ABSTRACT

Provisional Patent Application

Docket No. RUTHERFORD-015-PROV

ABSTRACT OF THE DISCLOSURE

A quantum-inspired Ultra-Low Latency Decision Engine for the MWRASP (Total) defensive cybersecurity platform achieves sub-10 millisecond threat response through deliberate acceptance of 0.1-1% logical error rates—100 to 10,000 times higher than traditional quantum systems. The invention introduces a Latency-First Quantum Architecture (LFQA) that intentionally trades computational accuracy for response speed, creating a previously unexplored parameter space in quantum computing. The system comprises: (1) a three-tier adaptive error mitigation framework that dynamically adjusts accuracy based on threat criticality; (2) aggressive tensor network approximations with bond dimensions capped at 64 and retention of only the top 10% of singular values; (3) predictive quantum state caching for 1 million pre-computed threat signatures; (4) room-temperature silicon photonic processing operating at 95% gate fidelity instead of 99.9%; and (5) defensive AI agent orchestration for coordinated enterprise protection. Operating at less than 1kW power consumption in standard data center environments without cryogenic cooling, the system enables practical quantum advantage for real-time cybersecurity applications. The deliberate error acceptance design philosophy circumvents existing quantum computing patents while providing immediate threat mitigation capabilities impossible with current fault-tolerant quantum approaches. The MWRASP (Total) integration enables comprehensive Mathematical Woven Responsive Adaptive Swarm Platform protection across distributed enterprise infrastructures.

Word Count: 196 words (within 150-word limit when condensed)

CONDENSED VERSION FOR USPTO FILING

(150 words maximum)

A quantum-inspired Ultra-Low Latency Decision Engine achieves sub-10 millisecond cybersecurity threat response by deliberately accepting 0.1-1% logical error rates—100-10,000x higher than traditional quantum systems. The Latency-First Quantum Architecture trades accuracy for speed through: three-tier adaptive error mitigation (5% error/<1ms, 1% error/1-5ms, 0.1% error/5-10ms); aggressive tensor approximations with 64-dimension bonds; predictive caching of 1 million threat signatures; room-temperature photonic processing at 95% fidelity; and defensive AI agent orchestration. Operating at

<1kW in standard data centers without cryogenic cooling, the system provides practical quantum advantage for real-time threat mitigation. This deliberate error acceptance paradigm creates a unique parameter space circumventing existing quantum patents while enabling immediate threat response impossible with fault-tolerant quantum systems. The MWRASP (Total) framework integrates Mathematical Woven Responsive Adaptive Swarm Platform components for comprehensive enterprise protection.

Word Count: 130 words

END OF ABSTRACT

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