PERFORMANCE OPTIMIZATION ALGORITHM PATENT

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ABSTRACT

A system and method for optimizing enterprise operational performance through machine learning-enabled process analysis and automated optimization recommendations. The invention comprises a multi-layered algorithmic framework that ingests real-time operational data from IoT sensors, applies predictive analytics to identify performance bottlenecks, and generates automated optimization protocols to enhance operational efficiency.

BACKGROUND OF INVENTION

[0001] Enterprise operations face increasing complexity in managing and optimizing performance across distributed systems and processes. Traditional methods of performance optimization rely heavily on manual analysis and reactive adjustments, leading to inefficiencies and delayed response times.

[0002] The present invention addresses these limitations through an innovative approach to automated performance optimization using advanced machine learning algorithms and real-time data processing capabilities.

SUMMARY OF INVENTION

[0003] The invention provides a comprehensive system for enterprise performance optimization through:

- Real-time operational data collection via distributed IoT sensors
- Machine learning-based pattern recognition and anomaly detection
- Predictive analytics for performance bottleneck identification
- Automated optimization protocol generation
- Continuous learning and adaptation mechanisms

DETAILED DESCRIPTION

System Architecture

[0004] The system comprises:

a) Data Ingestion Layer

- IoT sensor network interface
- Real-time data streaming capabilities
- Data validation and normalization protocols

b) Analytics Engine

- Machine learning model framework
- Pattern recognition algorithms
- Predictive analytics modules

c) Optimization Protocol Generator

- Rule-based decision engine
- Dynamic protocol adjustment mechanism
- Implementation pathway generator

Core Algorithms

[0005] The primary optimization algorithm utilizes:

Gradient boosting decision trees for pattern recognition

Neural network-based anomaly detection

Reinforcement learning for optimization protocol generation

Implementation Method

[0006] The system implements optimization through:

Initial system baseline establishment

Continuous data collection and analysis

Real-time performance monitoring

Automated protocol generation and adjustment

Implementation tracking and validation

CLAIMS

A method for enterprise performance optimization comprising:

a) Collecting real-time operational data through distributed IoT sensors

b) Processing collected data through machine learning algorithms

c) Generating automated optimization protocols

d) Implementing and tracking optimization recommendations

The method of claim 1, wherein the machine learning algorithms comprise:

a) Pattern recognition modules

b) Anomaly detection systems

c) Predictive analytics engines

A system for implementing the method of claim 1, comprising:

a) Data collection infrastructure

b) Processing engines

c) Protocol generation modules

d) Implementation tracking mechanisms

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DECLARATION

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Executed on: March 15, 2023

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POWER OF ATTORNEY

The undersigned hereby appoints Sarah Johnson (Reg. No. 65432) of Technology Patents LLP as attorney of record with full power of substitution and revocation to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

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