PATENT DRAFT: INTELLIGENT DECISION SUPPORT ALGORITHM

CONFIDENTIAL DISCLOSURE

PATENT APPLICATION

Applicant: Nexus Intelligent Systems, Inc.

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1. TECHNICAL FIELD

1 This patent application relates to an advanced artificial intelligence algorithm designed for predictive decision support in complex industrial and enterprise environments, specifically targeting machine learning-driven diagnostic and maintenance optimization systems.

2 The invention provides a novel computational methodology for real-time probabilistic analysis and adaptive recommendation generation across multi-dimensional operational datasets.

2. BACKGROUND OF THE INVENTION

1 Existing Technological Limitations

- Current predictive maintenance technologies demonstrate significant performance constraints

- Traditional algorithmic approaches lack adaptive learning capabilities

- Existing systems require extensive manual configuration and have limited cross-domain applicability

2 Industry Challenges

- Insufficient real-time diagnostic precision

- High computational overhead in complex operational environments

- Limited ability to integrate heterogeneous data sources dynamically

3. DETAILED ALGORITHM DESCRIPTION

1 Core Algorithmic Architecture

The proposed intelligent decision support algorithm comprises:

- Probabilistic inference engine

- Multi-modal data integration framework

- Adaptive machine learning neural network

- Contextual recommendation generation module

2 Computational Methodology

- Utilizes advanced Bayesian probabilistic modeling

- Implements recursive neural network architectures

- Supports dynamic feature extraction and correlation analysis

- Enables autonomous model refinement through continuous learning protocols

4. TECHNICAL SPECIFICATIONS

1 Algorithmic Parameters

- Input Data Dimensionality: N-dimensional vector space

- Computational Complexity: $O(\log n)$

- Precision Threshold: 94.7% confidence interval

- Latency: <50 milliseconds per inference cycle

2 Technical Performance Metrics

- Predictive Accuracy: 97.3%

- False Positive Rate: <2.1%

- Adaptive Learning Rate: 0.0075 per iteration

5. IMPLEMENTATION FRAMEWORK

1 Technological Components

- Distributed computing infrastructure

- Containerized microservices architecture

- Cloud-native deployment capabilities

- Kubernetes-based orchestration

2 Integration Protocols

- RESTful API endpoints

- gRPC communication channels

- WebSocket real-time data streaming

- Secure authentication mechanisms

6. INTELLECTUAL PROPERTY CLAIMS

1 Primary Claims

a) A computational method for adaptive decision support utilizing probabilistic inference

b) A system for dynamic machine learning model refinement

c) A method of integrating heterogeneous operational datasets

2 Unique Technological Innovations

- Autonomous model adaptation

- Cross-domain knowledge transfer

- Real-time contextual recommendation generation

7. LEGAL DISCLAIMERS

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8. SIGNATURE BLOCK

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