

ai and machine learning in education

AI and Machine Learning in Education: A Comprehensive Guide

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Publisher: EduTech Insights, a leading publisher specializing in educational technology trends, research, and best practices. They have a dedicated team of experts reviewing and validating educational technology content for accuracy and relevance.

Editor: Sarah Miller, MA in Educational Leadership with 8 years of experience editing publications in the education sector, specializing in technology integration and accessibility.

Keywords: AI and machine learning in education, AI in education, machine learning in education, personalized learning, adaptive learning, educational technology, AI-powered education, intelligent tutoring systems, AI ethics in education, future of education.

Summary: This guide explores the transformative potential of AI and machine learning in education, outlining best practices and potential pitfalls. We delve into various applications, from personalized learning platforms to intelligent tutoring systems, while addressing crucial ethical considerations and challenges associated with implementation. The guide provides a framework for educators, administrators, and policymakers to navigate the evolving landscape of AI-powered education effectively.

1. Introduction: The Rise of AI and Machine Learning in Education

The integration of AI and machine learning in education is rapidly transforming the learning landscape. From automating administrative tasks to personalizing learning experiences, these technologies offer unprecedented opportunities to improve educational outcomes and enhance student engagement. However, responsible implementation requires careful consideration of ethical implications and potential biases. This guide provides a comprehensive overview of AI and machine learning in education, offering insights into best practices and potential challenges.

2. Applications of AI and Machine Learning in Education

AI and machine learning are finding diverse applications in various aspects of education:

Personalized Learning: AI algorithms analyze student performance data to tailor learning pathways,

pace, and content to individual needs. This adaptive learning approach allows for customized instruction, addressing specific learning gaps and accelerating progress.

Intelligent Tutoring Systems (ITS): These systems provide students with personalized feedback and guidance, acting as virtual tutors. ITS can adapt to student responses, offering different explanations or exercises based on their understanding.

Automated Assessment and Grading: AI can automate the grading of objective assessments, freeing up teachers' time for more engaging interactions with students. AI is also being explored for subjective assessment tasks, such as essay grading, though this remains a complex area.

Early Intervention and Support: AI can identify students at risk of falling behind, allowing for early intervention and support. By analyzing student data, AI can predict potential challenges and suggest targeted interventions.

Administrative Task Automation: AI can automate administrative tasks like scheduling, grading, and communication, improving efficiency and reducing teacher workload.

3. Best Practices for Implementing AI and Machine Learning in Education

Successful integration of AI and machine learning requires a strategic approach:

Data Privacy and Security: Robust measures are crucial to protect student data. Compliance with relevant data privacy regulations is paramount.

Teacher Training and Professional Development: Educators need adequate training to effectively utilize AI tools and integrate them into their teaching practices.

Ethical Considerations: Addressing potential biases in algorithms and ensuring equitable access to AI-powered learning resources are critical considerations. Transparency and explainability of AI systems are also important.

Human-centered Design: AI should augment, not replace, human interaction in education. The focus should remain on fostering meaningful learning experiences.

Iterative Development and Evaluation: Continuous evaluation and refinement are essential to ensure AI systems meet educational needs and adapt to evolving student requirements.

4. Common Pitfalls in Implementing AI and Machine Learning in Education

Despite the potential benefits, there are potential pitfalls to avoid:

Over-reliance on Technology: AI should be a tool to enhance, not replace, effective teaching practices.

Bias and Fairness: AI algorithms can inherit and amplify existing biases in data, leading to unfair or discriminatory outcomes.

Lack of Transparency and Explainability: "Black box" algorithms can make it difficult to understand how decisions are made, hindering trust and accountability.

Data Privacy Concerns: The collection and use of student data raise significant privacy concerns that need careful management.

Digital Divide: Unequal access to technology and internet connectivity can exacerbate existing inequalities in education.

5. The Future of AI and Machine Learning in Education

The future of AI and machine learning in education is promising. We can expect further advancements in personalized learning, intelligent tutoring systems, and automated assessment. The integration of virtual reality and augmented reality with AI will create immersive and engaging learning experiences. However, ethical considerations and responsible implementation will continue to be central to realizing the full potential of these technologies.

6. Conclusion

AI and machine learning offer transformative potential for improving education. By adopting best practices, addressing ethical challenges, and fostering collaboration between educators, technologists, and policymakers, we can harness the power of AI to create more equitable, engaging, and effective learning experiences for all students. The key lies in a human-centered approach that prioritizes student needs and utilizes technology as a tool to enhance, not replace, the essential role of teachers in the educational process.

FAQs

1. What are the ethical concerns surrounding AI in education? Ethical concerns include bias in algorithms, data privacy violations, and the potential for widening the achievement gap.
1. How can teachers prepare for the integration of AI in their classrooms? Teachers need professional development to understand how AI tools work and how to integrate them effectively into their teaching practices.
1. What are the benefits of personalized learning through AI? Personalized learning adapts to individual student needs, leading to improved learning outcomes and increased engagement.
1. What is the role of human teachers in an AI-powered classroom? Teachers remain essential for

providing guidance, mentorship, and fostering a positive learning environment. AI tools augment, not replace, teachers.

1. How can we ensure equitable access to AI-powered educational resources? Addressing the digital divide and ensuring equitable access to technology and internet connectivity is crucial.
1. What are the potential risks of over-reliance on AI in education? Over-reliance can lead to a de-emphasis on critical thinking, creativity, and human interaction.
1. How can we ensure data privacy and security in AI-powered education? Robust data protection measures, compliance with regulations, and transparency about data usage are essential.
1. What are the different types of AI used in education? Various types are used, including machine learning for personalized learning, natural language processing for chatbots and automated feedback, and computer vision for assessment.
1. How can schools effectively evaluate the effectiveness of AI tools in their classrooms? Schools should employ rigorous evaluation methods, including analyzing student performance data, teacher feedback, and student surveys.

Related Articles:

1. "The Ethics of AI in Education: A Framework for Responsible Implementation": This article explores the ethical considerations surrounding AI in education and provides a framework for responsible implementation, focusing on fairness, transparency, and accountability.
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ai and machine learning in education: Revolutionizing Education in the Age of AI and Machine Learning Habib, Maki K., 2019-09-15 Artificial Intelligence (AI) serves as a catalyst for transformation in the field of digital teaching and learning by introducing novel solutions to revolutionize all dimensions of the educational process, leading to individualized learning

experiences, teachers playing a greater role as mentors, and the automation of all administrative processes linked to education. AI and machine learning are already contributing to and are expected to improve the quality of the educational process by providing advantages such as personalized and interactive tutoring with the ability to adjust the content and the learning pace of each individual student while assessing their performance and providing feedback. These shifts in the educational paradigm have a profound impact on the quality and the way we live, interact with each other, and define our values. Thus, there is a need for an earnest inquiry into the cultural repercussions of this phenomenon that extends beyond superficial analyses of AI-based applications in education.

Revolutionizing Education in the Age of AI and Machine Learning addresses the need for a scholarly exploration of the cultural and social impacts of the rapid expansion of artificial intelligence in the field of education including potential consequences these impacts could have on culture, social relations, and values. The content within this publication covers such topics as AI and tutoring, role of teachers, physical education and sports, interactive E-learning and virtual laboratories, adaptive curricula development, support critical thinking, and augmented intelligence and it is designed for educators, curriculum developers, instructional designers, educational software developers, education consultants, academicians, administrators, researchers, and professionals.

ai and machine learning in education: *Innovative Learning Environments in STEM Higher Education* Jungwoo Ryoo, Kurt Winkelmann, 2021-03-11 As explored in this open access book, higher education in STEM fields is influenced by many factors, including education research, government and school policies, financial considerations, technology limitations, and acceptance of innovations by faculty and students. In 2018, Drs. Ryoo and Winkelmann explored the opportunities, challenges, and future research initiatives of innovative learning environments (ILEs) in higher education STEM disciplines in their pioneering project: eXploring the Future of Innovative Learning Environments (X-FILEs). Workshop participants evaluated four main ILE categories: personalized and adaptive learning, multimodal learning formats, cross/extended reality (XR), and artificial intelligence (AI) and machine learning (ML). This open access book gathers the perspectives expressed during the X-FILEs workshop and its follow-up activities. It is designed to help inform education policy makers, researchers, developers, and practitioners about the adoption and implementation of ILEs in higher education.

ai and machine learning in education: *Artificial Intelligence in Education* Wayne Holmes, Maya Bialik, Charles Fadel, 2019-02-28 The landscape for education has been rapidly changing in the last years: demographic changes affecting the makeup of families, multiple school options available to children, wealth disparities, the global economy demanding new skills from workers, and continued breakthroughs in technology are some of the factors impacting education. Given these changes, how can schools continue to prepare students for the future? In a world where information is readily available online, how can schools continue to be relevant? The emergence of Artificial Intelligence (AI) has exacerbated the need to have these conversations. Its impact on education and the multiple possibilities that it offers are putting pressure on educational leaders to reformulate the school curriculum and the channels to deliver it. The book *Artificial Intelligence in Education, Promises and Implications for Teaching and Learning* by the Center for Curriculum Redesign immerses the reader in a discussion on what to teach students in the era of AI and examines how AI is already demanding much needed updates to the school curriculum, including modernizing its content, focusing on core concepts, and embedding interdisciplinary themes and competencies with the end goal of making learning more enjoyable and useful in students' lives. The second part of the book dives into the history of AI in education, its techniques and applications -including the way AI can help teachers be more effective, and finishes on a reflection about the social aspects of AI. This book is a must-read for educators and policy-makers who want to prepare schools to face the uncertainties of the future and keep them relevant. --Amada Torres, VP, Studies, Insights, and Research, National Association of Independent School (NAIS) The rapid advances in technology in recent decades have already brought about substantial changes in education, opening up new opportunities to teach and learn anywhere anytime and providing new tools and methods to

improve learning outcomes and support innovative teaching and learning. Research into artificial intelligence and machine learning in education goes back to the late 1970s. Artificial intelligence methods were generally employed in two ways: to design and facilitate interactive learning environments that would support learning by doing, and to design and implement tutoring systems by adapting instructions with respect to the students' knowledge state. But this is just the beginning. As *Artificial Intelligence in Education* shows, AI is increasingly used in education and learning contexts. The collision of three areas - data, computation and education - is set to have far-reaching consequences, raising fundamental questions about the nature of education: what is taught and how it is taught. *Artificial Intelligence in Education* is an important, if at times disturbing, contribution to the debate on AI and provides a detailed analysis on how it may affect the way teachers and students engage in education. The book describes how artificial intelligence may impact on curriculum design, on the individualisation of learning, and on assessment, offering some tantalising glimpses into the future (the end of exams, your very own lifelong learning companion) while not falling victim to tech-hype. The enormous ethical, technical and pedagogical challenges ahead are spelt out, and there is a real risk that the rapid advances in artificial intelligence products and services will outstrip education systems' capacity to understand, manage and integrate them appropriately. As the book concludes: We can either leave it to others (the computer scientists, AI engineers and big tech companies) to decide how artificial intelligence in education unfolds, or we can engage in productive dialogue. I commend this book to anyone concerned with the future of education in a digital world. --Marc Durando, Executive Director, European Schoolnet

ai and machine learning in education: A Machine Learning, Artificial Intelligence Approach to Institutional Effectiveness in Higher Education John N. Moyer Ph.D., 2019-07-29 This book presents a practical, effective, and systematic approach to the measurement, assessment, and sensemaking of institutional performance. Included are strategies to measure and assess the performance of Curriculum, Learning, Instruction, Support Services, and Program Feasibility as well as a meaningful Environmental Scanning method.

ai and machine learning in education: AI and education Miao, Fengchun, Holmes, Wayne, Ronghuai Huang, Hui Zhang, UNESCO, 2021-04-08 Artificial Intelligence (AI) has the potential to address some of the biggest challenges in education today, innovate teaching and learning practices, and ultimately accelerate the progress towards SDG 4. However, these rapid technological developments inevitably bring multiple risks and challenges, which have so far outpaced policy debates and regulatory frameworks. This publication offers guidance for policy-makers on how best to leverage the opportunities and address the risks, presented by the growing connection between AI and education. It starts with the essentials of AI: definitions, techniques and technologies. It continues with a detailed analysis of the emerging trends and implications of AI for teaching and learning, including how we can ensure the ethical, inclusive and equitable use of AI in education, how education can prepare humans to live and work with AI, and how AI can be applied to enhance education. It finally introduces the challenges of harnessing AI to achieve SDG 4 and offers concrete actionable recommendations for policy-makers to plan policies and programmes for local contexts. [Publisher summary, ed]

ai and machine learning in education: Machine Learning for Kids Dale Lane, 2021-01-19 A hands-on, application-based introduction to machine learning and artificial intelligence (AI) that guides young readers through creating compelling AI-powered games and applications using the Scratch programming language. Machine learning (also known as ML) is one of the building blocks of AI, or artificial intelligence. AI is based on the idea that computers can learn on their own, with your help. *Machine Learning for Kids* will introduce you to machine learning, painlessly. With this book and its free, Scratch-based, award-winning companion website, you'll see how easy it is to add machine learning to your own projects. You don't even need to know how to code! As you work through the book you'll discover how machine learning systems can be taught to recognize text, images, numbers, and sounds, and how to train your models to improve their accuracy. You'll turn your models into fun computer games and apps, and see what happens when they get confused by

bad data. You'll build 13 projects step-by-step from the ground up, including: • Rock, Paper, Scissors game that recognizes your hand shapes • An app that recommends movies based on other movies that you like • A computer character that reacts to insults and compliments • An interactive virtual assistant (like Siri or Alexa) that obeys commands • An AI version of Pac-Man, with a smart character that knows how to avoid ghosts NOTE: This book includes a Scratch tutorial for beginners, and step-by-step instructions for every project. Ages 12+

ai and machine learning in education: Applications of Machine Learning and Artificial Intelligence in Education Khadimally, Seda, 2022-02-18 Modes and models of learning and instruction have shown a significant shift from yesterday's conventional learning and teaching given this era's current educational and social contexts. Learners are no longer learning and communicating with human-generated, computed, and mediated—or traditional—learning and instructional practices, paving the way for machine-facilitated communication, learning, and teaching tools. Learning and instruction, communication and information exchange, as well as gathering, coding, analyzing, and synthesizing data have proven to be in need of even more innovative technology-moderated tools. Applications of Machine Learning and Artificial Intelligence in Education focuses on the parameters of remote learning, machine learning, deep learning, and artificial intelligence under 21st-century learning and instructional contexts. Covering topics such as data coding and social networking technology, it is ideal for learners with an interest in the deep learning discipline, educators, educational technologists, instructional designers, and data evaluators, as well as special interest groups (SGIs) in the discipline.

ai and machine learning in education: Machine Learning Approaches for Improvising Modern Learning Systems Zameer Gulzar, A. Anny Leema, 2020 This book explores the theoretical and practical aspects of technological enhancements in educational environments and the popularization of contemporary learning methods in developing countries--

ai and machine learning in education: Teaching AI Michelle Zimmerman, 2018-12-15 Get the tools, resources and insights you need to explore artificial intelligence in the classroom and explore what students need to know about living in a world with AI. For many, artificial intelligence, or AI, may seem like science fiction, or inherently overwhelming. The reality is that AI is already being applied in industry and, for many of us, in our daily lives as well. A better understanding of AI can help you make informed decisions in the classroom that will impact the future of your students. Drawing from a broad variety of expert voices from countries including Australia, Japan, and South Africa, as well as educators from around the world and underrepresented student voices, this book explores some of the ways AI can improve education. These include educating learners about AI, teaching them about living in a world where they will be surrounded by AI and helping educators understand how they can use AI to augment human ability. Each chapter offers activities and questions to help you deepen your understanding, try out new concepts and reflect on the information presented. Links to media artifacts from trusted sources will help make your learning experience more dynamic while also providing additional resources to use in your classroom. This book: • Offers a unique approach to the topic, with chapter opening scenes, case studies, and featured student voices. • Discusses a variety of ways to teach students about AI, through design thinking, project-based learning and STEM connections. • Includes lesson ideas, activities and tools for exploring AI with your students. • Includes references to films and other media you can use in class to start discussions on AI or inspire design thinking and STEM projects. In Teaching AI, you'll learn what AI is, how it works and how to use it to better prepare students in a world with increased human-computer interaction.

ai and machine learning in education: Machine Learning for Education Dr. Amit Dua, Sankha Das, Pulkrit Sinha, 2023-05-11 A guide to understand the basics of machine learning and its application in the field of education KEY FEATURES ● Create a more efficient and effective learning environment that meets the needs of all students. ● Learn how to use the profound Machine learning advancements in the field of education. ● Understand how students can use machine learning tools to improve their learning and track their progress. DESCRIPTION Machine Learning

for Education is a book that explores the application of machine learning techniques in the field of education. It covers a wide range of topics, including personalizing learning using machine learning, improving student outcomes, and optimizing educational resources. The book delves into various machine learning techniques such as supervised and unsupervised learning, deep learning, and reinforcement learning, and how they can be applied to different areas of education such as curriculum design, assessment, and student engagement. The book takes a novel approach to explain the applications of machine learning in education through relatable real-life examples, existing problems and proposing thought-provoking solutions to the same. At the end of each chapter, there are crossword puzzles, word grids, and comprehensive exercises designed to reinforce the concepts discussed in the chapter and ensure a thorough understanding. After reading the book, you will have gained the ability to implement the various features and solutions offered by machine learning within the field of education. WHAT YOU WILL LEARN ● Get familiar with the fundamentals of Machine Learning. ● Explore different Machine learning solutions for primary and secondary education. ● Discover ways to use Machine learning enhanced teaching and learning. ● Understand how AI can be used to assess your child's academic progress. ● Understand how Machine learning can assist educational administrators. WHO THIS BOOK IS FOR The book is suitable for anyone who is directly or indirectly involved in the current education landscape, including students, parents, teachers, and educational administrators. No previous knowledge of machine learning is required. TABLE OF CONTENTS 1. Basics of Machine Learning 2. Machine Learning for Students 3. Machine Learning for Parents 4. Machine Learning for Teachers 5. Machine Learning for Educational Administrators

ai and machine learning in education: OECD Digital Education Outlook 2021 Pushing the Frontiers with Artificial Intelligence, Blockchain and Robots OECD, 2021-06-08 How might digital technology and notably smart technologies based on artificial intelligence (AI), learning analytics, robotics, and others transform education? This book explores such question. It focuses on how smart technologies currently change education in the classroom and the management of educational organisations and systems.

ai and machine learning in education: Machine Learning Hamed Farhadi, 2018-09-19 The volume of data that is generated, stored, and communicated across different industrial sections, business units, and scientific research communities has been rapidly expanding. The recent developments in cellular telecommunications and distributed/parallel computation technology have enabled real-time collection and processing of the generated data across different sections. On the one hand, the internet of things (IoT) enabled by cellular telecommunication industry connects various types of sensors that can collect heterogeneous data. On the other hand, the recent advances in computational capabilities such as parallel processing in graphical processing units (GPUs) and distributed processing over cloud computing clusters enabled the processing of a vast amount of data. There has been a vital need to discover important patterns and infer trends from a large volume of data (so-called Big Data) to empower data-driven decision-making processes. Tools and techniques have been developed in machine learning to draw insightful conclusions from available data in a structured and automated fashion. Machine learning algorithms are based on concepts and tools developed in several fields including statistics, artificial intelligence, information theory, cognitive science, and control theory. The recent advances in machine learning have had a broad range of applications in different scientific disciplines. This book covers recent advances of machine learning techniques in a broad range of applications in smart cities, automated industry, and emerging businesses.

ai and machine learning in education: Artificial Intelligence in Higher Education Prathamesh Padmakar Churi, Shubham Joshi, Mohamed Elhoseny, Amina Omrane, 2022-08-29 The global adoption of technology in education is transforming the way we teach and learn. Artificial Intelligence is one of the disruptive techniques to customize the experience of different learning groups, teachers, and tutors. This book offers knowledge in intelligent teaching/learning systems, and advances in e-learning and assessment systems. The book highlights the broad field of artificial

intelligence applications in education, regarding any type of artificial intelligence that is correlated with education. It discusses learning methodologies, intelligent tutoring systems, intelligent student guidance and assessments, intelligent education chatbots, and artificial tutors and presents the practicality and applicability implications of AI in education. The book offers new and current research along with case studies showing the latest techniques and educational activities. The book will find interest with academicians which includes teachers, students of various disciplines, higher education policymakers who believe in transforming the education industry, and research scholars who are pursuing their Ph.D. or Post Doc. in the field of Education Technology, Education, and Learning, etc. and those working in the area of Education Technology and Artificial Intelligence such industry professionals in education management and e-learning companies.

ai and machine learning in education: Deep Learning for Coders with fastai and PyTorch Jeremy Howard, Sylvain Gugger, 2020-06-29 Deep learning is often viewed as the exclusive domain of math PhDs and big tech companies. But as this hands-on guide demonstrates, programmers comfortable with Python can achieve impressive results in deep learning with little math background, small amounts of data, and minimal code. How? With fastai, the first library to provide a consistent interface to the most frequently used deep learning applications. Authors Jeremy Howard and Sylvain Gugger, the creators of fastai, show you how to train a model on a wide range of tasks using fastai and PyTorch. You'll also dive progressively further into deep learning theory to gain a complete understanding of the algorithms behind the scenes. Train models in computer vision, natural language processing, tabular data, and collaborative filtering Learn the latest deep learning techniques that matter most in practice Improve accuracy, speed, and reliability by understanding how deep learning models work Discover how to turn your models into web applications Implement deep learning algorithms from scratch Consider the ethical implications of your work Gain insight from the foreword by PyTorch cofounder, Soumith Chintala

ai and machine learning in education: Artificial Intelligence Supported Educational Technologies Niels Pinkwart, Sannyuya Liu, 2020-04-29 This book includes a collection of expanded papers from the 2019 Sino-German Symposium on AI-supported educational technologies, which was held in Wuhan, China, March, 2019. The contributors are distinguished researchers from computer science and learning science. The contributions are organized in four sections: (1) Overviews and systematic perspectives , (2) Example Systems, (3) Algorithms, and (4) Insights gained from empirical studies. For example, different data mining and machine learning methods to quantify different profiles of a learner in different learning situations (including interaction patterns, cognitive modes, knowledge skills, interests and emotions etc.) as well as connections to measurements in psychology and learning sciences are discussed in the chapters.

ai and machine learning in education: AI Injected e-Learning Matthew Montebello, 2017-10-27 This book reviews a blend of artificial intelligence (AI) approaches that can take e-learning to the next level by adding value through customization. It investigates three methods: crowdsourcing via social networks; user profiling through machine learning techniques, and personal learning portfolios using learning analytics. Technology and education have drawn closer together over the years as they complement each other within the domain of e-learning, and different generations of online education reflect the evolution of new technologies as researcher and developers continuously seek to optimize the electronic medium to enhance the effectiveness of e-learning. Artificial intelligence (AI) for e-learning promises personalized online education through a combination of different intelligent techniques that are grounded in established learning theories while at the same time addressing a number of common e-learning issues. This book is intended for education technologists and e-learning researchers as well as for a general readership interested in the evolution of online education based on techniques like machine learning, crowdsourcing, and learner profiling that can be merged to characterize the future of personalized e-learning.

ai and machine learning in education: AI and Ed George A. Goens, 2021-11-12 The United States has undergone several major transformations economically, politically, and socially. Today, the impact of artificial intelligence will bring another transformation affecting citizens' private lives

as well as employment, communication, politics, and almost every other aspect of life. The question artificial intelligence raises is: what kind of education will students need in confronting the obvious and projected impact of technology? Transformations affect obvious aspects of life, but also raise significant issues that challenge values, ethics and standards. The purpose of this book is to define the role of education and its goals, content, and approaches that will assist citizens in addressing the challenges the artificial intelligence movement brings to the life of citizens. Positive aspects of the transformation include communication, productivity, and other issues. However, there are hazards and downsides to artificial intelligence that must be addressed through an educated society. Education's role encompasses assisting individuals to address the positive and negative aspects of any creative intervention. Thinking coupled with insight into principles, ethics, and the meaning of life are critical. Education prepares individuals for changing times in order to protect their freedoms and democracy and find a life of purpose and meaning.

ai and machine learning in education: *Fostering Communication and Learning With Underutilized Technologies in Higher Education* Ali, Mohammed Banu, Wood-Harper, Trevor, 2020-09-04 Higher education is undergoing radical changes with the arrival of emerging technology that can facilitate better teaching and learning experiences. However, with a lack of technical awareness, technophobia, and security and trust issues, there are several barriers to the uptake of emerging technologies. As a result, many of these new technologies have been overlooked or underutilized. In the information systems and higher education domains, there exists a need to explore underutilized technologies in higher education that can foster communication and learning. *Fostering Communication and Learning With Underutilized Technologies in Higher Education* is a critical reference source that provides contemporary theories in the area of technology-driven communication and learning in higher education. The book offers new knowledge about educational technologies and explores such themes as artificial intelligence, digital learning platforms, gamification tools, and interactive exhibits. The target audience includes researchers, academicians, practitioners, and students who are working or have a keen interest in information systems, learning technologies, and technology-led teaching and learning. Moreover, the book provides an understanding and support to higher education practitioners, faculty, educational board members, technology vendors and firms, and the Ministry of Education.

ai and machine learning in education: Artificial Intelligence and Inclusive Education Jeremy Knox, Yuchen Wang, Michael Gallagher, 2019-06-13 This book brings together the fields of artificial intelligence (often known as A.I.) and inclusive education in order to speculate on the future of teaching and learning in increasingly diverse social, cultural, emotional, and linguistic educational contexts. This book addresses a pressing need to understand how future educational practices can promote equity and equality, while at the same time adopting A.I. systems that are oriented towards automation, standardisation and efficiency. The contributions in this edited volume appeal to scholars and students with an interest in forming a critical understanding of the development of A.I. for education, as well as an interest in how the processes of inclusive education might be shaped by future technologies. Grounded in theoretical engagement, establishing key challenges for future practice, and outlining the latest research, this book offers a comprehensive overview of the complex issues arising from the convergence of A.I. technologies and the necessity of developing inclusive teaching and learning. To date, there has been little in the way of direct association between research and practice in these domains: A.I. has been a predominantly technical field of research and development, and while intelligent computer systems and 'smart' software are being increasingly applied in many areas of industry, economics, social life, and education itself, a specific engagement with the agenda of inclusion appears lacking. Although such technology offers exciting possibilities for education, including software that is designed to 'personalise' learning or adapt to learner behaviours, these developments are accompanied by growing concerns about the in-built biases involved in machine learning techniques driven by 'big data'.

ai and machine learning in education: *Machine Learning and Human Intelligence* Rosemary Luckin, 2018 Intelligence is at the heart of what makes us human, but the methods we use for

identifying, talking about and valuing human intelligence are impoverished. We invest artificial intelligence (AI) with qualities it does not have and, in so doing, risk losing the capacity for education to pass on the emotional, collaborative, sensory and self-effective aspects of human intelligence that define us. To address this, Rosemary Luckin--leading expert in the application of AI in education - proposes a framework for understanding the complexity of human intelligence. She identifies the comparative limitation of AI when analyzed using the same framework, and offers clear-sighted recommendations for how educators can draw on what AI does best to nurture and expand our human capabilities.

ai and machine learning in education: Getting Smart Tom Vander Ark, 2011-09-20 A comprehensive look at the promise and potential of online learning In our digital age, students have dramatically new learning needs and must be prepared for the idea economy of the future. In Getting Smart, well-known global education expert Tom Vander Ark examines the facets of educational innovation in the United States and abroad. Vander Ark makes a convincing case for a blend of online and onsite learning, shares inspiring stories of schools and programs that effectively offer personal digital learning opportunities, and discusses what we need to do to remake our schools into smart schools. Examines the innovation-driven world, discusses how to combine online and onsite learning, and reviews smart tools for learning Investigates the lives of learning professionals, outlines the new employment bargain, examines online universities and smart schools Makes the case for smart capital, advocates for policies that create better learning, studies smart cultures

ai and machine learning in education: Artificial Intelligence and Machine Learning for Digital Pathology Andreas Holzinger, Randy Goebel, Michael Mengel, Heimo Müller, 2020-06-24 Data driven Artificial Intelligence (AI) and Machine Learning (ML) in digital pathology, radiology, and dermatology is very promising. In specific cases, for example, Deep Learning (DL), even exceeding human performance. However, in the context of medicine it is important for a human expert to verify the outcome. Consequently, there is a need for transparency and re-traceability of state-of-the-art solutions to make them usable for ethical responsible medical decision support. Moreover, big data is required for training, covering a wide spectrum of a variety of human diseases in different organ systems. These data sets must meet top-quality and regulatory criteria and must be well annotated for ML at patient-, sample-, and image-level. Here biobanks play a central and future role in providing large collections of high-quality, well-annotated samples and data. The main challenges are finding biobanks containing “fit-for-purpose” samples, providing quality related meta-data, gaining access to standardized medical data and annotations, and mass scanning of whole slides including efficient data management solutions.

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ai and machine learning in education: Artificial Intelligence in Education Elisabeth André, Ryan Baker, Xiangen Hu, Ma. Mercedes T. Rodrigo, Benedict du Boulay, 2017-06-22 This book constitutes the refereed proceedings of the 18th International Conference on Artificial Intelligence in Education, AIED 2017, held in Wuhan, China, in June/July 2017. The 36 revised full papers presented together with 4 keynotes, 37 poster, presentations, 4 doctoral consortium papers, 5 industry papers, 4 workshop abstracts, and 2 tutorial abstracts were carefully reviewed and selected from 159 submissions. The conference provides opportunities for the cross-fertilization of approaches, techniques and ideas from the many fields that comprise AIED, including computer science, cognitive and learning sciences, education, game design, psychology, sociology, linguistics as well as many domain-specific areas.

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