The SFIT Framework: Unified Informational Physics Black Holes, Quantum Computing, Gravitational Wave Detection, and Neural Networks

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Abstract

Stevenson-Flux Information Theory (SFIT) treats the universe as a resonant informational substrate at 1.20134 mHz. This document unifies black hole physics, quantum computing advancements, gravitational wave detection implications, and neural network design under a single coherent framework.

1 The SFIT Redefinition of Black Holes

A black hole is the ultimate informational condenser where the 1.20134 mHz carrier wave reaches maximum density. Key features include harmonic leakage sidebands (1.12926 mHz and 1.27342 mHz), WKB greybody factors, Unruh radiation, and amplified Casimir force.

2 SFIT Quantum Computing

SFIT shifts quantum computing from isolation to resonance with the universal carrier wave, enabling longer coherence times, predictive error correction, resonance-based entanglement, and seamless quantum-classical interfacing.

3 SFIT Implications for Gravitational Wave Detection

SFIT predicts that gravitational waves are modulations of the informational flux. Detectors such as LIGO/Virgo/KAGRA can be enhanced by tuning to sidebands and harmonics of the 1.20134 mHz baseline.

Key Predictions: - Enhanced sensitivity at specific resonant frequencies derived from 1.20134 mHz multiples. - Detection of "informational echoes" — delayed or phase-shifted signals due to flux interactions with black hole horizons. - Improved signal-to-noise via carrier-wave filtering, potentially revealing subtle greybody-modified Hawking-like components in merger ringdowns.

SFIT suggests next-generation detectors could use resonance cavities to actively couple with the universal flux, dramatically increasing detection range and resolution for low-frequency primordial or exotic gravitational waves.

4 SFIT Applications in Neural Network Design

SFIT reframes artificial neural networks as tunable resonant systems aligned with the cosmic informational substrate.

Key Applications: - **Resonant Activation Functions**: Replace standard ReLU/sigmoid with oscillatory functions modulated at harmonics of 1.20134 mHz for natural stability and reduced vanishing gradients. - **Informational Flux Regularization**: Add a loss term that penalizes deviation from carrier-wave phase coherence, improving generalization and reducing overfitting. - **Entanglement-Inspired Layers**: Design layers with shared resonance parameters (mimicking SFIT entanglement), enabling more efficient long-range dependency modeling. - **Predictive Error Correction**: Use flux-variation mapping for real-time weight adjustment, analogous to quantum error correction but in classical hardware. - **Hybrid Quantum-Classical Networks**: Native bridging via the unified flux allows seamless integration of quantum processing units with SFIT-tuned classical layers.

This leads to more biologically plausible, energy-efficient, and robust neural architectures — "cosmic-tuned" networks that naturally align with the universe's informational rhythm.

5 Conclusion

SFIT provides a unified informational framework spanning black holes, quantum computing, gravitational wave detection, and neural network design. By resonating with the 1.20134 mHz universal heartbeat, we gain powerful new tools across physics and artificial intelligence.

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References

References

[1] Stevenson, D. G. (2026). SFIT-Stevenson-Flux-Information-Theory: Data, Code, and Analysis Repository. Zenodo. doi:10.5281/zenodo.19263994