

Track #02

AI Methodologies and Design Science Research

Track Description

Given its unprecedented growth, Artificial Intelligence took a preeminent place within all areas of Information Systems: from conception, design and development, towards their usage in daily business operations and supply of advanced capabilities to end users. Such evolution was facilitated by the recent advances in both symbolic and non-symbolic A.I. with the help of knowledge engineering and machine learning, by the speed of the software development process, the high availability of computing resources, and not least, the democratization of machine learning tools and applications. From a methodological viewpoint, the Design Science paradigm formulates a research approach driven by design decisions and leading to innovative artifacts or treatments to design problems. Within this context, the focus of this track is on how Artificial Intelligence, by using prescriptive knowledge derived through Design Science Research, can empower information systems in all phases of their evolution: conception, design, development and operations. With the development of AI artifacts there is a need to understand not only how they can be used in data-intensive workflows, but also the design decisions underlying their capabilities or even what prescriptive knowledge can themselves generate, considering the recent focus on generative AI.

We cover all areas of interplay between the Artificial Intelligence and Information Systems: either novel AI methods or AI applications enhancing the entire lifecycle of an information system or a target business, societal or engineering domain. We solicit regular full papers describing completed research results (both artifact descriptions and evaluation results) and work-in-progress papers describing on-going work and preliminary results.

Track Main Topics

Topics of interest include (but are not limited to):

- Design Science Research leading to AI artifacts
- AI-based treatments to design problems
- Prescriptive knowledge derived from AI
- Explainable AI and hybrid intelligence
- Evaluation protocols for AI-driven systems
- AI-empowered IS Development and Software Engineering
- AI-empowered IS Operation
- AI-empowered IS Quality Assurance
- AI-empowered IS Security and Usability
- AI-empowered Software process management

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- Business Analytics, Big Data and Machine Learning (including Deep Learning): methods and applications
- Natural Language Processing and Intelligent Conversational Agents
- Computer vision
- AI for energy, health and engineering applications
- Computing infrastructures for AI-empowered IS (cloud, edge, fog and HPC)
- Internet of things
- Robotic process automation
- Knowledge engineering, representation, and reasoning
- Design decisions involving semantic technologies and knowledge graphs
- Agent-based modelling and simulation

Track Co-Chairs

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