Special Session Call for Papers for STE 2026

March 11 - 13, 2026, „Transilvania" University of Brasov, Romania

"Special Session: Exploring Human–AI Collaboration in Cross-Reality Laboratories: From Opportunities to Risks – and Back Again (Kick 4.0)"

as part of the

International Conference on Smart Technologies & Education (STE 2026)

Kick 4.0 Background and Overview

Cross-reality laboratories (XR labs), integrating digital media, remote access, and virtual/augmented reality, are increasingly shaping laboratory-based teaching and learning across all study levels in STEM education. These environments not only foster subject-specific knowledge but also support the development of collaborative and agile learning skills essential for the future of work. With the rapid emergence of AI-based natural language processing (NLP) systems, however, new competence demands arise that go far beyond traditional laboratory education.

The Special Session builds on the ongoing project KICK 4.0, which explores how human–AI collaboration can be embedded into STEM laboratories to empower students both technically and reflexively. The aim of the session is twofold: first, to highlight innovative pedagogical designs that enable students to critically and productively interact with AI in laboratory contexts; second, to open a discussion on the broader implications of integrating XR labs and AI for higher STEM-education and vocational teacher training. Contributions are invited that present empirical findings, conceptual frameworks, or practical implementations related to XR-enhanced, AI-supported laboratory teaching.

We aim to discuss the strengths of XR- and AI-enhanced labs, the weaknesses and limitations that challenge their effectiveness, the opportunities for fostering new forms of competence development, and the threats or risks that may arise from their broader implementation. Importantly, the session also invites perspectives from educators who may not wish to integrate such systems themselves yet but whose students nevertheless use them. These viewpoints can provide valuable insights into the challenges, tensions, and opportunities that arise when institutional teaching practices and students' self-directed technology use diverge.

By bringing together researchers, educators, and practitioners, this Special Session aims to advance the debate on how digital transformation, XR labs, and human–AI collaboration can be systematically aligned with the goals of competence development, reflexivity, and sustainable innovation in STEM education.

Kick 4.0 Topics

Authors are invited to submit complete papers for the Kick 4.0 Special Session (no abstracts needed). The topics cover all aspects of human-AI collaboration, including but not limited to the following:

- Human–AI cooperation in cross-reality laboratories for STEM education
- Core competencies for using LLM/NLP systems in laboratory-based learning
- Curriculum design and development for AI-enhanced STEM labs
- Educational best practices for fostering critical AI literacy and reflexivity
- Hands-on learning: XR labs, digital twins, and AI-driven lab simulations
- Assessment and evaluation of competence development in AI-supported labs
- Educator perspectives on student-driven AI use in laboratory learning
- SWOT perspectives: strengths, weaknesses, opportunities, and threats of XR- and AI-supported labs in STEM education
- Challenges and barriers in adopting LLM/NLP technologies for laboratory education
- Ethical, privacy, and security considerations in human–AI collaboration
- Preparing educators and trainers for XR- and AI-integrated laboratories
- Future trends and innovations in XR- and AI-driven laboratory education
- others

Special Session Chairs

- Claudius Terkowsky, TU Dortmund University, Germany, claudius.terkowsky@tu-dortmund.de
- Johannes Kubasch, University of Wuppertal, Germany, kubasch@uni-wuppertal.de
- Nils Kaufhold, TU Dortmund University, Germany, nils.kaufhold@tu-dortmund.de
- Dominik May, University of Wuppertal, Germany, dmay@uni-wuppertal.de
- Konrad Boettcher, TU Dortmund University, Germany, konrad.boettcher@tu-dortmund.de
- Uwe Wilkesmann, TU Dortmund University, Germany, uwe.wilkesmann@tu-dortmund.de

Committee Members

- Alexander Sommer-Behr, TU Dortmund University, Germany, alexander.behr@tu-dortmund.de
- Alina Meimers, TU Dortmund University, Germany, alina.meiners@tu-dortmund.de
- Benedikt Tobias Müller, TU Dortmund University, Germany, benedikttobias.mueller@tu-dortmund.de
- Gustavo Ribeiro Alves, Instituto Superior de Engenharia do Porto, Portugal, gca@isep.ipp.pt
- Jan Steinert, TU Dortmund University, Germany, jan.steinert@tu-dortmund.de
- Javier García-Zubía, University of Deusto, Spain, zubia@deusto.es
- Luis Rodrigues Gil, Labsland, Spain, luis@labsland.com
- Marcel Schade, TU Dortmund University, Germany, marcel.schade@tu-dortmund.de
- Timothy Drysdale, University of Edinburgh, UK, Timothy.Drysdale@ed.ac.uk
- Tobias R. Ortelt, TU Dortmund University, Germany, tobias.ortelt@tu-dortmund.de
- Valerie Varney, TH Cologne, Germany, valerie.varney@th-koeln.de

Special Sessions General Information

Special Sessions, held in parallel with the general conference, are an integral part of the conference. They provide researchers in focused areas the opportunity to meet and present their work and offer a forum for interaction among the broader community of technology-enhanced learning, and online engineering world-wide. Special sessions papers are required to meet the same standards as papers in the general conference and are published in the same conference proceedings.
Special Session papers must be submitted to STE submission server (ConfTool® Submission Server) to the respective Special Session track. Special Session papers will be reviewed by at least two members of the Special Session's Program Committee, and acceptance decisions will be made by the conference program Co-Chairs and Special Sessions Chair.

Important Deadlines

17 Nov 2025	Submission of complete Special Session papers
15 Dec 2025	Notification of acceptance
19 Jan 2026	Camera-ready due & Author registration deadline
11 Mar 2026	STE 2026 opening

Review/Proceedings

All submissions will undergo a double-blind review process. All accepted and presented papers will be published as STE 2025 Proceedings in Springer's Lecture Notes in Networks and Systems. The books of these series are submitted to ISI Proceedings, EI-Compendex, DBLP, SCOPUS, Google Scholar and Springerlink. Selected award-winning papers will be recommended for publication in international journals.