

EXPLORING THE INTEGRATION OF QUANTUM MACHINE LEARNING ALGORITHMS IN HIGHER EDUCATION TO ENHANCE CURRICULUM DEVELOPMENT AND CYBERSECURITY PROGRAMS

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Abstract

This research delved into a dynamic landscape in exploring the integration of Quantum Machine Learning (QML) algorithms in higher education for curriculum development and cybersecurity programs. The study aimed to investigate the potential impact of QML on higher education and the security domain, addressing the evolving educational needs and the ever-pressing cybersecurity challenges. Through comprehensive analysis, this research unveiled the transformative capacity of QML technology and its implications for the academic and security sectors. Research findings disclosed significant gaps in current curricula and the need for a comprehensive approach to QML integration. Faculty and student perceptions illustrated the challenges and opportunities surrounding QML, with the former emphasizing the necessity for professional development and the latter expressing enthusiasm and the desire for more hands-on experiences. Insights from cybersecurity experts highlighted QML's potential in fortifying security measures, underlining the importance of collaboration between quantum computing and cybersecurity communities. This research contributes by providing a multifaceted understanding of QML integration in higher education and its ability to reshape learning and security paradigms. However, it acknowledges certain limitations, such as sample diversity and the evolving nature of quantum technology. Despite these limitations, this exploration lays the groundwork for

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