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Artificial Intelligence in Higher Education: Transforming Teaching and Learning in Computer Science

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Abstract: *Artificial Intelligence (AI) is revolutionizing higher education by enhancing teaching methodologies, personalizing learning experiences, and improving administrative efficiency. In computer science education, AI-driven tools such as intelligent tutoring systems, automated grading systems, adaptive learning platforms, and predictive analytics are significantly transforming instructional practices. This study examines the impact of AI in higher education with special emphasis on computer science programs. The research explores faculty adoption, student engagement, and learning outcomes through qualitative and quantitative analysis. A structured survey and secondary data review were conducted to evaluate the effectiveness of AI-based tools in academic environments. The findings indicate that AI enhances learning efficiency, supports personalized instruction, and improves academic performance; however, challenges such as ethical concerns, data privacy, and lack of technical expertise remain barriers to full implementation. The paper concludes with recommendations for effective AI integration in higher education institutions.*

Keywords: Artificial Intelligence, Higher Education, Computer Science Education, Adaptive Learning, Educational Technology