

Cybernetics, Music, and Recovery

An emerging framework for trauma-informed, peer based wellness



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Hello world. I'm Zeke Martin-Brunkhart.

- PDX raised; NYC educated 🌲 🏙️ 💡
- Elder Millennial / Xennial 💾 🧬 ⚡
- Queer widower 🏳️‍🌈 🕯️ 👻
- Artist; writer; dancer; adventurer; inquirer
📷 🙌 🚀 🧩
- Peer Wellness Specialist 🧠 💜 🤝 🚑



Disclaimer!

- This is a workshop designed to solicit feedback
- While much of the work presented here is backed by scholarly research, many of the conclusions and takeaways are emergent frameworks that require further inquiry.
- This work may be less accessible to/for people with hearing/sensory differences.

STOP!

Collaborate and Listen



Today we will explore three things:

- What cybernetics is
- What music is, what it means, and what it does to the brain
- How both music and cybernetics can support recovery and wellness

What is cybernetics? An ecology of everything!

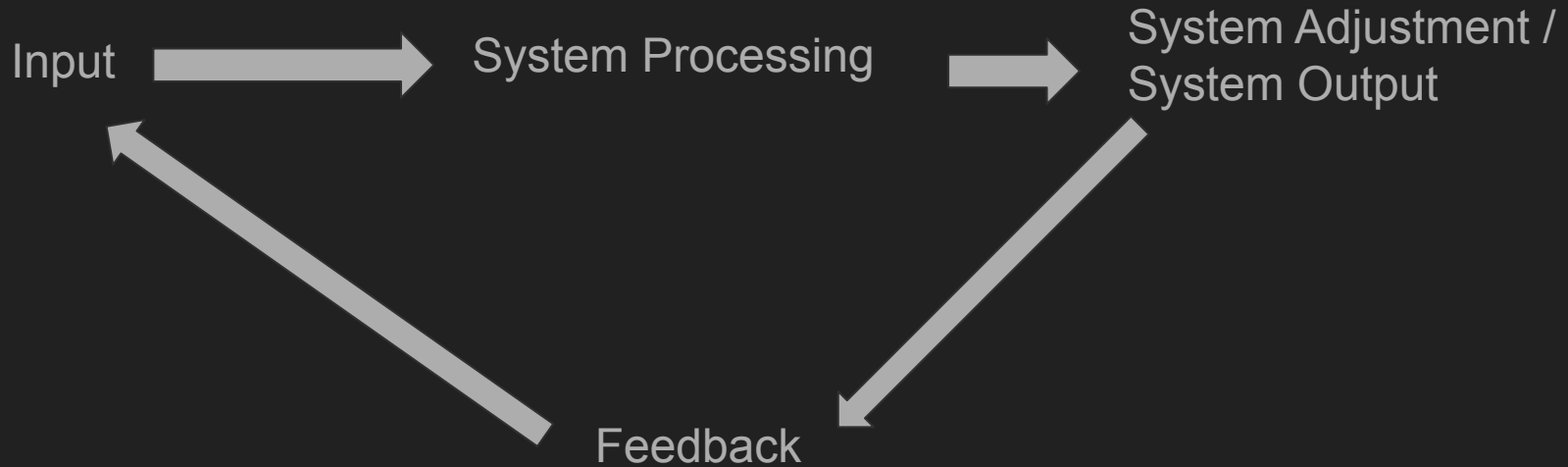
-Transdisciplinary study of systems, feedback, and self regulation.

-Greek: κυβερνήτης (kybernētēs); meaning “those who steer” or “those who govern”.

-Applications include living, social, and technological systems.

[Haworth \(2021\)](#)
[Cybernetics \(2022\)](#)

Cybernetic Feedback Loops



Cybernetics is really just about feedback cycles.

1. An input event triggers a system response.
2. The system produces output.
3. The output is measured or sensed as feedback, which informs adjustment.
4. The loop cycles back to influence the next input event.

Second order cybernetics



Why cybernetics in wellness and recovery?

- I believe a cybernetic approach to peer wellness is useful because behavioral health challenges are **not** located solely within individuals.
- Rather, the problems we face involve individuals **and** larger systems, such as: economies, social structures, institutions, ecosystems, complex cultural histories, family histories, and even technologies.
- This assertion is backed social determinants of health frameworks.
- Thus, recovery is also found at the intersections of self and systems.

What is music?

- Music is an audio art form whereby creators use harmony, melody, and rhythm to convey information.
- Every culture on earth produces music, and it has been made since prehistoric times.
- The information in music can be relayed across time, space, and culture.
- Music transcends conventional language. It can be understood, produced, and enjoyed by individuals regardless of their language(s).
- Music can be used to communicate feelings, emotions, ideas, and experiences that might not otherwise be communicated.

[Becker \(2021\)](#)

[Music \(2022\)](#)

[StarTalk \(2024\)](#)

Music therapy is a well established professional field

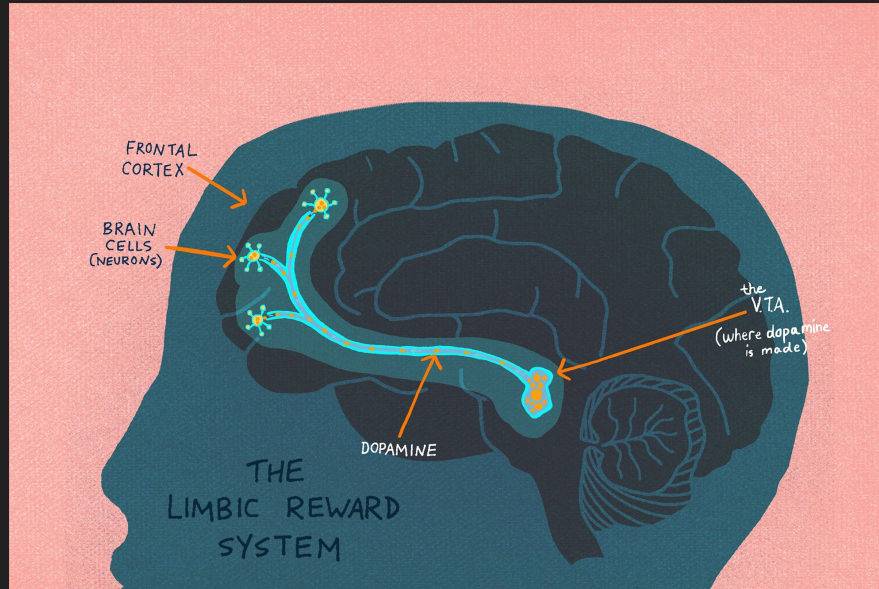
- The medical applications of music can be traced back to pre-biblical times.
- More recently, Music Therapy emerged as a clinical field during World War II.
- However, little to no formal research has been conducted looking into music as a crisis intervention tool nor as a tool for peer support.

[Levitin \(2019\)](#)

Amazing Fact!

Enjoyable music can trigger the brain's opioid and reward systems!!!!

This can result in physical pleasure and reduced physical pain!



Rubin (2019)

Music is one of only a few activities that involves the whole brain!

When listening to music, a wide network is formed in the brain.

This network involves systems responsible for motor activity, emotions, memory, and creativity.

When listening to music, areas of the brain that normally function independently start to communicate with each other.

[Rubin \(2019\)](#)

[Science Daily \(2011\)](#)

Where does music impact the brain?

- Auditory cortex (sound processing)
- Cerebrum (many things!)
- Cerebellum (memory)
- Hippocampus (memory)
- Limbic system (emotion/animal instinct)



How can music be used to facilitate wellness?

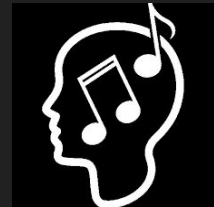
- Music can help us process experience, emotion, and trauma.
- It can shift the way our neurons fire, disrupting unpleasant emotions and unhelpful thoughts.
- It can connect us to others who may have shared experiences, helping us make sense and meaning.

In other words, cybernetic music processes can help us self-regulate and course correct!

Networked brains and music in the machine

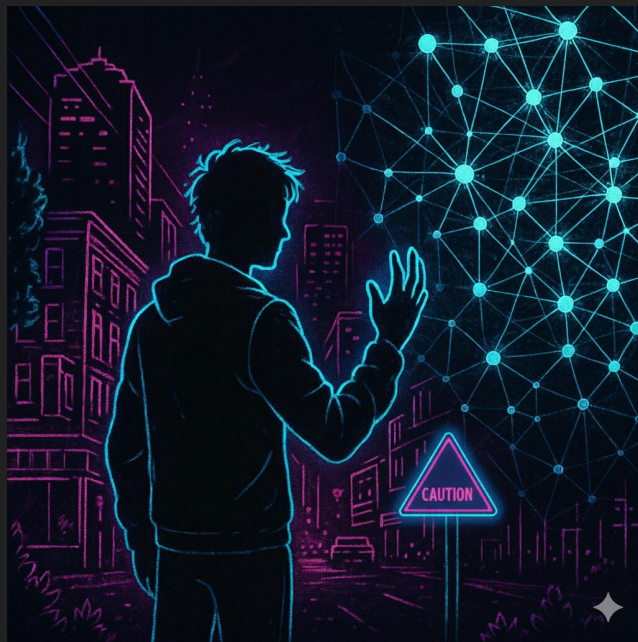
- Apple Music, Spotify, YouTube, Pandora, and Others
- Each hold a vast library of recorded music
- Each platform's output is driven by user input and data

Levitin (2024)



CUTION!

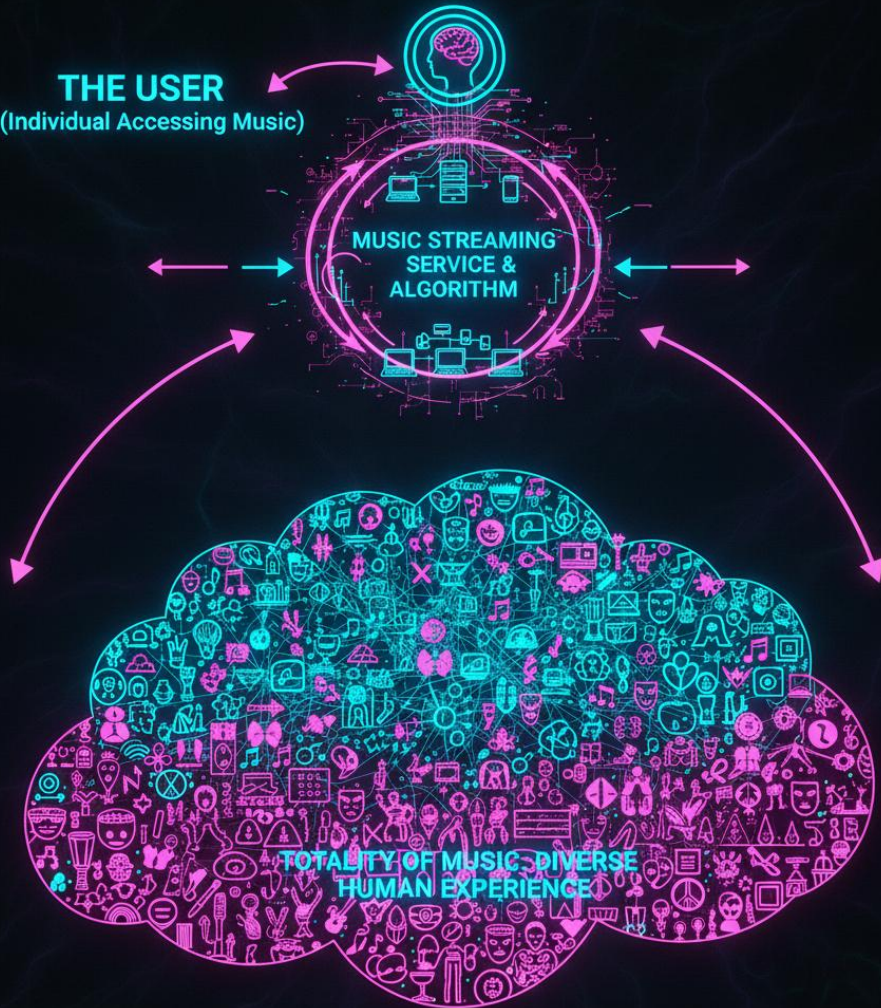
Design with care: Any model that integrates music, technology, and peer support has to stay flexible, trauma-informed, and rooted in consent. Not everyone will want, or be able, to engage with these systems in the same way.



THE USER
(Individual Accessing Music)

**MUSIC STREAMING
SERVICE &
ALGORITHM**

**TOTALITY OF MUSIC DIVERSE
HUMAN EXPERIENCE**



Music Deployment

1. Scene and client assessment
2. Consent building
3. Attunement and regulation
4. Soundtracking the moment
5. Cultural translation and access
6. Cybernetic sensing



Story Time!



WE ARE MORE THAN MACHINES



AND OUR MACHINES ARE MORE THAN THE SUM OF THEIR PARTS

Acknowledgements



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Feedback Time!

Where does
feedback show up
in your work? In
your life?

CYBERNETICS · MUSIC · RECOVERY