

“Benefits, risks, and challenges of AI in informatics education”

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Abstract:

AI in education has many benefits, such as personalizing learning, enhancing feedback, and facilitating assessment. However, it also poses several risks that need to be addressed [1]. This is affecting education in all fields and at all levels, but how will it affect computing education? There are three directions in the relationship between AI and education: learning from AI, learning about AI and learning with AI [2]. Computing studies have been adapting to the state of the art of AI, including new developments in the curricula. Likewise, topics such as developing intelligent tutoring or learning analytics have been incorporated into the studies. In the last year, the emergence of tools such as ChatGPT, with its ability to work on issues such as code generation, is opening up a reflection on computing studies beyond AI itself, which we will see in other talks in the workshop. However, AI also poses several challenges that need to be addressed by all actors involved in the educational process [1]. Some of the challenges that will be discussed in the workshop are:

- The adaptation to the digital ecosystem derived from AI, which is continuously evolving. This requires constant updating and learning of new skills and tools, as well as coping with the uncertainty and complexity of the digital environment.
- The development of students' competencies in generative AI, with an emphasis on fostering critical thinking skills to understand its potential and limitations and to make ethical use of these technologies. Students need to learn how to evaluate the quality and reliability of the content generated by AI, how to use it creatively and responsibly, and how to avoid plagiarism and data privacy issues.
- The reviewing, updating, and innovating of curriculum content and teaching methods that may have become outdated, opening up more opportunities for students' reflection. Generative AI may challenge some of the traditional assumptions and approaches in education, such as the role of the teacher, the nature of knowledge, and the purpose of learning. Therefore, educators need to rethink and redesign their curricula and pedagogies to align them with the new demands and possibilities of the digital era.
- The exploration of alternatives and/or complementarities in assessment methods, such as using open-ended evaluations to encourage originality and creativity, emphasising the importance of the learning process rather than solely focusing on the final product. Therefore, educators need to adopt more diverse and flexible assessment strategies that can capture the complexity and diversity of students' learning experiences with these technologies.

[1] F.J. García-Peñalvo, F. Llorens-Largo, and J. Vidal. (2024). The new reality of education in the face of advances in generative artificial intelligence. *RIED-Revista Iberoamericana de Educación a Distancia*, 27(1). Online first:

<https://revistas.uned.es/index.php/ried/article/view/37716/27914>

[2] T. Wang and E. C. K. Cheng, "An investigation of barriers to Hong Kong K-12 schools incorporating Artificial Intelligence in education," *Computers and Education: Artificial Intelligence*, vol. 2, art. 100031, 2021. doi: 10.1016/j.caeai.2021.10003