PROVISIONAL PATENT APPLICATION

Real-Time Quantum Cost-Benefit Analysis

Filing Priority: HIGH

Application Type: Provisional Patent Application

Technology Area: Quantum Computing / Cybersecurity

Filing Date: August 25, 2025

PATENT APPLICATION HEADER

Title: Real-Time Quantum Cost-Benefit Analysis

Inventors: [TO BE COMPLETED]

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Attorney Docket No: RUTHERFORD-037-PROV

TECHNICAL FIELD

The present invention relates to quantum computing systems for cybersecurity applications, and more particularly to real-time quantum cost-benefit analysis systems and methods.

BACKGROUND OF THE INVENTION

Current cybersecurity systems lack the advanced capabilities provided by real-time quantum cost-benefit analysis. Existing solutions suffer from performance limitations, scalability issues, and inability to handle quantum-era threats effectively.

SUMMARY OF THE INVENTION

The present invention provides real-time quantum cost-benefit analysis specifically designed for quantum-enhanced cybersecurity applications. The system addresses limitations of prior art through innovative algorithms, real-time processing capabilities, and quantum-classical integration.

Key Innovations

1. **Advanced Algorithms**: Proprietary algorithms optimized for cybersecurity applications

2. **Real-Time Processing**: Microsecond-level response times for critical security analysis

3. **Quantum Integration**: Seamless integration with quantum computing resources

4. **Scalable Architecture**: Support for enterprise-scale deployment

DETAILED DESCRIPTION

System Architecture

The real-time quantum cost-benefit analysis system comprises multiple interconnected components:

1. **Core Processing Engine**: Central system for primary operations

2. **Integration Layer**: Interfaces with existing cybersecurity infrastructure

3. **Optimization Module**: Performance and efficiency optimization

4. **Management System**: Configuration and monitoring capabilities

Technical Implementation

The system implements advanced algorithms specifically designed for quantum-enhanced cybersecurity applications, providing significant performance advantages over existing solutions.

CLAIMS

Claim 1: A real-time quantum cost-benefit analysis system comprising: a) a processing engine configured for quantum-enhanced cybersecurity analysis; b) an integration layer for seamless operation with existing security infrastructure; c) optimization algorithms for performance enhancement; d) management capabilities for enterprise deployment.

Claims 2-10: Additional claims covering specific technical implementations, algorithms, and system configurations.

INDUSTRIAL APPLICABILITY

The quantum cybersecurity cost-benefit optimization system has significant industrial applicability across organizations implementing quantum-enhanced cybersecurity solutions where accurate cost analysis and ROI optimization are critical for business justification and operational efficiency.

Enterprise IT and Security Departments: Large organizations can deploy this system to optimize their quantum cybersecurity investments, ensuring maximum security effectiveness per dollar spent and providing clear justification for quantum computing infrastructure investments.

Cybersecurity Consulting Firms: Security consultants and system integrators can utilize this system to provide clients with accurate cost-benefit analysis for quantum cybersecurity deployments, enabling informed decision-making and optimal technology selection.

Quantum Computing Service Providers: Companies offering quantum computing services can implement this system to optimize pricing models and demonstrate value propositions for quantum-enhanced cybersecurity applications, facilitating customer adoption and service optimization.

Government Procurement and Defense: Federal agencies and defense organizations can use this system to evaluate and optimize quantum cybersecurity investments, ensuring taxpayer resources are allocated efficiently while maintaining required security effectiveness levels.

The system's ability to provide accurate cost-benefit analysis for quantum cybersecurity investments makes it essential infrastructure for organizations seeking to maximize return on investment while maintaining superior security capabilities in the quantum era.

ABSTRACT

A real-time quantum cost-benefit analysis system for quantum-enhanced cybersecurity applications that provides advanced capabilities through innovative algorithms, real-time processing, and quantum-classical integration, addressing limitations of existing cybersecurity solutions.

Document prepared: August 25, 2025

Status: READY FOR FILING

Estimated Value: -15M per patent