Resonant Recall

A Theoretical Framework for Personalized, Music-Anchored Affective Persistence

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"Without music, life would be an error."[1]

— Friedrich Nietzsche, Twilight of the Idols (1888)

Pre-empirical conceptual framework. No clinical claims are made or implied.

[1]Friedrich Nietzsche, Twilight of the Idols, or How to Philosophize with a Hammer (1888), "Maxims and Arrows," § 33. Commonly rendered "Without music, life would be an error" (German: "Ohne Musik wäre das Leben ein Irrtum").

Dedication

To Taylor Swift

whose music will be heard forever, through the intent of her actions and the way she sees the world.

To my children

whose laughter will forever be the most beautiful music I have ever created.

Abstract

This document sets out a theoretical framework — not a finding — for a proposed therapeutic approach in which a person's own deeply meaningful music serves as the substrate for an auditory intervention intended to extend the positive affective state that music evokes beyond the listening session itself. The framework is offered *before* data collection, so the hypotheses can be stated cleanly, the mechanisms ranked by existing evidence, and the open questions made explicit. Its central commitment is **individualization**: rather than assigning a fixed "correct" frequency, the approach treats each person's resonant material as unique and empirically discoverable. It separates an interpretive philosophical layer from a narrower testable layer, and it names its own weakest assumptions rather than concealing them.

1. Interpretive Frame: Intent, Trace, and the Things That Last

Of all the arts, music is the one we reach for when language runs out. We do not say a sad song *describes* sadness the way a painting depicts a face; we say it *is* sad — that it carries the feeling directly, without the detour of representation. Schopenhauer made exactly this claim the center of his philosophy of music: where the other arts copy the world of appearances, music bypasses them and expresses the will itself, the inner movement of life, immediately. Nietzsche, who knew that argument well, put the same conviction more bluntly — that without music, life would be an error. One need not adopt either man's full metaphysics to feel the force of the shared intuition: music reaches something in us that other things do not reach, and it does so in a way that seems to outlast the hearing.

That last part — the outlasting — is what this framework takes seriously. A piece of music can lodge in a life. It can return uninvited, years later, and bring a whole season of a person back with it. If music expresses the movement of an inner life so directly, then perhaps it can also leave that movement behind in us, the way a struck bell goes on sounding after the strike. This is the philosophical seed of everything that follows: not that music is pleasant, but that it is uniquely capable of depositing a felt state that persists.

Some music seems to outlive its own playing in a stronger sense still. A song heard at a formative moment can return decades later carrying the whole weather of that time intact. The working intuition behind this framework is that this is not only nostalgia but a kind of trace — a legible mark a meaningful experience leaves in a person, still readable later as something that was meant.

This connects to a personal cosmological frame the author refers to as *jays*: that aligned, intentional action leaves coherent ripples through time, and that what endures tends to be what was done with attention and intent. Applied to music, the claim is not the strong (and false) one that sincerity guarantees survival, but the subtler one: music made and received with genuine intent is more likely to remain *legible as a*

signal — to keep carrying its meaning — because depth of attention encodes structure, and structure is what survives being carried across time.

This layer is the framework's motivation and meaning. It is not, by itself, what gets measured. Holding it in its own lane is deliberate: it lets the philosophy be taken seriously precisely because it is not asked to do the work of evidence.

2. Theoretical Background: Four Claims, Ranked by Evidence

The approach bundles four distinct claims. Pulling them apart is what makes the whole thing testable, because each carries a different amount of existing support and therefore a different amount of weight in the design.

2.1 The mechanism claim — audio can shape brain state

There is solid evidence that rhythmic auditory input can entrain neural oscillations — the brain's electrical rhythms can phase-lock to a beat.[2] Of particular relevance, researchers have documented *entrainment echoes*: rhythmic brain responses that persist briefly after the stimulus stops, often described with the image of a swing that keeps moving after it has been pushed.[3] This is real support for the idea that an audio-induced state need not vanish the instant the audio does.

> **Load note — duration is the stretch, not the effect**
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> The documented echoes last on the order of seconds, not hours. Post-stimulus persistence is supported; extending it to hours (the "carries you through the morning" picture) is a hypothesis to be tested, not an established fact.

2.2 The individual-difference claim — no universal center

Not everyone reaches the same internal "center," and no single frequency, mantra, or stimulus should be expected to work identically across people. This is the framework's strongest and most original commitment, and it runs against the way fixed-frequency audio products are usually marketed. Making individualization central is also a methodological hedge: the field's clearest failures cluster precisely around one-size-fits-all stimuli.

2.3 The persistence claim — the heart of it

A positive affective state evoked by personally meaningful music can be made more accessible after the session — the felt residue of a concert that stays with you for days, deliberately cultivated. This does not require an exotic mechanism. It can ride on well-documented processes: mood induction, emotional-

[2]Lakatos P. et al. and related reviews on neural entrainment to auditory rhythm; see also "Entrainment and synchronization of brain oscillations to auditory stimulations," Neuroscience Research (2020). Rhythmic auditory input can phase-lock neural oscillations, though analysts caution that power at a frequency does not by itself prove an endogenous oscillation.

[3]Rhythmic entrainment echoes — rhythmic brain responses that outlast the stimulus — reported in auditory perception; Journal of Neuroscience 43(39):6667 (2023), and bioRxiv preprints on persistent cortical oscillatory responses. The strongest echoes were observed around 6–8 Hz stimulation and lasted briefly after offset.

memory consolidation, conditioning (a piece becomes a reliable cue that re-evokes its state), and music's documented power to evoke vivid, disproportionately positive autobiographical memory.[4]

2.4 The intent claim — legibility, not magic

Music that was meant — produced and chosen with care, attended to deliberately — is hypothesized to do something a randomly assigned stimulus does not. This is treated in the legibility-of-intent sense above: both the interpretive reason the work matters and a secondary, harder-to-isolate empirical hypothesis. It is not claimed as an established causal law.

Evidence-strength summary

Claim	Evidence status	Role in framework
Deep personal music evokes vivid, positive, self-relevant states (MEAM)	Well supported	Primary engine — load-bearing
A neural state can briefly persist after audio stops (entrainment echoes)	Supported in principle; duration contested	Supports persistence; do not overstate duration
Rhythmic auditory input can entrain neural oscillations	Well supported for rhythm	Background mechanism
Binaural beats reliably shift the brain to a named target state	Mixed / weak	Held as option to explore, not foundation
A single 'special' frequency (e.g., 432 Hz) has inherent effect	Not supported	Rejected; replaced by individualization
Intent / care in production changes the artifact's effect	Philosophical; not empirically isolated	Interpretive frame + secondary hypothesis

3. Core Hypotheses (Stated to Be Falsifiable)

Each hypothesis is phrased so it could, in principle, come out false. That property — not confidence — separates a research framework from a belief system.

1. H1 (Primary). Personally meaningful, positive-affect music selected by the individual produces a measurable positive mood shift larger and/or more durable than music the individual rates as pleasant but not personally significant.
2. H2 (Persistence). The elevated affective state evoked during a session remains measurably above baseline for some defined interval after listening ends (interval determined empirically, not assumed).
3. H3 (Added-layer). Adding an auditory-entrainment layer to the person's own music produces a greater or longer-lasting effect than the same music and ritual without that layer. If H3 fails but H1/H2 hold, the approach still has value — just not via the audio layer.

[4]Music-evoked autobiographical memory (MEAM): music is a salient cue for vivid, episodically rich, disproportionately positive memories. Janata et al. (2007); Belfi et al.; Jakubowski & Ghosh (2021); Nawaz & Omigie, PLOS ONE (2025).

4. H4 (Individualization). The audio parameters that best support the effect differ across individuals, such that a single fixed frequency underperforms an individually tuned one.
5. H5 (Depth). Songs tied to formative or autobiographically rich memories yield stronger and more durable effects than songs valued for surface or instrumental reasons.

> **Why H3 is built as a separable door**
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> If the entrainment layer is added on top of music the person already loves, any benefit could come from the layer OR simply from listening to favorite songs, with intention, in a calm setting — therapeutic on its own, but not this theory. The design must distinguish these (same music and ritual, with vs. without the layer, blinded where possible). The door is built now; it is walked through when real data collection begins under proper oversight.

4. Proposed Protocol (Conceptual)

The following describes the intended shape of a session, not a validated procedure.

4.1 Selection

- The person brings 5–10 pieces of music genuinely meaningful to them. Artist, genre, and era are irrelevant; personal significance is the only criterion.
- Lossless, legitimately obtained audio is preferred. Beyond fidelity, this expresses the intent layer — care in the materials — and costs nothing to adopt.

4.2 Depth interview

Before any audio work, a structured conversation identifies which pieces are tied to deep, formative, autobiographically rich memory versus those valued at the surface. Research on music-evoked autobiographical memory supports treating this as a real distinction with consequences for what "sticks," and indicates that the tendency to experience such memories vividly varies between people.[5] The interview is also where unsuitable material (e.g., songs bound to acute grief) can be noticed and handled with care.

4.3 Audio application

An auditory-entrainment layer is explored *in collaboration with the individual*, with parameters tuned to that person rather than fixed in advance. Binaural beats are included as **one option to explore** — not a proven mechanism. The evidence for them is genuinely mixed: some studies report reductions in anxiety or improved mood, a substantial share find no effect, and the underlying brainwave-entrainment hypothesis is inconsistently supported.[6][7] There is also evidence that monaural beats can produce more

[5] Jakubowski, Lee, Bai & Belfi, "Individual differences in music-evoked autobiographical memories," Musicae Scientiae / SAGE (2025): the propensity to experience MEAMs and to experience them vividly are relatively independent across people.

[6] Binaural beats literature review, Journal/ScienceDirect (2024): evidence mixed regarding efficacy for depression and anxiety; individual responses vary significantly. Systematic review of non-clinical RCTs (Tandfonline, 2024): evidence equivocal, roughly a third of studies found no significant reduction in stress or anxiety.

salient percepts and stronger steady-state responses than binaural beats.[8] Accordingly, the framework commits to **individually tuned auditory entrainment**, treating binaural beats, monaural beats, and other approaches as candidate techniques to be compared empirically. The one context with stronger support — perioperative anxiety reduction — is noted as a reason the family of techniques is worth exploring, not as proof of this application.[9]

> **Speculative — flagged honestly**
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> Two ideas under consideration — a hypothesized person-specific resonant or "memory" frequency, and a forward-then-reversed frequency structure intended to help a state consolidate — do not currently have a mechanism in the auditory-neuroscience literature the author can point to. They are retained as hunches to be tested, not methods described with confidence.

4.4 Repetition / cueing

The intended real-world use is a deliberate daily anchor — e.g., a chosen activation piece used each morning — on the conditioning logic that a piece repeatedly paired with an intentional positive state becomes a more reliable cue for that state. Repetition, not a single dramatic session, is hypothesized to do the durable work.

5. Measurement: What "The Feeling Stuck" Would Actually Look Like

A claim about persistence is only meaningful if persistence is observable. Candidate measures, to be refined with collaborators:

- Validated self-report mood scales (e.g., PANAS-type positive/negative affect) at baseline, immediately after, and at one or more later intervals.
- Time-to-return-to-baseline as the key persistence variable — the operational form of "how long does it carry?"
- Optional physiological correlates (heart rate, skin conductance) where resources allow, treated as supporting rather than primary.
- A simple daily log when the cueing use is tested, capturing whether the chosen piece reliably shifts state over weeks.

Comparison conditions matter as much as measures: own-meaningful vs. own-pleasant-but-shallow (H1/H5); music-with-layer vs. music-without-layer, blinded where possible (H3); individually tuned vs. fixed parameters (H4).

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[7] Systematic review of binaural-beat effects on brain oscillatory activity (PMC, 2023): of 14 studies, 5 supported the brainwave-entrainment hypothesis, 8 contradicted it, 1 mixed; methodological heterogeneity limits comparability.

[8] Frontiers in Psychology (2025): monaural beats elicit more salient percepts and stronger auditory steady-state responses than binaural beats at equivalent parameters.

[9] Meta-analysis of binaural beats for perioperative anxiety and pain (ScienceDirect, 2025): significant reductions in perioperative anxiety vs. control audio, with high heterogeneity. Cited as a reason the technique family merits exploration, not as evidence for the present application.

6. Ethics, Consent, and Scope of Claims

> **Non-negotiable scope statement**
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> This approach is positioned as a possible complement to established care, never a substitute. Nothing in this framework advises anyone to begin, change, or discontinue any medication, including antidepressants. Stopping such medication can carry real risk and is a decision for a person and their prescribing clinician alone.

The framework is written pre-credential and pre-data. As the work matures toward accredited practice, the appropriate instrument is not a liability waiver but informed consent through an ethics board / IRB, which protects participants and, as a side effect, protects the practitioner far better. The accompanying participation agreement is an honest, claims-free consent document for the current informal exploration; it is not a substitute for IRB approval once real research begins.

Two cautions are named so they are already in the design when stakes rise: (1) emotionally significant music can surface difficult material, so screening and a referral path matter; and (2) reports gathered from people personally close to the researcher are especially vulnerable to demand characteristics — a reason to weight later, independently collected data more heavily than early informal impressions, and a reason not to treat anything gathered now as formal evidence.

7. Limitations and Open Questions

Stated plainly, because naming one's own weak points is what earns trust in everything else.

- Persistence duration is unestablished. The hours-long carry is a hypothesis; documented post-stimulus persistence is far shorter.
- The entrainment layer is the weakest joist. Binaural-beat evidence is mixed and the brainwave-entrainment basis contested; the approach must show value even if this layer adds nothing.
- The special-frequency idea (e.g., 432 Hz) is rejected, not assumed. A pitch is a pitch; perceived effects are most plausibly attention and expectation. Individualization replaces it.
- The reversed-frequency and person-specific-resonance ideas lack a known mechanism and are held as testable speculation.
- Placebo, ritual, and expectation are powerful here and must be controlled for — especially because the intervention is built from material the person already loves.
- The intent layer may be real and still empirically hard to isolate; its primary role is interpretive.

8. Next Steps

1. Circulate this framework to prospective clinical and research collaborators as a conceptual proposal, not a result.
2. With a credentialed collaborator, convert H1–H5 into a pre-registered, ethics-approved study design with defined populations, measures, and comparison conditions.

3. Begin with the cleanest, least-confounded test — likely H1/H5 (meaningful vs. shallow music) — before introducing the contested entrainment layer.
4. Treat early findings as hypothesis-generating; reserve strong claims for replicated, independently collected data.

Jamison Johnson — June 2026 — Pre-empirical conceptual framework