

KES-AMSTA 2027
21st International KES Conference on Agents and Multi-agent Systems – Technologies and Applications
http://amsta-27.kesinternational.org/
Iasi, Romania
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INVITED SESSION ON "Agentic AI and Intelligent Multi-Agent Systems for Complex Adaptive Systems"

Name, Title and Affiliation of Chairs:

Assoc. Prof. Dr. Roman ŠPERKA, PhD (sperka@opf.slu.cz)
Michal HALAŠKA, PhD (halaska@opf.slu.cz)

Background:
Artificial Intelligence is entering a new era driven by Agentic AI, where intelligent agents are no longer limited to executing predefined rules but are capable of reasoning, planning, learning, using external tools, collaborating with other agents, and autonomously accomplishing complex goals. Enabled by Large Language Models (LLMs) and foundation models, these autonomous AI systems are reshaping research and industrial applications across numerous domains.

Complex adaptive systems – including organizations, business ecosystems, supply chains, manufacturing systems, financial markets, healthcare, and smart cities – consist of numerous autonomous entities whose interactions give rise to emergent and often unpredictable behaviour. Understanding, designing, and optimizing such systems requires modelling both individual decision-making and system-level dynamics. The convergence of Agentic AI, intelligent multi-agent systems, agent-based modeling and simulation (ABMS), process mining, and business process management provides a powerful foundation for building data-driven digital twins, intelligent process analysis, Organizational Intelligence, adaptive organizational systems, and next-generation decision support.

This invited session aims to bring together researchers and practitioners working on the theory, methods, and applications of Agentic AI, intelligent multi-agent systems, and agent-based simulation for complex adaptive systems. The session particularly encourages interdisciplinary contributions combining AI, process intelligence, organizational modelling, simulation, and real-world industrial applications.

The topics include but are not limited to:
Agent Architectures, Coordination and Collaboration
Agent-Based Modeling and Simulation (ABMS)
Agentic AI and Autonomous Intelligent Systems
AI Agents for Complex Adaptive Systems
AI-powered Digital Twins
Business Process Management and Process Intelligence

Explainable, Trustworthy and Responsible Agentic AI
Human-AI and Human-Agent Collaboration
Hybrid AI and Simulation Models
Industrial and Enterprise Applications of Agentic AI
Intelligent Multi-Agent Systems
Large Language Models (LLMs) and Foundation Models for Intelligent Agents
Organizational Intelligence and Decision Support
Process Mining and Data-Driven Simulation
Reinforcement Learning and Multi-Agent Learning

Paper Publication:
The conference proceedings will be published by Springer as book chapters in a volume of the KES Smart Innovation Systems and Technologies series, indexed in Scopus and CPCi / Web of Science (publisher's information). Please contact the publisher for more information about this or check the conference website.



Submission:
Before submitting a paper please follow the guidelines published on the conference mainpage: http://amsta-27.kesinternational.org/submission.php

Email & Contact Details:
Assoc. Prof. Dr. Roman ŠPERKA, PhD
Dean
Head of Department
Department of Business Economics and Management
Silesian University in Opava
School of Business Administration in Karviná
Univerzitní nám. 1934/3
733 40, Karviná, Czech Republic
web: http://www.roman-sperka.com/
e-mail: sperka@opf.slu.cz

Reviewers:
KES-AMSTA IPC members http://amsta-27.kesinternational.org/cmsIPCdisplay.php and:
Prof. Michal TVRDOŇ, PhD - Silesian University in Opava
Assoc. Prof. Dr. Roman ŠPERKA, PhD - Silesian University in Opava
Assoc. Prof. Petr SUCHÁNEK, PhD - Silesian University in Opava
Kateřina SLANINOVÁ, PhD - IT4Innovations National Supercomputing Center, Ostrava
Milena JANÁKOVÁ, PhD - Silesian University in Opava
Radomír PERZINA, PhD - Silesian University in Opava
Radim DOLÁK, PhD - Silesian University in Opava
Jan GÓRECKI, PhD - Silesian University in Opava
Michal HALAŠKA, PhD - Silesian University in Opava
Dalibor ŠIMEK, PhD - Silesian University in Opava