

Artificial Intelligence – The Use of AI Technologies to Leverage Educational Processes and Teaching Challenges (panel)

Nava Shaked
Holon Institute of Technology
shakedn@hit.ac.il

Eyal Rabin
The Open University
eyal.rabin@gmail.com

Amir Gefen
Academic College in
Ramat-Gan
amirgefen.mail@gmail.com

Giora Alexandron
Weizmann Institute of Science
giora.alexandron@weizmann.ac.il

בינה מלאכותית – סוגיות ואתגרים בשימוש בטכנולוגיות AI למינוף תהליכי חינוך והוראה (פאנל)

איל רבין
האוניברסיטה הפתוחה
eyal.rabin@gmail.com

נאוה שקד
מכון טכנולוגי חולון
shakedn@hit.ac.il

גיורא אלכסנדרון
מכון ויצמן למדע
giora.alexandron@weizmann.ac.il

עמיר גפן
המכללה האקדמית רמת גן
amirgefen.mail@gmail.com

Abstract

Artificial Intelligence (AI) is a comprehensive concept that includes a wide spectrum of technologies, platforms, applications, interfaces, etc. The connection between AI and Education is threefold: First is the *application* of AI to education. Second is the *teaching of* AI, including both the technical and the human dimensions of it. Third is the use of AI as a tool to *learn about learning*. This panel will centre on the first among these, a field of research that is known as AI in Education (AIED) but will also touch on the third area and examine how AI helps to leverage learning.

AIED operates under the assumption that the huge amount of fine-grained data that modern learning environments collect, coupled with AI methods, can be used to develop mechanisms to improve teaching and learning. Using AI based technologies for intelligent interaction such as NLP, Speech and affective interfaces will also create a new tool to enhance learning and learners. We find side by side applications that provide adapted content, machine learning-powered assessment, algorithms that provides timely and personalized feedback, early warning alert systems that identify students at risk, and many others.

On top of the technological issues of AI, we face issues of user interface and user experience, issues of regulation, ethics and privacy. These require serious

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Ra'anana, Israel: The Open University of Israel

consideration when we talk about the field of education and imparting knowledge. The outcomes of intelligent processes that create and collect a lot of information about the users and their environment, and especially skills records, raise questions about the quality of the information and biases in the use and interpretation of that information. Moreover, the coming of the "Metaverse era" is expected to show an increased use of AI technologies for the benefit of operating in a new digital world. It is still unclear, in which way it will be activated and what its consequences are for the learners and their educational environment.

The choice of which AI technologies to deploy, should take into consideration many pedagogical, cultural and environmental factors. As we advance to inseminate AIED, we will face more challenges in the integration of such technologies into schools and other educational institutions in the effort to eliminate potential risks of AI.

The panel will deal with these issues, both theoretically and practically. The goal is to raise the challenges and then offer different points of view from academic, educational, and practical angles. The purpose is to inspire the audience to think, and perhaps more so, to share their experience and the practices they have found to be effective. We believe that participating in the panel can be beneficial also for ones who have no prior experience in AIED, as this field is expected to be an integral part of future learning environments. Some of the main challenges that AIED deals with, and will be discussed in the panel, include:

- AIED – empowering teachers or replacing them?
- Use of intelligent technologies – AI in education, teaching, training and even accessibility
- Using data and analytics to understand teaching and learning processes
- What steps should educational systems take already today to prepare for the AI era?
- AI as means for providing personalized interaction and response, to the individual needs of different students and educational segments.
- Issues of regulation, ethics, and privacy

Keywords: AI, education & training technologies, AI & Ethics, teacher-less, data analytics, technology insemination.

Bibliography

- Bartoletti, I. (2022). AI in education: An opportunity riddled with challenges. In *The Ethics of Artificial Intelligence in Education* (pp. 74-90). Routledge.
- Holmes, W., Porayska-Pomsta, K., Holstein, K., Sutherland, E., Baker, T., Shum, S. B., ... & Koedinger, K. R. (2022). Ethics of AI in education: Towards a community-wide framework. *International Journal of Artificial Intelligence in Education*, 32(3), 504-526.
- Limna, P., Jakwatanatham, S., Siripipattanakul, S., Kaewpuang, P., & Sriboonruang, P. (2022). A Review of Artificial Intelligence (AI) in Education during the Digital Era. *Advance Knowledge for Executives*, 1(1), 1-9.
- Shaked, N., & Winter, U. (eds). *Design of multimodal mobile interfaces* (221 pages). De Gruyter 2016.
- Xu, W., & Ouyang, F. (2022). The application of AI technologies in STEM education: a systematic review from 2011 to 2021. *International Journal of STEM Education*, 9(1), 1-20.