# A Collection of Recommendable Papers and Articles on AI in Education (AIEd)

# A multi-perspective study on Artificial Intelligence in Education: grants, conferences, journals, software tools, institutions, and researchers

**Highlights**

- **Present a multi-perspectives study on Artificial Intelligence in Education (AIEd).**
- **Analyze relevant funds, conferences, journals, software, institutions, and scholars.**
- **Demonstrate increasing interest in and impact of AIEd.**
- **Highlight the significance and necessity to launch specialized AIEd journal.**
- **Introduce a new Elsevier journal Computers & Education: Artificial Intelligence.**

With the rapid development of artificial intelligence (AI) technologies and a continuously growing interest in their application in educational contexts, there has been significant growth in the scientific literature in relation to the application of AI in education (AIEd). This study aims to present multiple perspectives on the development of AIEd in terms of relevant grants, conferences, journals, software tools, article trends, top issues, institutions, and researchers to provide an overview of AIEd for its further development and implementation

Source: A multi-perspective study on Artificial Intelligence in Education: grants, conferences, journals, software tools, institutions, and researchers - ScienceDirect

# Vision, challenges, roles and research issues of Artificial Intelligence in Education

The rapid advancement of computing technologies has facilitated the implementation of AIED (Artificial Intelligence in Education) applications. AIED refers to the use of AI (Artificial Intelligence) technologies or application programs in educational settings to facilitate teaching, learning, or decision making. With the help of AI technologies, which simulate human intelligence to make inferences, judgments, or predictions, computer systems can provide personalized guidance, supports, or feedback to students as well as assisting teachers or policymakers in making decisions. Although AIED has been identified as the primary research focus in the field of computers and education, the interdisciplinary nature of AIED presents a unique challenge for researchers with different disciplinary backgrounds. In this paper, we present the definition and roles of AIED studies from the perspective of educational needs. We propose a framework to show the considerations of implementing AIED in different learning and teaching settings. The structure can help guide researchers with both computers and education backgrounds in

conducting AIED studies. We outline 10 potential research topics in AIED that are of particular interest to this journal. Finally, we describe the type of articles we like to solicit and the management of the submissions.

Source: Vision, challenges, roles and research issues of Artificial Intelligence in Education - ScienceDirect

## Application and theory gaps during the rise of Artificial Intelligence in Education

**Highlights**

- **Conduct a systematic review of 45 highly cited AIEd articles.**
- **Identify the application and theory gaps during the rise of AI in education.**
- **Establish the linkage between extant AIEd studies and future trends.**
- **Clarify the definitions of AIEd from broad and narrow senses.**

Considering the increasing importance of Artificial Intelligence in Education (AIEd) and the absence of a comprehensive review on it, this research aims to conduct a comprehensive and systematic review of influential AIEd studies. We analyzed 45 articles in terms of annual distribution, leading journals, institutions, countries/regions, the most frequently used terms, as well as theories and technologies adopted. We also evaluated definitions of AIEd from broad and narrow perspectives and clarified the relationship among AIEd, Educational Data Mining, Computer-Based Education, and Learning Analytics. Results indicated that: 1) there was a continuingly increasing interest in and impact of AIEd research; 2) little work had been conducted to bring deep learning technologies into educational contexts; 3) traditional AI technologies, such as natural language processing were commonly adopted in educational contexts, while more advanced techniques were rarely adopted, 4) there was a lack of studies that both employ AI technologies and engage deeply with educational theories.

Source(pdf): **https://lnkd.in/d29yc3r**

## The use of Artificial Intelligence (AI) in education

There are two different types of AI in wide use today. Recent developments have focused on data-driven machine learning, but in the last decades, most AI

applications in education (AIEd) have been based on representational / knowledge-based AI.

Data-driven AI uses a programming paradigm that is new to most computing professionals. It requires competences which are different from traditional programming and computational thinking. It opens up new ways to use computing and digital devices. But the development of state-of-the-art AI is now starting to exceed the computational capacity of the largest AI developers. The recent rapid developments in data-driven AI may not be sustainable.

The impact of AI in education will depend on how learning and competence needs change, as AI will be widely used in the society and economy. AIEd should be used to help schools and educational institutions in transforming learning for the future.

Many AIEd systems have been developed over the years, but few of these have shown clear scientific impact on learning. Evidence is lacking partly because the contexts of teaching and learning vary across classrooms, schools, educational systems, and countries. Local knowledge and capacity is critical for effective adoption and shaping of AIEd, and new scaling models are needed. Co-design of AIEd with teachers is a possible way to advance new scaling models.

AI has a great potential in compensating learning difficulties and supporting teachers. The Union/ the EU needs a "clearing house" that helps teachers and policy-makers make sense of the fast developments in this area

Source: The use of Artificial Intelligence (AI) in education – Research4Committees

## 10 Roles For Artificial Intelligence In Education

For decades, science fiction authors, futurists, and movie makers alike have been predicting the amazing (and sometimes catastrophic) changes that will arise with the advent of widespread artificial intelligence. So far, AI hasn't made any such crazy waves, and in many ways has quietly become ubiquitous in numerous aspects of our daily lives. From the intelligent sensors that help us take perfect pictures, to the automatic parking features in cars, to the sometimes frustrating personal assistants in smartphones, artificial intelligence of one kind of another is all around us, all the time.

Source: 10 Roles For Artificial Intelligence In Education (teachthought.com)

## Unleashing the power of AI for education

Educators today are in agreement: They need an AI strategy. But many institutions don't know how to implement one—or where to start.

Source: Unleashing the power of AI for education | MIT Technology Review

## Artificial Intelligence in Education: A Review

The purpose of this study was to assess the impact of Artificial Intelligence (AI) on education. Premised on a narrative and framework for assessing AI identified from a preliminary analysis, the scope of the study was limited to the application and effects of AI in administration, instruction, and learning. A qualitative research approach, leveraging the use of literature review as a research design and approach was used and effectively facilitated the realization of the study purpose. Artificial intelligence is a field of study and the resulting innovations and developments that have culminated in computers, machines, and other artifacts having human-like intelligence characterized by cognitive abilities, learning, adaptability, and decision-making capabilities. The study ascertained that AI has extensively been adopted and used in education, particularly by education institutions, in different forms. AI initially took the form of computer and computer related technologies, transitioning to web-based and online intelligent education systems, and ultimately with the use of embedded computer systems, together with other technologies, the use of humanoid robots and web-based chatbots to perform instructors' duties and functions independently or with instructors. Using these platforms, instructors have been able to perform different administrative functions, such as reviewing and grading students' assignments more effectively and efficiently, and achieve higher quality in their teaching activities. On the other hand, because the systems leverage machine learning and adaptability, curriculum and content has been customized and personalized in line with students' needs, which has

Source (pdf): IEEE Xplore Full-Text PDF:

## How artificial intelligence will impact K-12 teachers

Existing and emerging technologies can help save teacher time—time that could be redirected toward student learning. But to capture the potential, stakeholders need to address four imperatives.

Source: Artificial intelligence in education: How will it impact K-12 teachers | McKinsey

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