

ARTIFICIAL INTELLIGENCE CONFERENCE

BOOK OF ABSTRACTS

BELGRADE, OCTOBER 8-9, 2026

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FOREWARD

We are pleased to announce the fourth edition of the Artificial Intelligence conference. It represents the aspirations of numerous researchers in Serbia working in the field of artificial intelligence to establish a gathering with a primarily research-oriented focus, under the auspices of the Serbian Academy of Sciences and Arts (SASA), Serbia's most prestigious scientific institution.

The conference aims to bring together researchers from various branches of artificial intelligence from Serbia and abroad to showcase their work and findings. Artificial intelligence is not only a highly popular field today but also a vast one. Consequently, the topics of interest at this conference are numerous and diverse.

In addition to emphasizing its research character, this conference is distinguished by several key features:

- A dedicated focus exclusively on the field of artificial intelligence
- Encouragement of discussions on the fundamental aspects of artificial intelligence
- Special attention to emerging topics in artificial intelligence
- Integration of techniques and results from different subfields of artificial intelligence
- Gathering a significant number of Serbian researchers in the field, including both experienced and emerging talents

We have received a total of 72 submissions to the conference from leading universities and institutions in Serbia and abroad, covering a wide range of topics in artificial intelligence. Out of these, 47 were selected for presentation. Each abstract underwent review by at least two Reviewers or members of the Program Committee, with some

requiring a second revision before acceptance. The conference program consists of two keynote lectures and 10 sessions divided into 2 parallel streams containing the presentations of accepted contributed talks.

Artificial intelligence, with its profound influence on modern society, necessitates ongoing study and a systematic analytical approach. This conference was conceived with precisely that objective – to facilitate the exchange of research ideas and experiences within this vast and complex field.

The conference organizers are particularly committed to fostering opportunities for young and promising researchers. Through presentations and discussions, these individuals will have the chance to share their work, gain valuable feedback from esteemed experts, and build connections with future collaborators. We believe that fostering this interaction between generations is essential for the sustained advancement of artificial intelligence research in Serbia.

The organizers of this conference edition, representing three institutions – the Serbian Academy of Sciences and Arts, the Mathematical Institute of the Serbian Academy of Sciences and Arts, and the Academy Committee for Artificial Intelligence of SASA – firmly believe in the importance of artificial intelligence for the future of various activities in our country. We are confident that research and innovation in this field will contribute to economic development, improvements in health and education, and the opening of new horizons in science, art, and other areas of life. We are convinced that through joint efforts, we can influence the trajectory of this significant field while advancing knowledge, creativity, and innovation.

Sincerely,

Conference Co-chairs

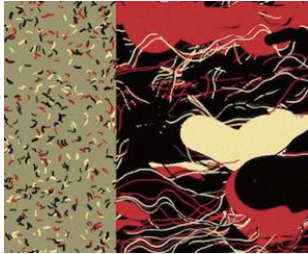
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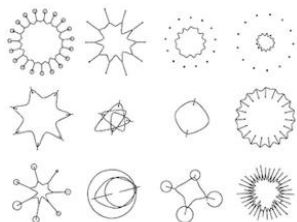
ARTIFICIAL INTELLIGENCE, ETHICS AND SOCIETY



COMPUTER VISION



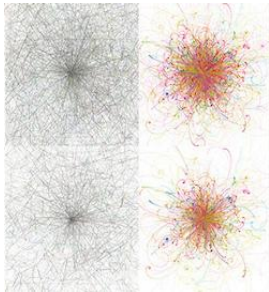
DECISION MAKING AND PROBLEM SOLVING



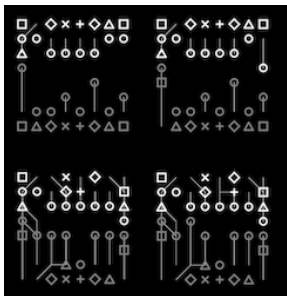
EXPLAINABLE AI



GENERATIVE AI



KNOWLEDGE REPRESENTATION, REASONING AND PLANNING



MACHINE LEARNING



NATURAL LANGUAGE PROCESSING

Transformative Challenges of AI-based Technologies on Education

Vladimir Pavlović¹, Bogdan Novaković², Olivera J. Bogunović³

¹ University of Belgrade, Faculty of Agriculture, Serbia, vlaver@agrif.bg.ac.rs

² University of Milano-Bicocca, Department of Human Sciences for Education "Riccardo Massa," Italy, b.novakovic@campus.unimib.it

³ Harvard University, Harvard Medical School, USA, obogunovic@mclean.harvard.edu

AI-based technologies are reshaping education at every level, from classroom instruction and assessment to curriculum design, institutional governance, and lifelong learning. This transformation is not simply technological; it is pedagogical, ethical, and political. An educational system once structured around fixed curricula, standardized pacing, and uniform assessment is now being retransformed by adaptive AI technologies capable of personalizing learning pathways and processing vast amounts of educational data. This shift matters because education is not only about knowledge transfer; it is also about social development, identity formation, and democratic participation. Therefor UNESCO emphasizes that AI has significant potential to improve teaching and learning, but also warns that its rapid development has outpaced policy and regulation, making inclusion and equity central concerns.

The aim of our research is to analyze transformative challenges of AI-based technologies on education, since these technologies can infer patterns, generate responses, and adapt in real time, thus influencing personalized learning, teaching and assessment, equity and access, ethics and governance, as well as human cognition in general.

The convergence of cognitive decline, neuroplasticity adaptation, and emotional intelligence impairment in the digital age presents a critical challenge for AI based educational systems, but also an opportunity for transformative intervention through intentional design of learning environments that balance technological integration with cognitive protection. There is clear evidence that the current trajectory of digital-first education, characterized by excessive screen time, cognitive offloading, rapid task-switching, and digital-first social interactions, is producing measurable cognitive decline in Generation Z, with significant implications for educational outcomes, workforce readiness, and societal functioning. However, the same neuroplasticity that enables cognitive decline can be harnessed for cognitive enhancement through intentional educational design that prioritizes deep focus, active learning, and face-to-face interaction. The most effective educational interventions must address multiple dimensions simultaneously, including limiting screen time to 30 to 45 minutes per week per subject, implementing cell phone bans on school premises, prioritizing hands-on learning with physical manipulatives, and fostering face-to-face social interactions that activate mirror neurons at full strength.

One of the most visible transformations brought by AI is personalized learning. Adaptive platforms can adjust difficulty, sequence, pacing, and feedback based on a learner's performance, thereby making instruction more responsive to individual needs. While, research on intelligent tutoring systems has long suggested that well-designed digital tutoring can improve learning outcomes in specific domains, it has been found that educational systems may overestimate what can be captured through data traces alone, reducing a learner to patterns of clicks, scores, and predicted probabilities. When this happens, the learner's agency and interpretive life can be flattened into a data profile. The danger is not only technical but philosophical: if education is treated primarily as optimization, then curiosity, struggle, and immeasurable growth may be undervalued. For this reason, we advocate that personalization should be understood as a support for learning, not a substitute for human pedagogical judgment. This is why the role of the teachers and assessment are fundamental although AI is also transforming their role as well.

According to The U.S. Department of Education AI can support teaching and learning, but should be used in ways that keep educators in the center of decision-making. Rather than serving only as transmitters of content, teachers are increasingly becoming designers of learning environments, interpreters of data, and mentors who guide students through complex tasks. This reorientation can be beneficial because it frees educators from repetitive administrative labor and allows more time for conversation, feedback, and relational work. At the same time, assessment is changing just as dramatically. Automated grading systems can evaluate selected forms of work quickly, while generative tools can support rubric-based feedback, draft analysis, and formative coaching. Such systems may improve speed and consistency, especially in large classes, but if grading systems are opaque, biased, or poorly calibrated, they may damage trust and undermine fairness. Therefore, assessment remains one of the most sensitive areas in educational AI.

While, there is no doubt that AI is most beneficial when students use it to deepen understanding, verify outputs, and organize learning, recent studies show that a striking difference in student's verification habits: 72% of higher-performing students said they always or almost always check AI-generated information, compared with 28% of lower-performing students. That supports the argument that AI can amplify existing inequality if students use it as a shortcut rather than a learning aid. UNESCO has also reported that fewer than 10% of schools and universities had formal guidance on generative AI at the time of its survey, which suggests a major opportunity for institutions to build structured, beneficial use rather than leaving students to improvise. As a result AI-based educational technologies may lead to digital divide.

AI systems often require devices, connectivity, technical literacy, and institutional support that many learners do not have. If high-quality AI tools are available only to privileged schools and affluent families, the result may be a new layer of educational inequality. Even where access exists, the language, assumptions, and cultural norms embedded in AI systems may not reflect local educational contexts. This is why educational transformation must include infrastructure, training, and policy, not just software procurement.

Equity also requires attention to bias. AI systems trained on incomplete or skewed data may reproduce existing social inequalities, including those related to race, class, gender, language, and disability. In education, such bias can have lasting consequences because algorithmic decisions may shape placement, intervention, and opportunity. Therefore, a responsible educational system must therefore treat fairness as a design requirement rather than an afterthought.

Keywords: Human centered AI, Innovative education, Trustworthy AI

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