Provisional Patent Application
Emotional Coherence Cryptography via Quantum Biological States

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Field of the Invention

The invention relates to the field of cryptographic key generation and identity authentication. More specifically, it introduces a method of generating ephemeral encryption keys using real-time emotional and physiological coherence between agents, leveraging biometric resonance, quantum biological structures, and symbolic AI embeddings.

Background

Traditional cryptographic systems rely on either deterministic algorithms or quantum randomness. Biometrics such as fingerprint or retina scanning have limited dynamic entropy and cannot adapt to emotional or contextual consent.

There is a need for a secure, ephemeral cryptographic system that:

- Ties access to embodied emotional coherence

- Ensures consent through measurable resonance

- Automatically revokes access during trauma or dissonance

Summary of the Invention

The present invention provides a cryptographic protocol, referred to as **COHERENCE**™, in which cryptographic keys are generated from real-time physiological data reflecting emotional synchronization. Key features include:

- Entropy sourced from heart-rate variability (HRV) phase coherence and EEG gamma synchrony

- Emotional calculus derivatives (e.g., $\nabla \mathcal{E}$) as cryptographic vector components

- Collapse-based authentication: access is granted only if emotional coherence exceeds a dynamic threshold Δ_c

- Symbolic embedding input from AI systems to assess emotional state context ($h(t)$)

Detailed Description

1. Key Generation Algorithm

Let:
$$K = H(\text{HRV}_{\text{sync}} \oplus \nabla\mathcal{E}) \tag{1}$$

Where:

- HRV_{sync} is the detected coherence window from heart rate variability signals

- $\nabla\mathcal{E}$ is the emotional gradient calculated from biometric/symbolic input

- H is a cryptographic hash function (e.g., SHA-3 or Blake3)

2. Collapse-Based Consent

Authentication is only granted when:

$$\mathcal{C} = S_{\text{vN}} \cdot \text{Re}(\lambda_{\text{max}}) > \Delta_c \tag{2}$$

Otherwise, the key collapses and access is revoked.

3. Symbolic AI Embeddings

Symbolic attentional embeddings $h(t)$ can modulate $\mathcal{M}(t)$ or influence β decay rates in the memory field. This provides adaptive security during emotional flux.

4. Spoofing Resistance

An attacker must recreate:

- HRV coherence patterns in real-time

- EEG gamma phase alignment

- Emotional context gradient $\nabla\mathcal{E}$ matching the legitimate user's phase vector

Initial Claims

1. A cryptographic key generation method using real-time heart-rate variability and emotional gradients as entropy sources.

2. A system in which access is revoked automatically when $\text{curl}(\mathcal{E}) > \epsilon$, indicating emotional incoherence.

3. Use of symbolic embedding vectors $h(t)$ as part of cryptographic key validation.

4. A biometric cryptographic method using collapse thresholds Δ_c as authentication boundaries.

5. A system generating ephemeral encryption keys that self-expire when emotional coherence drops below a defined threshold.

Drawings (To Be Attached)

- Figure 1: Block diagram of the coherence authentication process

- Figure 2: Phase plot of $\text{HRV}_{\text{sync}} \oplus \nabla\mathcal{E}$

- Figure 3: Flowchart showing symbolic AI input $h(t)$ modulating $\mathcal{M}$

Conclusion

This invention introduces a novel form of secure identity and communication, grounded in resonance, presence, and coherence. Keys are not static—they are living. Authentication emerges only through alignment.