

## **Call for Papers for a Special Issue (2027)** **Computational Thinking and AI in School Informatics and Mathematics**

Journal: Informatics in Education <https://infedu.vu.lt/journal/INFEDU>

### **Guest Editors**

Mart Laanpere, Tallinn University, Estonia

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### **Topic**

This special issue addresses the redefinition and evolving role of Computational Thinking (CT) in school informatics and mathematics education in the context of rapid advances in artificial intelligence (AI). While recent educational initiatives have focused strongly on the ad hoc use of generative AI tools (e.g., large language models) in teaching and learning within any subject area from an educational technology perspective, there remains a critical need to sustain and advance the technology education perspective on AI as an integrated part of Computational Thinking concepts and practices, where learners develop principled understanding of computation, data, and algorithms. Recent research conceptualises CT as a multidimensional competence combining cognitive, metacognitive, and socio-technical practices (Al Husaeni et al., 2025). The emergence of AI, particularly machine learning, has introduced a paradigmatic shift towards data-driven and probabilistic reasoning, as articulated in Computational Thinking 2.0 framework (Tedre, 2022).

Not all school systems have maintained informatics as a separate subject in their national curricula, resulting with integration of Computational Thinking in mathematics curricula. In mathematics education, CT contributes an algorithmic dimension supporting structured problem solving, while AI may risk superficial engagement if used uncritically (Carvalho e Silva, 2025). Empirical studies show AI can enhance analytical reasoning and creativity through adaptive learning in mathematics, yet outcomes depend on pedagogical design (Ramadhan & Maulana, 2026). Despite rapid research growth, integration of CT and AI in school informatics and mathematics curricula remains under-theorised, calling for coherent conceptual, pedagogical, and curricular models (Al Husaeni et al., 2025). This special issue seeks contributions that are addressing this research gap.

### **Themes and Topics of Interest**

- Theoretical foundations of Computational Thinking and CT 2.0 in relation to AI
- Integration of CT with data science, machine learning, and mathematics education
- Pedagogical approaches for teaching integrated CT and AI in K–12 contexts
- Assessment frameworks and learning analytics for CT and AI literacy

- Teacher competencies and professional development in CT and AI
- Ethical and societal implications of AI-enhanced CT in school informatics
- Curriculum and policy approaches for CT and AI integration in school informatics and mathematics

### **Timeline**

Authors submit abstracts: February 20, 2027

Responses to abstracts: March 20, 2027

Full manuscripts: June 15, 2027

Peer review: August 1, 2027

Acceptance: October 25, 2027

Publication: December 10, 2027

### **Submission Guidelines**

Submit via: <https://infedu.vu.lt/journal/INFEDU/information/submit-your-article>

Author instructions: <https://infedu.vu.lt/journal/INFEDU/information/instructions-for-authors>

### **References**

Tedre, M. (2022). Computational Thinking 2.0. Proceedings of WiPSCE.

Carvalho e Silva, J. (2025). Computational thinking versus artificial intelligence in mathematics teaching. International Journal of Mathematical Education in Science and Technology.

Al Husaeni, D. F., et al. (2025). Trends and impacts of AI application in the development of computational thinking skills. Informatics in Education.

Ramadhan, B. E., & Maulana, I. (2026). Integrating artificial intelligence into informatics education: Effects on students' analytical reasoning and creativity. Journal of Mathematics Instruction, Social Research and Opinion.

Rulyansah, A., & Harun, M. (2025). Unlocking the algorithmic mind: AI's role in cultivating computational thinking. Journal Teacher Well-Being.