

Quantum Computers and their Application in Future Era

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Abstract: *In the realm of computational paradigms, quantum computing stands as the harbinger of an unprecedented era, promising to redefine the limits of problem-solving and data processing. Harnessing the principles of quantum mechanics, these machines leverage quantum bits (qubits) to perform calculations that defy the capabilities of classical computers. This review explores the transformative potential of quantum computers across various domains, from cryptography to material science, envisioning a future where complex simulations and optimizations once deemed impractical become routine. As quantum supremacy edges closer, this technology not only challenges the frontiers of computing but also beckons a new age of innovation and discovery.*

Keywords: Quantum computing, Computational paradigms, Quantum mechanics, Qubits, Problem-solving, Data processing, Transformative potential, Cryptography, Material science, Quantum supremacy