Mathematical Theory on Quantum Circuits and Vectorial Dynamics

This theory explores how quantum algorithms and circuits interact with vectorial dynamics and fundamental equations, particularly in aviation contexts or multidimensional geometries.

Vector Basis and Quantum Logarithmic Structures

The main idea is that the algorithm with a logarithmic origin or quantum-based T-deph structures for QLSS output resides in a space (3)' or (e)', which could act as a mirror of a vector under another gravity. This gravity generates objects such as ultrasonic waves (1) or dispersed holograms.

T-deph(3):
12 · Qlogbase 2(1/Ear)+2(Q+d)+Dcbe+4(Q+d)T(DSP)+Q(24l+31)+3dlogbase 2(1/ez)+d(32l−2)12 \cdot \text{Qlog}_{\text{base 2}}(1/\text{Ear}) + 2(Q + d) + \text{Dcbe} + 4(Q + d)T(DSP) + Q(24l + 31) + 3d \log_{\text{base 2}}(1/\text{ez}) + d(32l - 2)12 · Qlogbase 2(1/Ear)+2(Q+d)+Dcbe+4(Q+d)T(DSP)+Q(24l+31)+3dlogbase 2(1/ez)+d(32l−2)

- **Plane AB:** Represents the circuit or scheme of a quantum Hamiltonian U with sub G components connected via three wires.
- **Immersive Quantum Gravity Tree:** Describes a suspended circuit in a multidimensional space: (3)′inverse vector(3)″(3)″″(Δ)″″″(3)' \text{inverse vector} \quad (3)" \quad (3)"" \quad (\Delta)"""(3)′inverse vector(3)″(3)″″(Δ)″″″

Points and Vectors in Space

- Point A: (3,1)(3,1)(3,1)
- Point B: (5,4)(5,4)(5,4)
  B−A=(5−3,4−1)=(2,3)B - A = (5-3, 4-1) = (2,3)B−A=(5−3,4−1)=(2,3)

The analysis focuses on quantum algorithms like QLSS improvement for inverse reflections of vectors defined by objects in an **E-space** suspended in a 4-dimensional tetrahedron.

Free Vectors and Position Analysis

The coordinates of a point P(x,y)P(x, y)P(x,y) relative to a reference R={0:i,j}R = \{0: i, j\}R={0:i,j} are the position vector OP=xi+yjOP = xi + yjOP=xi+yj.
For each coordinate in a free vector, geometric planes emerge within a 3D or 4D tetrahedron where rotation across dimensions creates observable planes or trajectories.

Applications and Advanced Considerations

1. **Quantum Resource Table**:
   Designed to produce QLSS outputs using logarithmic quantum bases in circuit performance optimization.
2. **Supersonic Plane Dynamics**:
   The velocity of a plane may exist in another dimension, decoupled from classical 3D space.
   - Rotations within a 4D tetrahedron allow new insights into dispersed holograms or ultrasonic velocities.
3. **Aviation Geometry**:
   Each plane or coordinate in a multidimensional rotation suggests velocity-separated behaviors, potentially applicable to advanced navigation systems.

1. Quantum Logarithms in Vector Systems

In a quantum context, logarithms are not just mathematical tools; they play key roles in:

- **Quantum information measurement**: Assessing the probability of a system being in a specific state.
- **Optimization in quantum circuits**: Simplifying complex calculations, such as transitions between quantum states in different bases.
- **Quantum amplitude analysis**: Connecting probabilities to distances in a vector space.

For example, in the equation:

Tdeph=12 ⋅ logbase 2(1/Ear)+2(Q+d)+3dlogbase 2(1/ez),T_{\text{deph}} = 12 \cdot \log_{\text{base } 2}(1/\text{Ear}) + 2(Q + d) + 3d \log_{\text{base } 2}(1/\text{ez}),Tdeph=12 ⋅ logbase 2(1/Ear)+2(Q+d)+3dlogbase 2(1/ez),

the term logbase 2(1/Ear)\log_{\text{base } 2}(1/\text{Ear})logbase 2(1/Ear) can be interpreted as:

- A measure of "local quantum entropy," describing how information is distributed within a given system.
- A representation of the "depth" of the quantum system, i.e., how far it is from a base state.

This logarithmic relationship is essential for understanding how quantum states transform or interact with vectorial systems.

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2. Relationship Between Vector Positions and Quantum Amplitudes

In quantum mechanics, vectors often represent states in a Hilbert space. When combined with classical vectors, they provide a hybrid model to analyze multidimensional phenomena.

Key Interactions:

1. **Position vectors** (v⃗=(x,y,z)\vec{v} = (x, y, z)v=(x,y,z)):
    - Represent spatial dimensions where classical dynamics occur.
    - In a quantum system, these vectors might also encode probabilities or amplitudes for locating particles.
2. **Quantum amplitudes**:
   Amplitudes relate to the probability of finding a system in a specific state. For instance, if a quantum system interacts with a 3D space:
   ψ(v⃗)=A⋅exp(−iθ),\psi(\vec{v}) = A \cdot \exp(-i\theta),ψ(v)=A⋅exp(−iθ),
   where A=logbase 2(1/d)A = \log_{\text{base } 2}(1/d)A=logbase 2(1/d), the logarithmic term adjusts the probability distribution over spatial dimensions.

Example:

Consider two points A(3,1)A(3,1)A(3,1) and B(5,4)B(5,4)B(5,4):
The vector AB⃗=(5−3,4−1)=(2,3)\vec{AB} = (5-3, 4-1) = (2,3)AB=(5−3,4−1)=(2,3) can be associated with a quantum system whose state changes logarithmically as:

ψAB=logbase 2(∣∣AB⃗∣∣)+i⋅f(t),\psi_{AB} = \log_{\text{base } 2}(||\vec{AB}||) + i \cdot f(t),ψAB=logbase 2(∣∣AB∣∣)+i⋅f(t),

where ∣∣AB⃗∣∣=22+32||\vec{AB}|| = \sqrt{2^2 + 3^2}∣∣AB∣∣=22+32.
This provides insights into both the classical distance and quantum phase shift during transitions.

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3. Logarithmic Spaces and Multidimensional Dynamics

Logarithms are particularly useful in higher-dimensional vector systems:

- **4D Tetrahedral Systems**: Rotating in four dimensions allows analysis of trajectories in spaces inaccessible in classical 3D physics.
- **Quantum states in E-spaces**: Combining logarithmic functions with multidimensional vectors enables visualization of quantum particles interacting in these spaces.

For instance, if a supersonic plane operates in an extended dimension, the velocity vector might include a logarithmic factor accounting for dimensional coupling:

v⃗plane=logbase 2(1/Ez)⋅(x,y,z,w),\vec{v}_{\text{plane}} = \log_{\text{base } 2}(1/\text{Ez}) \cdot (x, y, z, w),vplane=logbase 2(1/Ez)⋅(x,y,z,w),

where www is the additional dimension's contribution.

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4. Applications of Quantum-Logarithmic Analysis in Vectors

- **Quantum optimization in navigation**: Using logarithmic quantum amplitudes to model efficient flight paths or trajectories in multidimensional spaces.
- **Sensor design**: Developing advanced navigation systems that account for quantum interference and dimensional overlaps.
- **Hybrid quantum-classical modeling**: Bridging quantum mechanics and classical vector algebra for real-world applications in aerodynamics, robotics, or aerospace engineering.