nested Groups in Declarative Models *Paul Cosma, Axel Kjeld Fjelrad Christfort, Thomas Hildebrandt, Xixi Lu, Hajo A. Reijers and Tijs Slaats*	A Model-Driven framework to support Portfolio Management under uncertainties *Clara Le Duff, Yohann Chasseray, Audrey Fertier, Raphaël Falco, Anouck Adrot, Benoit Montreuil and Frederick Benaben*	**Group 2 presentations** (45 m) Translating Polygenic Risk Score Research to a Clinical Setting by *Diana Martínez [mentor: Massimo Mecella]* A methodological approach to model-driven software development for quality assurance in metaverse environments by *Elena Enamorado Díaz [mentor: Jolita Ralyté]*	
A Context-Aware Framework to Support Decision-Making in Production Planning *Simone Agostinelli, Dario Benvenuti, Angelo Casciani, Francesca De Luzi, Matteo Marinacci, Andrea Marrella and Jacopo Rossi*	Infonomics of Autonomous Digital Twins *Istvan David and Dominik Bork*	From Unpacking to Operationalization: A Conceptual Modelling-based Journey into Variant Interpretation by *Mireia Costa [mentor: Raimundas Matulevicius]* **Lunch together (mentors and students)**	

12:30-14:00	LUNCH BREAK

THURSDAY ◆ JUNE 6, 2024

14:00 - 15:30	Forum 1 Forum 1 – IS Analytics Chair: Arnon Sturm Room: Panorama	Forum 2 Forum 2 – IS Engineering Chair: Luiz Olavo Bonino Room: Atrium B	DC 3 Room: Megaron B	Tutorial 5 Room: Megaron G
	Event Data and Process Model Forecasting (Vision) *Wenjun Zhou, Artem Polyvyanyy and James Bailey* Permission Analysis for Object-centric Processes (Vision)*Marius Breitmayer, Lisa Arnold and Manfred Reichert* Incorporating Behavioral Recommendations Mined from Event Logs into AI Planning (Vision) *Gyunam Park, Majid Rafiei, Hayyan Helal, Gerhard Lakemeyer and Wil van der Aalst* ProReco: A Process Discovery Recommender System (Demo) *Tsung-Hao Huang, Tarek Junied, Marco Pegoraro and Wil van der Aalst* RecPro: A User-Centric Recommendation Tool for Business Process Execution (Demo) *Sebastian Petter and Stefan Jablonski* Predictive maintenance in a fleet management system: the Navarchos case (Demo) *Apostolos Giannoulidis, Anna-Valentini Michailidou, Theodoros Toliopoulos, Ioannis Constantinou and Anastasios Gounaris* CDMiA: revealing impacts of data migrations on schemas in multi-model systems (Demo) *Annabelle Gillet and Eric Leclercq* Trustworthy Collaborative Business Intelligence Using Zero-Knowledge Proofs and Blockchains (Vision) *Giovanni Quattrocchi and Pierlugi Plebani* MApp-KG: Mobile App Knowledge Graph for Document-based Feature Knowledge Generation (Demo) *Quim Motger, Xavier Franch and Jordi Marco*	Towards Intelligent Systems to Improve IEC 62559 Use Cases and Smart Grid Architecture Models Quality (Vision) *René Kuchenbuch, Laura Niemann, Johann Schütz and Juergen Sauer* Pricing4SaaS: Towards a pricing model to drive the operation of SaaS (Vision) *Alejandro García-Fernández, José Antonio Parejo and Antonio Ruiz-Cortés* CAKE: Sharing Slices of Confidential Data on Blockchain (Demo) *Edoardo Marangone, Michele Spina, Claudio Di Ciccio and Ingo Weber* Validity at the Forefront: Investigating Threats in Green AI Research(Vision) *Carles Farré and Xavier Franch* PADI-web for plant health surveillance (Demo) *Mathieu Roche, Julien Rabatel, Carlène Trevennec and Isabelle Pieretti* Requirement-Based Methodological Steps to Identify Ontologies for Reuse (Vision) *Reham Alharbi, Valentina Tamma and Floriana Grasso* Toward Ontology-Guided IFRS Standard-Setting (Vision) *Ivars Blums and Hans Weigand* PROMISE: A Framework for Model - Driven Stateful Prompt Orchestration (Demo) *Wenyuan Wu, Jasmin Heierli, Max Meisterhans, Adrian Moser, Andri Färber, Mateusz Dolata, Elena Gavagnin, Alexandre de Spindler and Gerhard Schwabe* Towards an explorable conceptual map of Large Language Models (Vision) *Lorenzo Bertetto, Francesca Bettinelli, Alessio Buda, Marco Da Mommio, Simone Di Bari, Claudio Savelli, Elena Baralis, Anna Bernasconi, Luca Cagliero, Stefano Ceri and Francesco Pierri*	Group 2 discussions (30 min, 3 parallel sessions) Group 3 presentations (30 min) Intelligent perception systems for multi-modal data processing in industrial application contexts by *Annaclaudia Bono [mentor: Jelena Zdravkovic]* Comparable and Repeatable Information Security Level Evaluation by *Mari Seeba [mentor: Barbara Pernici]* Group 3 discussions (30 min, 2 parallel sessions)	Data-driven Business Process Simulation: From Event Logs to Tools and Techniques *Orlenys López Pintado and David Chapela-Campa*
15:30 -16:00	**C O F F E E B R E A K**			
16:00 - 17:00	**Panel** Room: Panorama AI Ink: Should we let generative technology transform academic writing? Hajo Reijers, Flavia Santoro, Massimo Mecella, Anna Bernasconi			
17:00 - 17:30	Room: Panorama Configuring and Validating Multi-aspect Risk Knowledge for Industry 4.0 Information Systems *Stefan Biffl, Sebastian, Kropatschek, Kristof Meixner, David Hoffmann and Arndt Lüder*		**DC 4** Summary and experience from Glenda Amaral, a recent PhD graduate	Room: Megaron B
20:00	**F A R E W E L L B E A C H P A R T Y**			

FRIDAY ⬡ JUNE 7, 2024

08:30 - 09:00	Registration

09:00 - 10:30	Keynote Speaker - *David Harel* Room: Panorama

Chair: Haris Mouratidis

Two Projects on Human Interaction with AI

Abstract: I will present two projects that attempt to shed new light on the role computers will be playing in the future. The first we term "The Human-or-Machine Issue". Turing's imitation game addresses the question of whether a machine can be labeled intelligent. We explore a related, yet quite different, challenge: in everyday interactions with an agent, how will knowing whether the agent is human or machine affect that interaction?

In contrast to Turing's test, this is not a thought experiment, but is directly relevant to human behavior, human-machine interaction and also system development. I will argue that exploring the issue now is useful even if machines will end up not attempting to disguise themselves as humans.

In the second project, we propose a systematic programming methodology that consists of three main components: (1) a modular incremental specification approach (specifically, scenario-based programming); (2) apowerful, albeit error-prone, AI-based software development assistant; and (3) systematic iterative articulation of requirements and system properties, amid testing and verification. The preliminary results we have obtained show that one can indeed use an AI chatbot as an integral part of an interactive development method, during which one constantly verifies each new artifact contributed by the chatbot in the context of the evolving system.

10:30 - 11:00	**C O F F E E B R E A K**

11:00 - 12:30	**Session 9** **Process and Decision Mining** **Chair: Paolo Ceravolo** Room: Megaron G	**Session 10** **LLMs and Quantum Workflows** **Chair: Iris Reinhartz-Berger** Room: Megaron B	**Project Exhibition** Room: Panorama

Discovering Hierarchical Business Process Models from User Interface Event Logs
Irene Barba, Carmelo Del Valle, Andrés Jiménez-Ramírez, Barbara Weber and Manfred Reichert

Variants of Variants: Context-Based Variant Analysis for Process Mining
Christoffer Rubensson, Jan Mendling and Matthias Weidlich

Towards a Comprehensive Evaluation of Decision Rules and Decision Mining Algorithms Beyond Accuracy
Beate Wais and Stefanie Rinderle-Ma

Identifying Citizen-Related Issues From Social Media Using LLM-Based Data Augmentation
Vitor Gaboardi dos Santos, Guto Leoni Santos, Theo Lynn and Boualem Benatallah

Kicking Prejudice: Large Language Models for Racism Classification in Football Discourse on Social Media
Guto Leoni Santos, Vitor Gaboardi Santos, Colm Kearns, Gary Sinclair, Jack Black, Mark Doidge, Tom Fletcher, Dan Kilvington, Patricia Takako Endo, Katie Liston and Theo Lynn

Observability for Quantum Workflows in Heterogeneous Multi-Cloud Environments
Martin Beisel, Johanna Barzen, Frank Leymann, Lavinia Stiliadou and Benjamin Weder

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Produce a Useful and Teachable Theoretical Foundation for IS Engineering
Steven Alter

CHESS: Cyber-security Excellence Hubin Estonia and South Moravia
Mariia Bakhtina, Zuzana Vémolová and Vashek Matyáš

SENSIBLE: implementing data-driven early warning systems for future viral epidemics
Anna Bernasconi, Matteo Chiara, Tommaso Alfonsi and Stefano Ceri

TETYS: towards the next-generation open-source Web topic explorer
Anna Bernasconi, Francesco Invernici and Stefano Ceri

GLiDE: Integrated Gamified Learning Dashboard Environment
Carles Farré, Lidia Lopez, Marc Oriol, Adrià Espinola, Albert Miñana and Xavier Franch

FRIDAY JUNE 7, 2024

11:00 - 12:30			Project Exhibition

Room: Panorama

INTEND: Intent-based data operation in the computing continuum

*Donatella Firmani, Francesco Leotta, Jerin George Mathew, **Jacopo Rossi**, Lorenzo Balzotti, Hui Song, Dumitru Roman, Rustem Dautov, Erik Johannes Husom, Sagar Sen, Vilija Balionyte-Merle, Andrea Morichetta, Schahram Dustdar, Thijs Metsch, Valerio Frascolla, Ahmed Khalid, Giada Landi, Juan Brenes, Ioan Toma, Róbert Szabó, Christian Schaefer, Cosmin Udroiu, Alexandre Ulisses, Verena Pietsch, Sigmund Akselsen, Arne Munch-Ellingsen, Irena Pavlova, Hong-Gee Kim, Changsoo Kim, Bob Allen, Sunwoo Kim and Eberechukwu Paulson*

CHAISE - A Blueprint for Sectoral Cooperation on Blockchain Skill Development
***Parisa Ghodous**, Frédérique Biennier, Ulf Daniel Ehlers, Lorcan Kelly, Adele Whelan, Bara Greplova, Andreas Riel, Lina Nardone, Valeria Muggianu and Dimitrios Kiriakos*

WITPO: A System for Tracking and Optimization of Work-in-Progress Inventory
***Jānis Grabis**, Jānis Kampars, Rūta Pirta-Dreimane, Edgars Mendzins and Inga Laksa*

FREEDA: Failure-resilient, energy-aware, and explainable deployment of microservice-based applications over Cloud-IoT infrastructures
***Monica Vitali**, Jacopo Soldani, Roberto Amadini, Antonio Brogi, Stefano Forti, Simone Gazza, Saverio Giallorenzo, Pierluigi Plebani, Francisco Ponce and Gianluigi Zavattaro*

12:30-14:00	LUNCH BREAK

FRIDAY JUNE 7, 2024

14:00 - 15:30	**Session 11** **Event, Prediction and Process Discovery** **Chair: Marco Montali** Room: Panorama	**Session 12** **Session Trust, Security and Risk** **Chair: Jolita Ralyté** Room: Megaron B	**Journal First 2** **Software Engineering** **Chair: Oscar Pastor** Room: Megaron G
	Making Sense of Temporal Event Data: A Framework for Comparing Techniques for the Discovery of Discriminative Temporal Patterns *Chiara Di Francescomarino, Ivan Donadello, Chiara Ghidini, Fabrizio Maria Maggi, Williams Rizzi and Sergio Tessaris*	The Power of Many: Securing Organisational Identity Through Distributed Key Management *Mariia Bakhtina, Jan Kvapil, Petr Svenda and Raimundas Matulevicius*	Model Consistency as a Heuristic for Eventual Correctness *Istvan David, Hans Vangheluwe and Eugene Syrian*
	HOEG: A New Approach for Object-Centric Predictive Process Monitoring *Tim K. Smit, Hajo A. Reijers and Xixi Lu*	A model-based methodology to support systems security design and assessment *Avi Shaked*	Why don't We Trace? A Study on The Barriers to Software Traceability in Practice *Marcela Ruiz, Jin Yang Hu and Fabiano Dalpiaz*
	From Loss of Interest to Denial: A Study on the Terminators of Process Mining Initiatives *Vinicius Stein Dani, Henrik Leopold, Jan Martijn E. M. van der Werf, Iris Beerepoot and Hajo A. Reijers*	Trusted Execution Environment for Decentralized Process Mining *Valerio Goretti, Davide Basile, Luca Barbaro and Claudio Di Ciccio*	
15:30 -16:00	**C O F F E E B R E A K**		
16:00 -17:00	Closing Room: Panorama		