Call for Papers
SS07 - Skill Based Systems Engineering (SEnSEI)
Organized and Co-Chaired by (sorted by last name)

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SEnSEI
Skill Based Systems Engineering

❖ **FOCUS**. The selection of proper automation components for a given task is a complex, challenging, and time-consuming task. As customer requirements tend to change more frequently, it becomes necessary to pursue flexible and variable automation approaches. Recent research has introduced approaches based on capabilities and skills using holistic data models, like ontologies, DSLs, or variability models. While capabilities are seen as abstract descriptions of the (manufacturing) processes that systems perform, skills are often described as their executable counterparts (i.e., modeling invocation interfaces like OPC UA). To automatically find solutions for customer requirements, required tasks and domain-specific constraints have to be matched with capabilities provided by automation components. This matching can be done with various techniques like AI planning or knowledge graph exploration and reasoning. Skill-based process plans can then be orchestrated by combining the skills related to the previous step's capabilities. Finally, simulation and optimization of such process plans can be performed before their deployment.

❖ **TOPICS**

  ❖ Modeling of automation tasks and capabilities: Data Modeling, Modeling Languages, Knowledge Graphs, Rule Engines, Knowledge-based Systems
  ❖ Finding possible components: Planning, Artificial intelligence, Capability-task-matching, Knowledge Graph Exploration
  ❖ Skill-based processes: Generation/Modeling, Orchestration, Execution, Optimization
  ❖ Simulation of a proposed plan: Optimization, simulation techniques
  ❖ Derivation of code: Automated code generation, model-based programming

❖ **AIM.** The aim of the Special Session is to bring active researchers and practitioners from academia and industry together to study the emerging area of skill-based systems engineering from different angles and present related phenomena in real-world applications and systems. Therefore, this Special Session provides a platform to report on recent advances and developments, exchange new ideas, and foster future research collaborations and synergies.

❖ **CONFERENCE FORMAT**. The conference will comprise multi-track sessions for regular papers, to present significant and novel research results with a prospect for a tangible impact on the research area and potential implementations, as well as work-in-progress (WiP) and industry practice sessions.

❖ **AUTHOR'S SCHEDULE (2022)**

❖Regular and special sessions papers
  Submission deadline .... April 1
  Acceptance notification .... May 6
  Deadline for final manuscripts .... June 17

❖Work-in-progress/Industry practice papers
  Submission deadline .... May 13
  Acceptance notification .... June 10
  Deadline for final manuscripts .... June 17