AI AND MACHINE LEARNING IN ENGLISH LANGUAGE TEACHING (ELT)

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Annotation

This article provides an in-depth examination of the scientific and practical aspects of Artificial Intelligence and Machine Learning in English Language Teaching. It discusses adaptive learning systems, virtual tutors, and automated assessments, emphasizing their potential benefits and ethical challenges. This paper presents a comprehensive exploration of Artificial Intelligence (AI) and Machine Learning (ML) applications in English Language Teaching (ELT), focusing on their transformative potential in personalizing instruction, enhancing assessment, and creating adaptive learning environments. It examines the scientific foundations of AI-driven language learning and addresses critical challenges including ethical considerations and teacher roles.

Keywords: Artificial Intelligence, Machine Learning, English Language Teaching, Natural Language Processing, Adaptive Learning, Virtual Tutors, Automated Assessment, Educational Technology, Language Learning, Ethical Considerations

ИСКУССТВЕННЫЙ ИНТЕЛЛЕКТ И МАШИННОЕ ОБУЧЕНИЕ В ПРЕПОДАВАНИИ АНГЛИЙСКОГО ЯЗЫКА (ELT)

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Аннотация

В данной статье проводится всесторонний анализ научных и практических аспектов применения искусственного интеллекта и машинного обучения в преподавании английского языка. Рассматриваются адаптивные

обучающие системы, виртуальные тьюторы и автоматизированные формы оценивания, при этом особое внимание уделяется их потенциальным преимуществам и этическим вызовам. Целью статьи является информирование педагогов, исследователей и разработчиков образовательной политики о трансформирующем воздействии ИИ на сферу языкового образования, а также определение направлений для будущих междисциплинарных исследований. Настоящее исследование предлагает комплексное изучение применения искусственного интеллекта (ИИ) и машинного обучения (МО) в области преподавания английского языка как иностранного (ELT), акцентируя внимание на их потенциале в индивидуализации обучения, совершенствовании методов оценивания и создании адаптивных образовательных сред. Анализируются научные основы ИИ-ориентированного языкового обучения, современные инструменты и платформы, а также критические проблемы, включая вопросы этики и роль преподавателя. Данное исследование вносит вклад в более глубокое понимание процессов трансформации ELT под влиянием ИИ и МО и определяет направления для дальнейших исследований.
Ключевые слова: искусственный интеллект, машинное обучение, преподавание английского языка, обработка естественного языка, адаптивное обучение, виртуальные тьюторы, автоматизированное оценивание, образовательные технологии, изучение языков, этические аспекты.

Sun'iy intellekt va mashinali o‘qitish ingliz tilini o‘qitishda (ELT)

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Annotatsiya

Ushbu maqolada sun’iy intellekt va mashinali o‘qitishning ingliz tilini o‘qitish (ELT) sohasidagi ilmiy va amaliy jihatlari chuqur tahlil qilinadi. Adaptiv

o‘quv tizimlari, virtual repetitorlar va avtomatlashtirilgan baholash tizimlari muhokama qilinib, ularning potensial afzalliklari hamda etik muammolari alohida ta’kidlanadi. Mazkur maqolaning asosiy maqsadi — ta’lim beruvchilar, tadqiqotchilar va siyosat ishlab chiquvchilarni sun’iy intellektning til ta’limiga ko‘rsatayotgan transformatsion ta’siri haqida xabardor qilish hamda kelajakdagi multidisiplinar tadqiqotlar uchun yo‘nalishlar belgilashdir. Maqolada sun’iy intellekt (SI) va mashinali o‘qitish (MO) texnologiyalarining ingliz tilini o‘qitishdagi qo‘llanilish imkoniyatlari keng qamrovda yoritiladi. Tadqiqot ELT sohasida SI va MO texnologiyalarining qanday o‘zgarishlarga olib kelayotganini kengroq tushunishga hissa qo‘shadi hamda kelgusidagi izlanishlar uchun asos yaratadi.

Kalit so‘zlar: *sun’iy intellekt, mashinali o‘qitish, ingliz tilini o‘qitish, tabiiy tilni qayta ishlash, adaptiv o‘qitish, virtual repetitorlar, avtomatlashtirilgan baholash, ta’lim texnologiyalari, til o‘rganish.*

The global demand for English language proficiency continues to grow, driven by globalization, international mobility, and the digital economy. Traditional methods of language instruction, while foundational, are often insufficient to meet the diverse needs of contemporary learners. The advent of Artificial Intelligence (AI) and Machine Learning (ML) offers unprecedented opportunities to address these challenges by providing scalable, personalized, and interactive learning experiences. This paper delves into the scientific principles behind AI and ML, their practical implementations in ELT, and the implications for learners and educators. AI and ML are subsets of computer science that enable machines to simulate human cognitive functions such as learning, reasoning, and problem-solving. In language education, these technologies employ natural language processing (NLP), deep learning, and neural networks to analyze linguistic data, model learner behavior, and generate personalized content.

1. Natural Language Processing (NLP) in ELT

NLP is central to AI-driven language learning tools. It allows machines to understand, interpret, and generate human language. Techniques such as syntactic parsing, semantic analysis, and sentiment detection are employed in applications like automated essay scoring, conversational agents, and language translation tools. NLP advancements enable precise grammar checks, contextual vocabulary suggestions, and coherent dialogue simulations. Deep learning, based on artificial neural networks, allows systems to learn from large datasets without explicit programming. In ELT, deep learning models enhance speech recognition accuracy, improve pronunciation feedback, and refine chatbots' conversational abilities. For instance, systems trained on diverse English accents contribute to more inclusive and effective language learning platforms.

2. Key Applications of AI and ML in ELT

AI-powered adaptive learning platforms continuously assess learner performance and adjust content difficulty accordingly. Systems like "Duolingo" and "Rosetta Stone" employ reinforcement learning algorithms to tailor exercises, ensuring learners are neither under-challenged nor overwhelmed. This personalized approach maximizes engagement and retention. Virtual tutors simulate human-like interactions, offering learners opportunities to practice speaking and writing in low-stress environments. Chatbots such as "Replika" or "Andy English Bot" utilize NLP to sustain contextual dialogues, enhancing fluency and conversational competence. Moreover, AI tutors provide instant corrections and suggestions, fostering self-directed learning. AI enhances formative and summative assessment processes by automating grading and providing detailed feedback. Tools like Grammarly and Criterion analyze essays for grammar, coherence, and stylistic appropriateness. Speech recognition technologies evaluate pronunciation and intonation, supporting learners in developing oral proficiency. AI-driven gamification elements—points, badges, leaderboards—are integrated into ELT platforms to increase motivation. These systems dynamically adjust challenges based on learner progress, promoting a sense of achievement and sustained engagement.

3. Benefits of AI and ML in ELT

AI facilitates highly individualized learning paths. By analyzing learner data, AI systems identify knowledge gaps and deliver customized content, fostering autonomy and self-paced learning. This aligns with constructivist educational theories emphasizing active learner engagement. AI-powered tools break geographical and socio-economic barriers, offering quality language instruction to marginalized groups. Immediate feedback is crucial for language acquisition.

4. Challenges and Ethical Considerations

The reliance on user data raises significant concerns regarding privacy and data protection. AI systems must comply with regulations such as the General Data Protection Regulation (GDPR) to ensure ethical data handling and prevent misuse. In models trained on biased datasets risk perpetuating stereotypes or marginalizing certain learner groups. The subtleties of language, cultural nuances, and emotional intelligence require human mediation. Teachers must evolve into facilitators who guide learners in navigating AI tools effectively.

5. Future Directions in AI-Driven ELT

Combining AI with VR/AR technologies can create immersive language learning environments. Learners can practice English in simulated real-world scenarios, enhancing contextual understanding and communicative competence. Emerging AI systems capable of detecting learner emotions can adapt instruction based on engagement levels. Developing comprehensive ethical guidelines is imperative to navigate the complexities of AI-driven ELT.

Conclusion

AI and ML represent a paradigm shift in English Language Teaching, offering personalized, scalable, and interactive learning experiences. Their scientific foundations in NLP and deep learning enable sophisticated applications that enhance language acquisition. However, ethical considerations, data privacy, and the irreplaceable role of human educators must guide their integration. Continued

research and dialogue are essential to harness the full potential of AI in ELT while safeguarding educational values and learner well-being.

References

1. Al-Azzawi, M. (2022). *Artificial Intelligence in Language Learning: Theories and Applications.* International Journal of Emerging Technologies in Learning (iJET), 17(4), 34-45.
2. Huang, Y. M., & Lin, Y. T. (2020). *Evaluating the Effectiveness of AI-Based Language Learning Applications.* Educational Technology & Society, 23(2), 78-90.
3. Isakulova Bakhtigul, & Nizomov Feruz. (2025, March 6). Teaching english in contemporary approaches: an educational evolution. Prospects of teaching english for professional purposes in non – philological higher education institutions: problems and solutions, Uzbekistan. https://doi.org/10.5281/zenodo.14978139
4. Hockly, N. (2018). *Artificial Intelligence in English Language Teaching: An Overview.* ELT Journal, 72(4), 387-396.