AI-driven Personalized Learning

Description

Integrating Artificial Intelligence (AI) into teaching plans may transform traditional classrooms into student-centered environments. AI-driven personalized learning can be designed to meet individual student's needs, preferences, and pace, enabling a more efficient and engaging learning experience. AI technology plays a big part in the personalized learning approach because "it allows the differentiation of instruction, assessment, and expression of learning as well as the collection of student

data (Howton, 2022).” Personalized learning with AI not only enhances students’ ability to use technology and have control of their learning process but also provides educators with valuable data to help students reach their learning objectives. I want to explore *how AI can support teachers and students in personalized learning.*

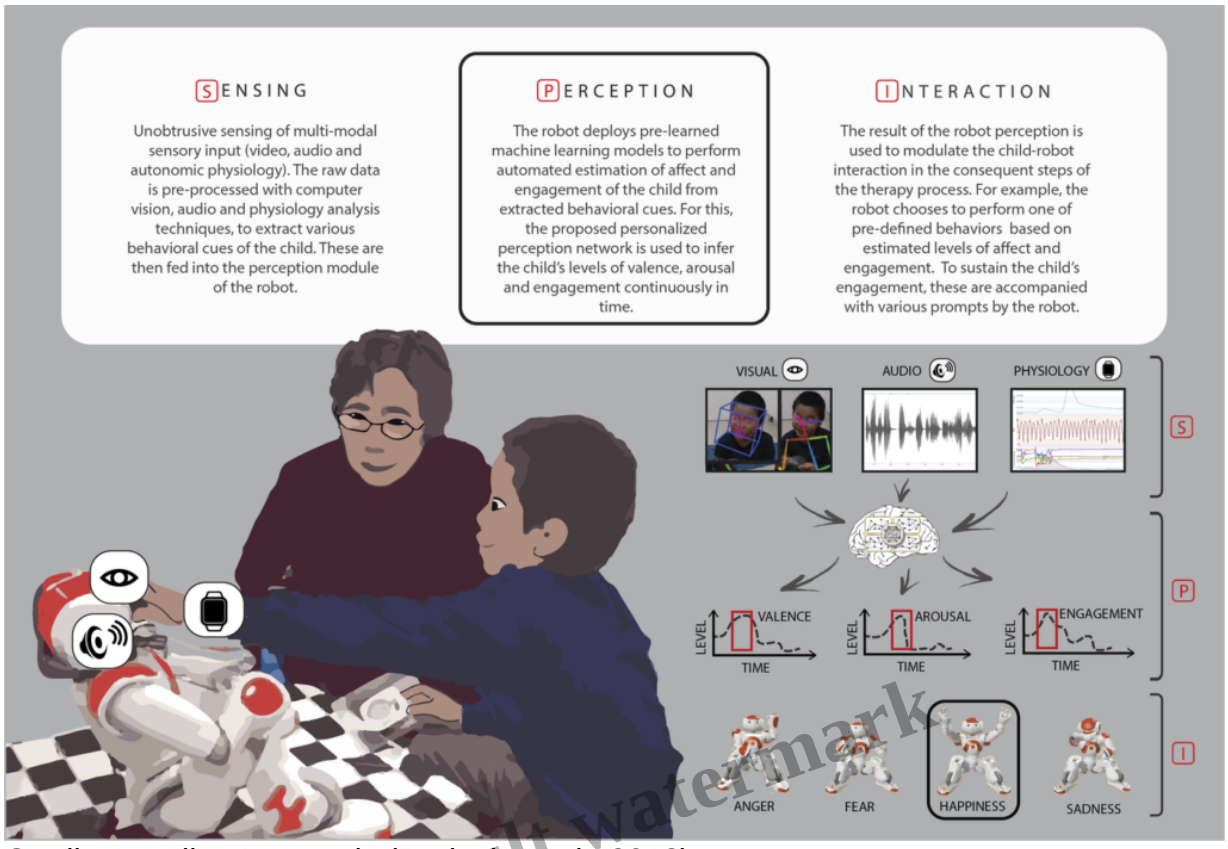
AI-driven personalized learning

Personalized learning is a student-centric instructional approach focusing on educational content, pace, and assessment to accommodate individual learning preferences and needs. It recognizes that each student possesses unique strengths, challenges, and interests and aims to provide a learning experience that adapts accordingly. By empowering learners to take ownership of their education, personalized learning endeavors unlock their full potential and nurture a lifelong passion for learning (Howton, 2022).
AI-powered personalized learning can adapt to each student’s unique learning style, strengths, and weaknesses. Through data analytics, AI algorithms can identify knowledge gaps and design customized learning paths, allowing students to learn concepts at their own pace. AI can also provide immediate and constructive feedback on student performance. This real-time assessment enables students and teachers to monitor progress, identify areas for improvement, and refine their learning strategies accordingly. It empowers learners to explore subjects they are passionate about, making the learning process more enjoyable and practical and enhancing engagement (Santana, 2023). Also, automating repetitive tasks through AI reduces the burden on educators, cost-effectively freeing up time for more personalized interactions with students.

AI for students with learning disabilities

AI’s adaptability is particularly beneficial for students with learning disabilities or requiring special accommodations. It ensures that every learner receives the support they need, fostering inclusivity in the classroom. According to the article “Revolutionizing Personalized Learning: How Is AI Changing Education?” by Tiago Santana (June 30, 2023), AI can transform special education by providing personalized support to students with diverse learning needs. For students with disabilities, AI-powered tools can offer assistive technologies that adapt to their requirements. AI can improve accessibility and ensure that students with disabilities have access to rich learning opportunities. AI technology, like advanced speech synthesis technologies, is among the more promising applications of AI for students who rely on assistive technologies (EDUCAUSE, 2018).

Researchers at the MIT Media Lab have developed a type of personalized machine learning that helps robots estimate the engagement and interest of each child during therapy sessions, using data that is unique to that child. This personalized “deep learning” network allows the robots to interpret the child’s behavior and respond appropriately, improving the therapy’s effectiveness (Rudovic et al., 2018). Another study at USC’s Department of Computer Science has developed personalized learning robots for children with Autism. They also studied whether the robots could estimate a child’s interest in a task using machine learning (Jain et al., 2020).



Credit: Angelina Lazarevic (Rudovic et al., 2018)

Here are some examples of AI-driven digital tools that are widely used for students with learning disabilities (retrieved from Bing search):

Proloquo2Go: This is an Argumentative and Alternative Communication (AAC) app for Autism that uses pictures and symbols to help children with speech impairments construct simple sentences.
TouchChat HD: This is another AAC app designed for children with ASD, Down Syndrome, or ADHD, as these disorders impair a child's ability to use natural speech.
Choice works: This app helps children complete daily routines and tasks, understand and control their feelings, and improve their patience.
AutiSpark: This is a one-of-a-kind educational app for children with Autism Spectrum Disorder (ASD) with specially designed learning games approved by experts.

In addition, AI is being further developed to help those involved in assessment identify disabilities in students, such as autism spectrum disorder (ASD), specific learning disabilities like dyslexia, dysgraphia, and dyscalculia, and attention-deficit/hyperactivity disorder (ADHD). AI can help educators identify learning disabilities and appropriately support students needing them.

Challenges

Data Privacy: One of the primary concerns with AI in personalized learning is collecting and handling sensitive student data. Schools and tech companies must prioritize data security and comply with stringent privacy regulations to safeguard student information.
Bias: AI algorithms may contain inherent biases from trained data; the AI system may reflect these biases in educational content, assessments, and recommendations.
Digital Divide:

AI-powered personalized learning relies heavily on technology access. Students from underprivileged backgrounds or schools lacking resources may not have opportunities to benefit from this approach, widening the digital divide.

Also, AI's predictive capabilities may lead to a focus on specific learning outcomes, potentially hindering students' creativity and critical thinking (Retrieved from ChatGPT, 2023). Striving to balance structured learning and open-ended exploration is vital to cultivating well-rounded individuals. Relying heavily on AI-driven solutions might lead to reduced human interaction and personalized guidance from teachers. There needs to be a balance between technology and traditional teaching methods to keep the learning environment healthy.

Conclusion:

AI has the potential to revolutionize personalized learning, enriching the educational experience for millions of students worldwide (Santana, 2023). However, like any technology, AI in education has its pros and cons. By embracing the strengths of AI while resolving the challenges, educators and policymakers can strive to create a future for personalized learning, empowering students to their fullest potential to become lifelong learners. Furthermore, AI has the potential to significantly improve the educational experience of students with disabilities by providing personalized support and assistive technologies that adapt to their needs. *ISTE Coaching Standard 3 – Collaborators emphasize the need for coaches to "Personalize support for educators by planning and modeling the effective use of technology to improve student learning."* AI-driven personalized learning can address the need of individual students to improve learning and support educators through effective use of technology. The right balance between AI technology and human intervention could maximize the potential of AI-driven personalized learning. Educators must consider the purposeful design of blended instruction to combine face-to-face teaching, technology-assisted instruction, and student-to-student collaboration to leverage each student's interests for deeper learning (Howton, 2022).

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