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(57) Abstract :
METHOD AND SYSTEM FOR PROVIDING QUANTUM COMPUTING ARCHITECTURE WITH ERROR CORRECTION MECHANISMS
ABSTRACT The present invention discloses a method and system for providing a quantum computing architecture with error correction mechanisms. The method involves initiating a quantum computing process using qubits, implementing error detection mechanisms during the process, and identifying errors based on these mechanisms. Subsequently, error correction techniques are applied to mitigate the detected errors, resulting in the generation of a quantum computing result with enhanced accuracy. The error correction mechanisms include parity checks and syndrome measurements, while error correction techniques encompass the application of quantum error correction codes. The invention ensures real-time monitoring of quantum computations, adaptive error correction, and optimization to minimize computational overhead. By combining entanglement-based error detection and logical qubits, the system provides robust error correction for various quantum computing applications, promising advancements in the reliability and precision of quantum computations.

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