

2023 IEEE 2nd German Education Conference (GECon 2023)

**Berlin, Germany
2-4 August 2023**



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Conference program

Time	Wednesday, 2 Aug.
09:00-09:15	Registration & Opening
09:15-10:15	Keynote Session <i>"Re-thinking engineering for inclusiveness"</i> Carmen Peláez-Moreno (Charles III University of Madrid, Spain) Chair: Jorge Torres Gómez
10:15-10:30	Coffee Break
10:30-11:45	Technical Session <i>Learning Technologies in Education</i> Chairs: Carmen Peláez-Moreno & Jorge Torres Gómez
11:45-12:00	Sponsor Session: R3 Solutions
12:00-13:30	Lunch Break
13:30-14:30	Workshop <i>"Planning a Student Contest: Fostering Self-guided Learning of Signal Processing in Communications Engineering"</i> Charlotte Muth & Marcus Müller (KIT, Germany)
14:30-14:45	Coffee Break
14:45-16:00	Technical Session <i>Case studies in Education</i> Chairs: Claudia Chituc & Nicolai Spicher
16:00-16:15	Coffee Break
16:15-16:45	Panel Discussion in Educational Topics Panelists: Carmen Peláez-Moreno (UC3M, Spain), Adam Wolisz (TU Berlin, Germany) & Brigitte Forster-Heinlein (Universität Passau) Chair: Jan Haase (Nordakademie, Germany)
16:45-17:45	Travel Break
17:45	Bus Tour (starting at Alexanderplatz)

Learning Technologies in Education (August 2nd, 10:30-11:45)

- On the Feasibility of Serverless Functions in the Context of Auto-Graders (Serth et al.).....1
- Introducing a Smart Learning Assistant on a MOOC Platform: Enhancing Personalized Learning Experiences (Zobel et al.).....7
- MAATSE – Prototyping and evaluating an open and modular e-assessment tool for STEM education (Rolwes et al.).....13
- Promoting competences for the digital world by an Educational Escape Room (Jacobs et al.).....19 **VIRTUAL**

Case studies in Education (August 2nd, 14:45-16:00)

- How to inspire girls for STEM studies through a series of consecutive multi-day hands-on labs (Pfundler et al.).....23
- Clinicum Digitale. Interim report of an interprofessional course to shape digital health pioneers (Martens et al.).....28
- Teaching Machine Learning with Industrial Projects in a Joint Computer Science Master Course: Experiences, Challenges, Perspectives (Brünel et al.).....34
- Introducing Social Gamification to a Biomedical Signal Processing Course: A Case Study (Bender et al.).....40



Time	Thursday, 3 Aug.
09:00-09:15	Registration
09:15-10:15	Keynote Session "Digital Laboratories as Open Educational Resources: Challenges and Solutions" Sebastian Zug (TU Bergakademie Freiberg, Germany) Chair: Claudia Chituc
10:15-10:30	Coffee Break
10:30-11:45	Technical Session <i>Remote Labs and Virtual Twins</i> Chairs: Sebastian Zug & Jan Haase
11:45-12:00	Sponsor Session: MathWorks
12:00-13:30	Lunch Break
13:30-14:30	Workshop "Automated Exercise Assessment using MATLAB Grader" Andreas Apostolatos (MathWorks, USA)
14:30-14:45	Coffee Break
14:45-16:00	Technical Session <i>Novel Interaction Technologies in Education</i> Chairs: Marcus Soll & Shaun Kaplan
16:00-16:15	Coffee Break
16:15-16:45	Young Researcher Keynote Session "The Membrane Workshop at TUM: Interdisciplinary Digital Challenge Based Learning" Ann-Kathrin Goldbach (TU Munich, Germany) Chair: Andreas Apostolatos
16:45-17:45	Travel Break
17:45	Guided Tour and Social Dinner at Futurium

Remote Labs and Virtual Twins (August 3rd, 10:30-11:45)

- *Didactic Design of a Remote Collaborative Robotics Laboratory (Kobras et al.)*.....45
- *Evaluating the Use of Virtual Twins in a Control Systems Course (Prohaska et al.)*.....51
- *Prototyping and Conceptualizing Electric Model Vehicles to Enhance Automotive STEM Education: Towards Sustainable E-mobility (Benyeogor et al.)*.....57
- *Architecture of IoT-based Collaborative Laboratory for Reconfigurable SoC: Review and Development (Al Amin et al.)*.....63

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Novel Interaction Technologies in Education (August 3rd, 14:45-16:00)

- *Comparing Avatar and Face-to-Face Collaboration in VR Education: Concept and Preliminary Insights (Mayer et al.)*.....69
- *Exploring the Use of Social Virtual Reality Conferences in Higher Education (Kumari et al.)*.....74
- *Conception of a Humanoid-Robot-Patient in education to train and practice (Schwarz et al.)*.....80 **VIRTUAL**
- *What's the deal with CG? The usage of mixed reality applications as a mean to facilitate meaningful experiences in teaching and learning Computer Graphics (Püschel et al.)*.....85 **VIRTUAL**



Time	Friday, 4 Aug.
09:00-09:15	Registration
09:15-10:15	Keynote Session <i>"The German National Education Infrastructure: Myths and Reality"</i> Ulrike Lucke (University of Potsdam, Germany) Chair: Jan Haase
10:15-10:30	Coffee Break
10:30-11:45	Technical Session <i>Educational Research</i> Chairs: Ulrike Lucke & Andreas Apostolatos
11:45-12:00	Sponsor Session: IEEE Germany Section
12:00-13:30	Lunch Break
13:30-14:30	Workshop <i>"Networking Higher Education in Germany"</i> Nicolai Spicher (University Medical Center of Göttingen, Germany) & Jorge Torres Gómez (TU Berlin, Germany)
14:30-14:45	Coffee Break
14:45-16:00	Concluding Remarks → Best Paper Award Ceremony → GCon 2024 announcement

Educational Research (August 4th, 10:30-11:45)

- *Mechanical Neural Network - making AI comprehensible for everyone (Schaffland et al.).....91*
- *Introducing fundamental ideas as a didactic approach for vocational education (Stender et al.).....97*
- *The Y-Model - Formalization of Computer Science Tasks in the Context of Adaptive Learning Systems (Lohr et al.).....102*
- *Three easy ways to foster self-assessment and learning in higher STEM education (Forster-Heinlein et al.).....108*