INTERNATIONAL

INVITED SESSION SUMMARY

Title of Session: AI for Education and Intelligent Learning Systems

Name, Title and Affiliation of Chair:

Prof. Manuel Mazzara (Dean and Professor, Innopolis University)
Prof. Radhakrishnan Delhibabu (Professor, VIT University, Chennai)
Dr. Swati Goel (Independent Researcher, PhD(JNU), New Delhi, India)
Dr. Anand Mahendran (Assistant Professor, Modern College of Business and Science (MCBS),Muscat, Oman)
Prof. Salvatore Distefano(Professor, University of Messina, Italy)

Details of Session (including aim and scope):

Artificial Intelligence is increasingly transforming education by enabling personalized learning, intelligent tutoring, automated assessment, learning analytics, adaptive educational technologies, and new forms of human-AI interaction. Recent advances in **Generative AI, Large Language Models (LLMs), multimodal AI, and intelligent agents** are further creating opportunities for adaptive, interactive, and learner-centered educational systems. At the same time, the rapid adoption of AI is **fundamentally changing how people learn, teach, acquire skills, and prepare for professional practice**. AI-assisted learning raises important questions about cognitive engagement, knowledge retention, critical thinking, creativity, **cognitive offloading, over-reliance on AI, reduced learner effort, deskilling, and the changing nature of expertise**. These issues are particularly significant in computer science, software engineering, and related disciplines, where AI-assisted programming and emerging practices such as **"vibe coding"** are changing how software is learned and developed. This raises broader questions about **how programming, computer science, software engineering, and other technical subjects should be taught in the AI era, which competencies should remain foundational, how curricula and degree programmes should evolve, and how educational institutions can prepare learners for AI-augmented professional environments**.

This special session aims to provide a forum for researchers, educators, and practitioners to present and discuss emerging research on the application and implications of Artificial Intelligence in education and intelligent learning. The session welcomes contributions covering **theoretical foundations, novel AI methods, intelligent educational systems, empirical studies, evaluation frameworks, curriculum transformation, AI-supported pedagogy, real-world deployments, and interdisciplinary approaches**. The session particularly welcomes research on **personalized and adaptive learning, intelligent tutoring systems, AI-assisted teaching and learning, generative AI and LLMs in education, AI-powered assessment and feedback, learning analytics, educational data mining, intelligent content generation, multimodal learning systems, human-AI collaboration, educational agents, AI-assisted programming and software engineering education, and responsible and trustworthy AI in education**.

The session also encourages research investigating the **cognitive, pedagogical, social, and professional consequences of AI adoption in education**, including cognitive offloading, learner dependence and over-reliance on AI, critical thinking and problem-solving, creativity, skill acquisition and retention, deskilling and reskilling, academic integrity, AI literacy, changing teacher and learner roles, and the redesign of curricula and degree programmes for an AI-enabled world. Important challenges associated with the adoption of AI in educational settings are also within scope, including **privacy, security, fairness, transparency, explainability, reliability, academic integrity, responsible use, teacher and learner trust, human oversight, accessibility, inclusion, and long-term learning outcomes**.

Topics of Interest

Topics include, but are not limited to:

AI-Enabled Learning and Teaching

- **Artificial Intelligence in Education (AIED)**

- **Intelligent Tutoring Systems**
- **Intelligent Learning Systems**
- **Personalized and Adaptive Learning**
- **Generative AI and Large Language Models in Education**
- **AI-Assisted Teaching and Learning**
- **AI-Based Educational Content Generation**
- **Automated Assessment and Intelligent Feedback**
- **Learning Analytics and Educational Data Mining**
- **Multimodal AI for Education**
- **AI-Based Student Modeling and Learner Analytics**
- **Intelligent Educational Agents and Chatbots**
- **Human-AI Collaboration in Education**
- **AI-Supported Teacher Assistance**
- **AI for Curriculum and Instructional Design**
- **AI for Online and Distance Education**

Emerging AI-Driven Educational Approaches

- **AI for Gamification and Game-Based Learning**
- **AI for Personalized Learning Resource Generation and Recommendation**
- **AI-Based Emotion Recognition and Affective Computing in Education**
- **AI for Microlearning and Adaptive Learning Content Delivery**
- **Adaptive Educational Technologies**
- **Recommender Systems for Learning**
- **Virtual and Intelligent Learning Environments**
- **AI for Accessibility and Inclusive Education**
- **AI-Based Educational Quality Assurance and Continuous Improvement**

AI, Cognition, Skills, and the Future of Learning

- **Cognitive Offloading and AI-Augmented Learning**
- **AI Over-Reliance and Learner Dependency**
- **Critical Thinking, Reasoning, Creativity, and Problem-Solving in the Age of AI**
- **Deskilling, Reskilling, and Upskilling in AI-Augmented Learning**
- **Human Expertise and Competency Development in AI-Assisted Environments**

- **Learner Motivation, Engagement, Effort, and Self-Regulated Learning with AI**
- **AI Literacy and Digital Competencies**
- **Measuring Learning Outcomes in AI-Augmented Education**
- **Human Cognitive Agency and Decision-Making in AI-Supported Learning**

AI and the Transformation of Computer Science and Software Engineering Education

- **AI-Assisted Programming and Software Engineering Education**
- **Teaching Programming in the Era of Generative AI**
- **Vibe Coding and AI-Assisted Software Development as Educational Practices**
- **AI-Based Programming Tutors and Coding Assistants**
- **Human-AI Collaboration in Software Engineering Education**
- **Revisiting Foundational Computer Science and Software Engineering Competencies**
- **Curriculum and Degree Programme Redesign for the AI Era**
- **Assessment of Programming and Software Engineering Skills in the Presence of AI**
- **AI-Augmented Laboratories, Projects, and Experiential Learning**
- **Preparing Graduates for AI-Augmented Software Engineering Practice**
- **Teaching Problem Formulation, Computational Thinking, and Software Engineering Beyond Code Generation**

Responsible and Trustworthy AI in Education

- **Trustworthy, Responsible, and Ethical AI in Education**
- **Privacy, Security, and Fairness in Educational AI**
- **Explainable and Transparent AI for Learning**
- **AI Safety and Reliability in Educational Systems**
- **Academic Integrity and Assessment in the Generative AI Era**
- **Human Oversight and Teacher–AI Collaboration**
- **Bias, Inclusion, and Fairness in AI-Supported Education**
- **Evaluation and Benchmarking of AI-Based Educational Systems**
- **Governance and Responsible Adoption of AI in Educational Institutions**

Applications and Evaluation

- **Emerging Applications and Case Studies of AI in Education**
- **Empirical Evaluation of AI-Based Educational Interventions**
- **Datasets and Benchmarks for AI in Education**

- **Evaluation Frameworks for Intelligent Learning Systems**
- **Longitudinal Studies of AI-Augmented Learning**
- **Interdisciplinary AI and Education Research**

Expected Contributions

Expected Contributions – The session seeks contributions presenting **novel AI techniques, intelligent learning architectures, personalized and adaptive learning approaches, generative AI and LLM-based educational applications, intelligent tutoring and assessment systems, learning analytics, educational data mining, multimodal learning technologies, AI-powered gamification and game-based learning, personalized learning resource generation and recommendation, affective computing and emotion-aware learning, AI-driven microlearning and adaptive content delivery, and AI-based educational quality assurance and continuous improvement**. The session also welcomes research examining the **broader impact of AI on learning and education**, including cognitive offloading, AI dependence and over-reliance, learner engagement and effort, critical thinking, creativity, skill acquisition and retention, deskilling and reskilling, AI literacy, and changing models of human expertise. Particular attention is given to research on **AI-assisted programming and software engineering education**, including the implications of generative AI and *vibe coding* for programming pedagogy, assessment, competency development, and curriculum design. Contributions addressing **how computer science, software engineering, and other technical degree programmes should evolve in response to AI-enabled development practices** are especially encouraged. Contributions may include **empirical evaluations, datasets, benchmarks, theoretical models, frameworks, prototypes, educational interventions, curriculum models, evaluation methodologies, and real-world case studies**. Interdisciplinary research that bridges **AI innovation, educational practice, cognitive science, pedagogy, and professional skills development** and addresses the responsible, ethical, secure, fair, transparent, inclusive, and trustworthy adoption of AI in learning environments is particularly encouraged.

Main Contributing Researchers / Research Centres (tentative, if known at this stage):
Innopolis University, Russia

Website URL of Call for Papers (if any):

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