

SDPS 2024

2024 International Conference of
the Society for Design and Process Science



Advances and Challenges of Applying AI/GenAI in Design and Process Science (GenAI4DPS)

October 6-9, Bologna, Italy

SDPS has been at the forefront of transdisciplinary research and transformative science and engineering for almost 30 years. Our international events are forums for challenging advances in process and design science, computing and software technologies and their impact on research and education. We are delighted to be back to Bologna, known for their old University and a very vibrant science and research communities. This is an opportunity to address the main motto of SDPS 2024 conference and debate an inevitable impact of AI/GenAI to research, academia and businesses.

TOPICS OF INTEREST

AI/GenAI in Design and Process Science

The lack of understanding immature designs and processes in AI; Fear of unknown AI/GenAI technologies; Ambiguity/disguised complexities of applying AI/GenAI; Mitigating fear, ambiguity, and complexity of AI/GenAI in critical environments; Irreparable harm from increased levels of AI/GenAI and envisaging penetrative AI; AI/GenAI in automation and autonomy; Qualitatively harnessing the power of formal AI/GenAI design; Exposing gaps in formal AI/GenAI design and process education.

Challenges in Generative AI and Language Models

Mastering NLP tasks with GenAI; Proficiency of GenAI/LLM in text generation/categorisation/translation and linguistic manipulation; Text classification research trends; LLM for anomaly detection on time series data; LLM diminishing returns, credibility and reasoning; Accessing any external reality and criteria of truth; The power of prompts and their adversarial effects; The future of small language models.

AI and Applied Science

Scientific discoveries from data using AI; Convergence of scientific data and AI; Specificity of AI algorithms and predictive inference upon scientific data; Differential equations/math solved with AI; Physics informed machine learning for dynamics of multiscale systems; Computer vision for applied sciences; AI/GenAI for material science, scientific processes/research; AI for discovery of drugs/medical treatments.

AI/GenAI Applications and Computational Platforms

Interactive environments for data analysis and AI; The power of clouds, fog, containers, orchestration, and clusters for AI; Correlation between simulation and deep generative models; Applications of AI/GenAI in climate change, environmental science, sustainable building, smart transportation and governance; AI powered devices in medicine, healthcare and autonomous learning.

More details at GenAI4DPS web site:

<https://genai4dps.github.io/advances-challenges>

CONFERENCE INFORMATION

GenAI4DPS at SDPS 2024 comprises of

- ❖ PhD symposium on October 6, 2024
- ❖ Presentations of peer reviewed papers on October 7-8, 2024
- ❖ SDPS Workshop on October 9, 2024 with discussion on future trends of design and process science and our expectations from AI/GenAI

Conference papers should be submitted to EasyChair.

Conference proceedings will be published by Springer Nature.

Important dates:

- ❖ **July 20, 2024: Deadline for Paper Submission**
- ❖ August 25, 2024: Notification of Acceptance
- ❖ September 10, 2024: Final submission
- ❖ August 31, 2024: Early bird registration
- ❖ September 30, 2024: Late registration

Conference venue:

- ❖ Zanhotel Europa, Bologna, Italy

<https://www.zanhotel.it/hotel-europa-bologna>

Submission Information:

- ❖ Submissions will be independently peer reviewed
- ❖ Submissions should ideally have 6 pages (max 8) and contain original research
- ❖ We would like to receive also position papers, works in progress reports and papers, which challenge current trends in AI/GenAI in DPS

Program Committee Chairs:

- ❖ Elisabetta Ronchieri elisabetta.ronchieri@cnaif.infn.it
- ❖ Sang Suh Sang.Suh@tamuc.edu
- ❖ Radmila Juric radjur3@gmail.com
- ❖ Patrick Then pthen@swinburne.edu.my
- ❖ John Carbone John.Carbone@forcepointgov.com
- ❖ Ali Hikmet Dogru AliHikmet.Dogru@utsa.edu

Steering Committee:

- ❖ Bernd Kramer bernd.j.kraemer@gmail.com
- ❖ Stan Gatchel stan@14ucc.com
- ❖ Murat M Tanik mtanik@uab.edu
- ❖ Yong Zeng yong.zeng@concordia.ca