

Your Mind, Your Music  
**The soundtrack  
of your life**

By “The Wavelets”  
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# Introduction Project: Music GPT

## Our task:

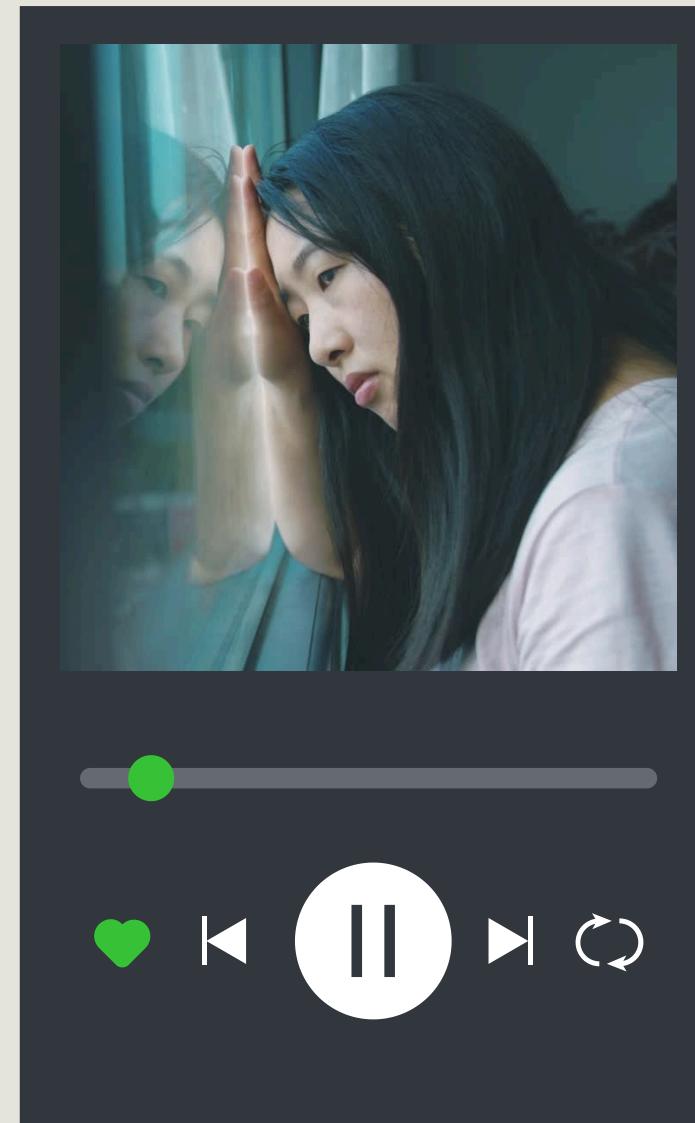
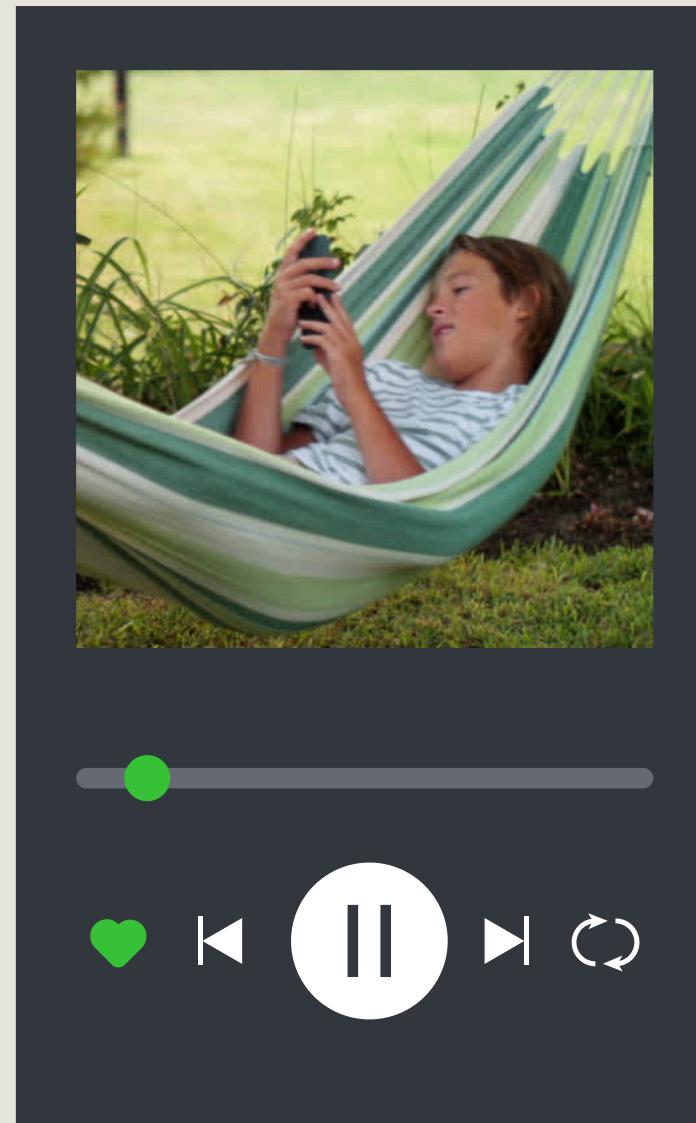
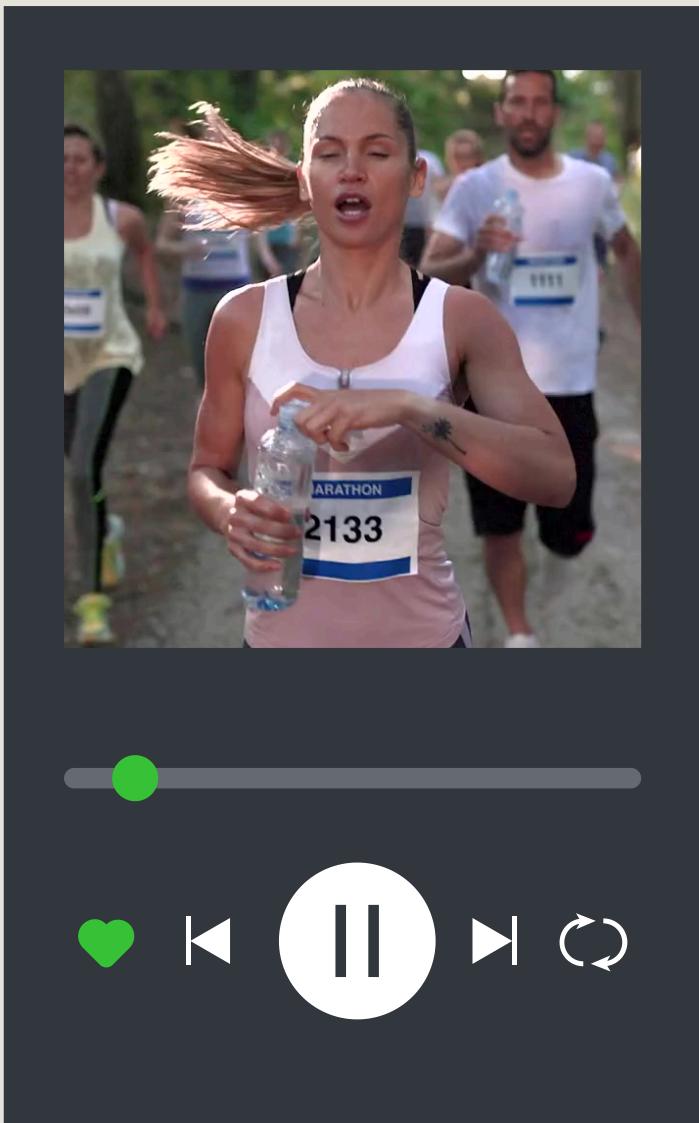
Implement an **EEG-powered music composition** tool where derived features parameterize a music-generation **LLM**, letting users sculpt melody, harmony, and rhythm through their brain states

## Our Goal:

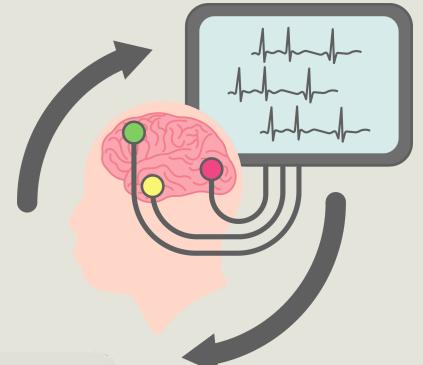
Not everyone can pick up a guitar or read sheet music, but everyone has thoughts. We **translate your neural activity** into compositional controls so you can effortlessly **produce original tracks** and **share your emotions** through sound.



# Let your experiences compose your soundtrack



Recording



Feature extraction



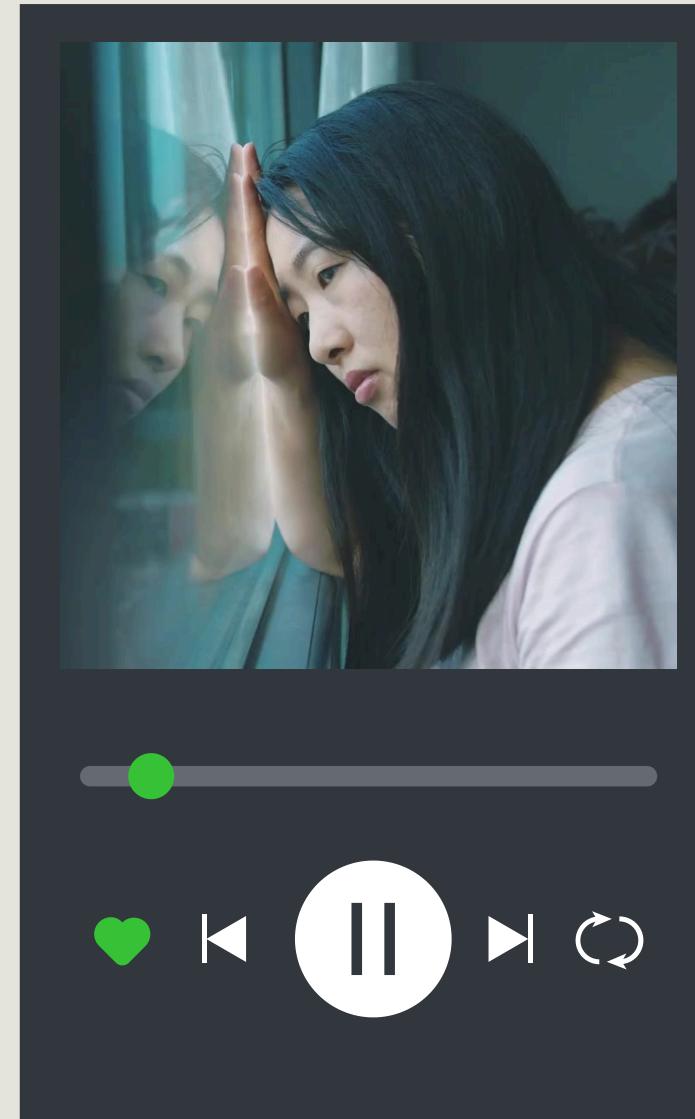
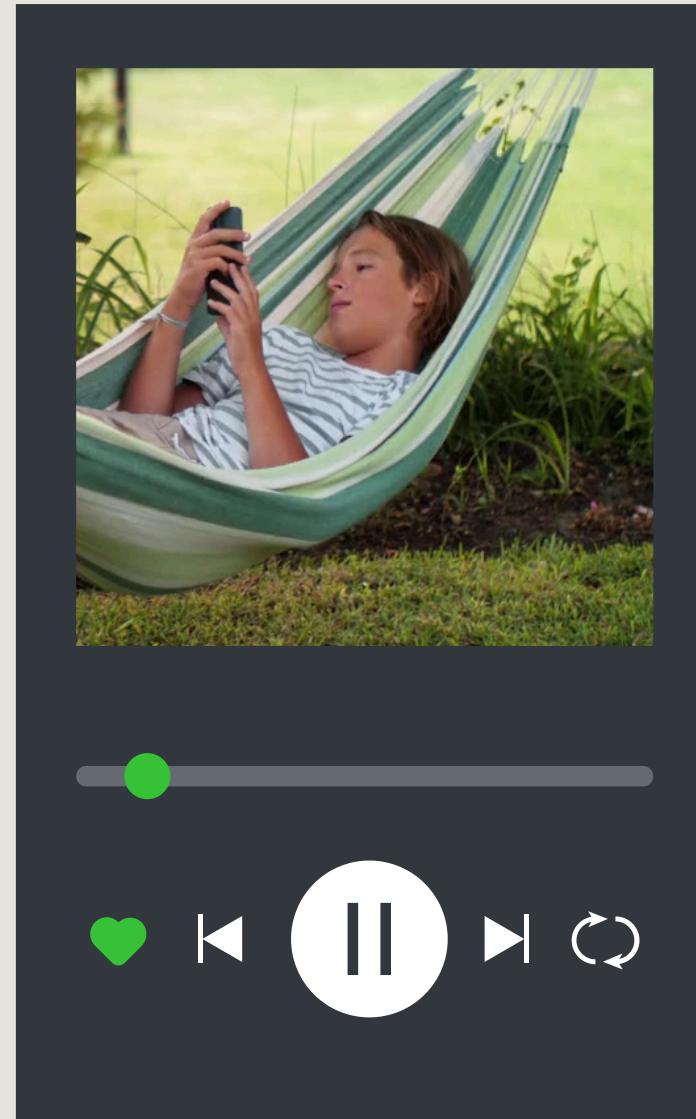
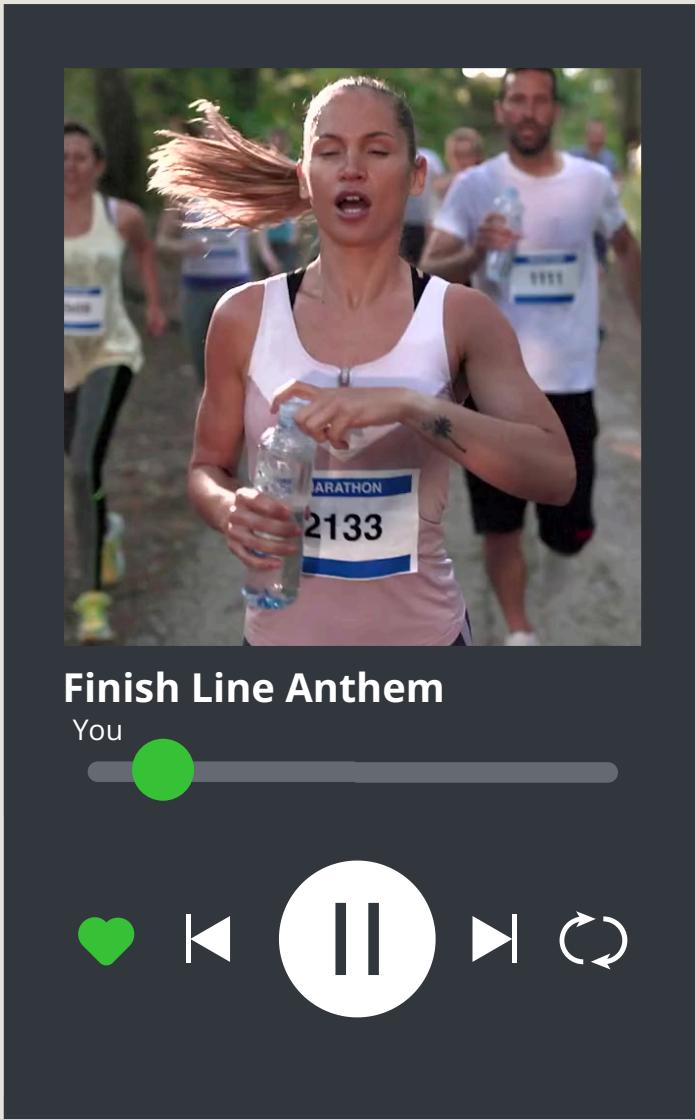
Processing



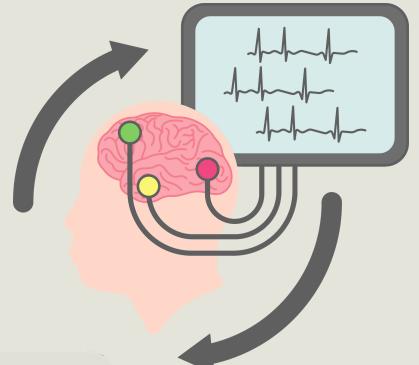
Song



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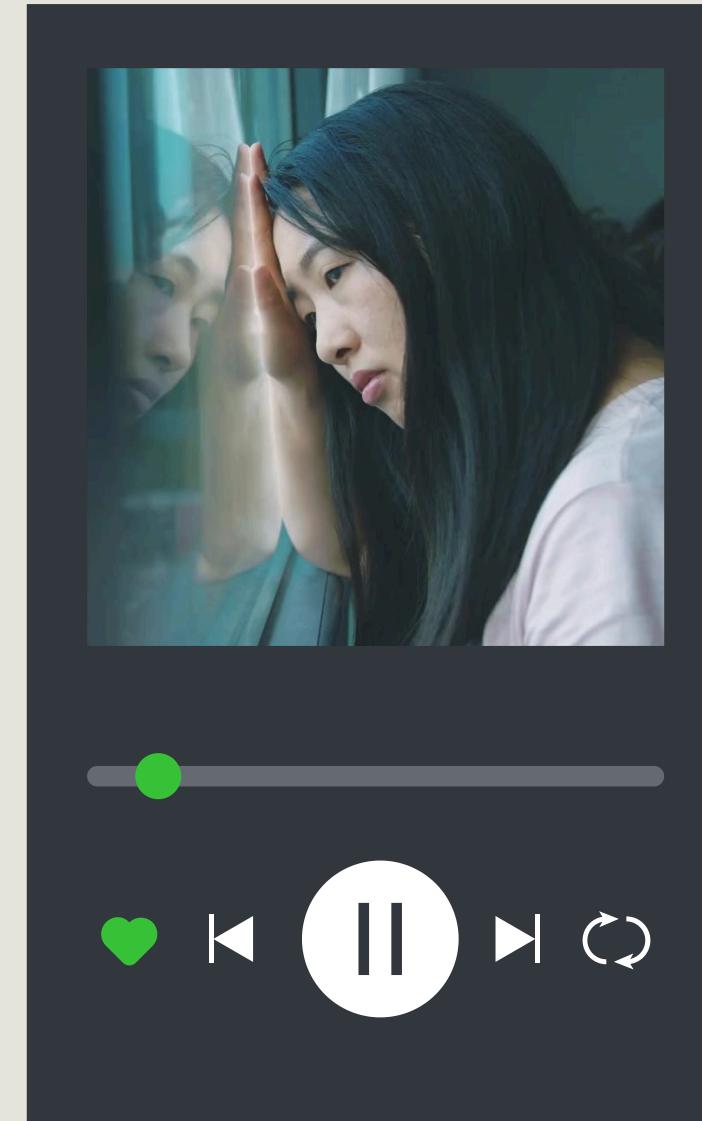
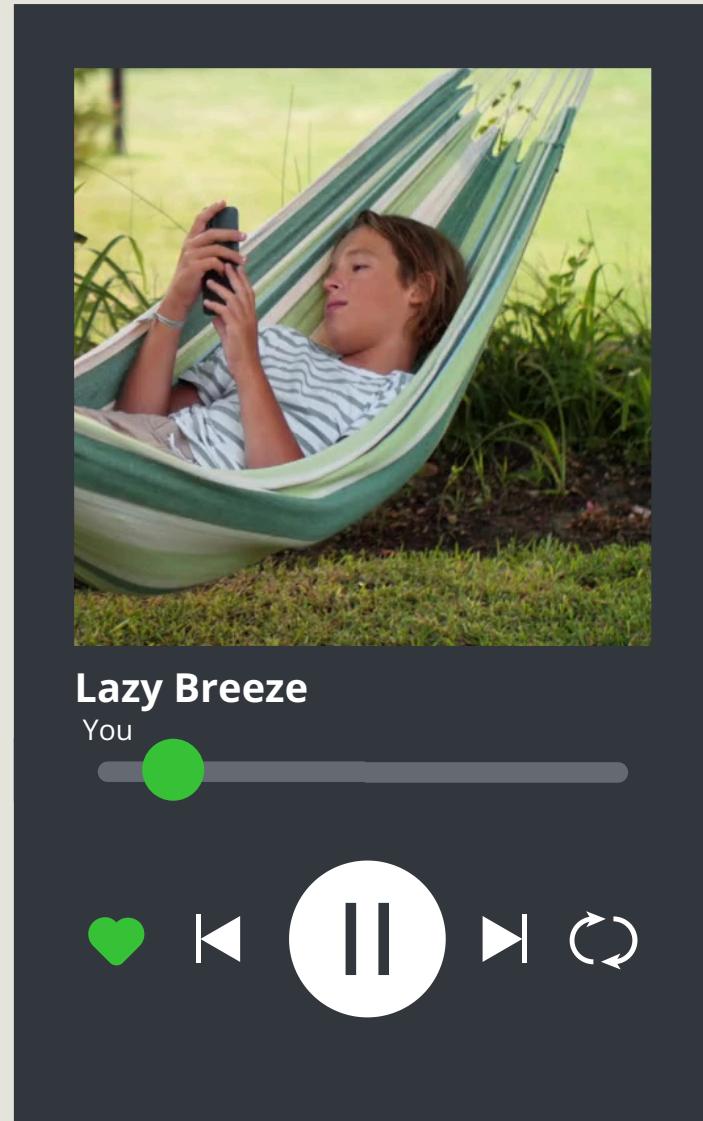
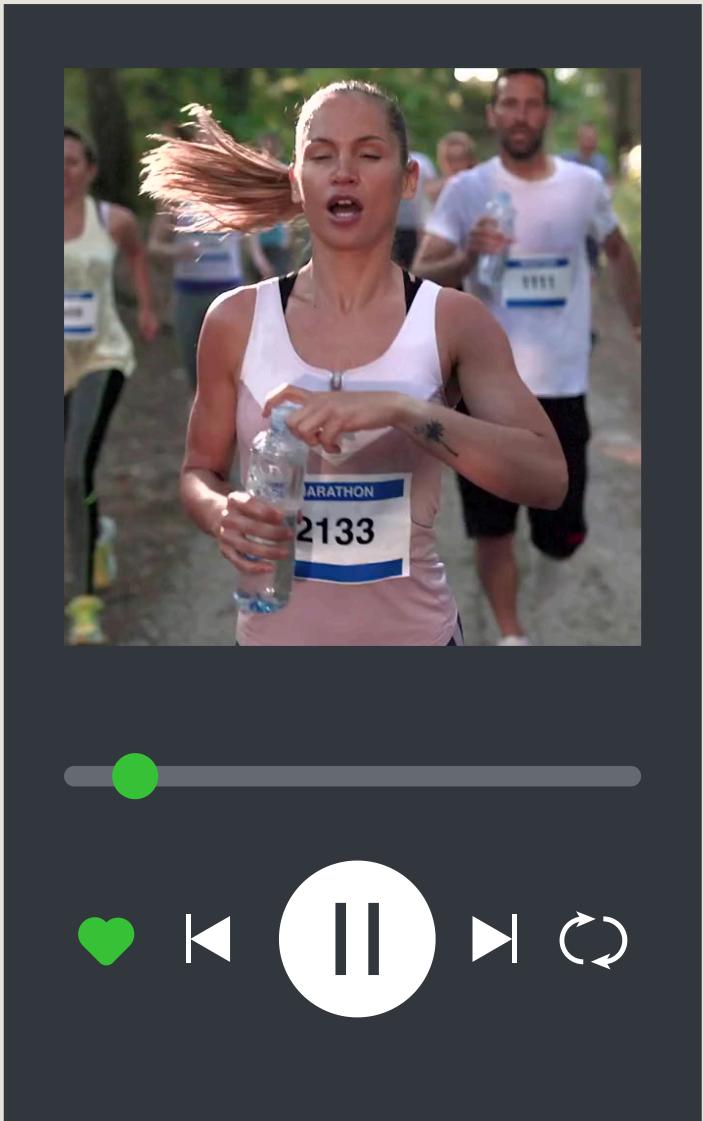
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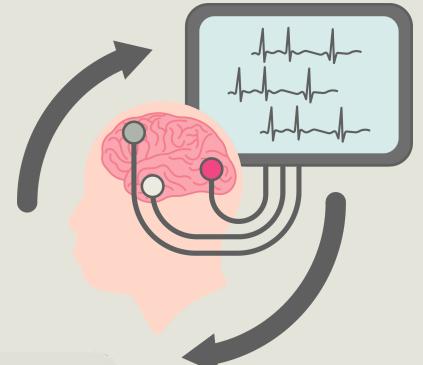
Song



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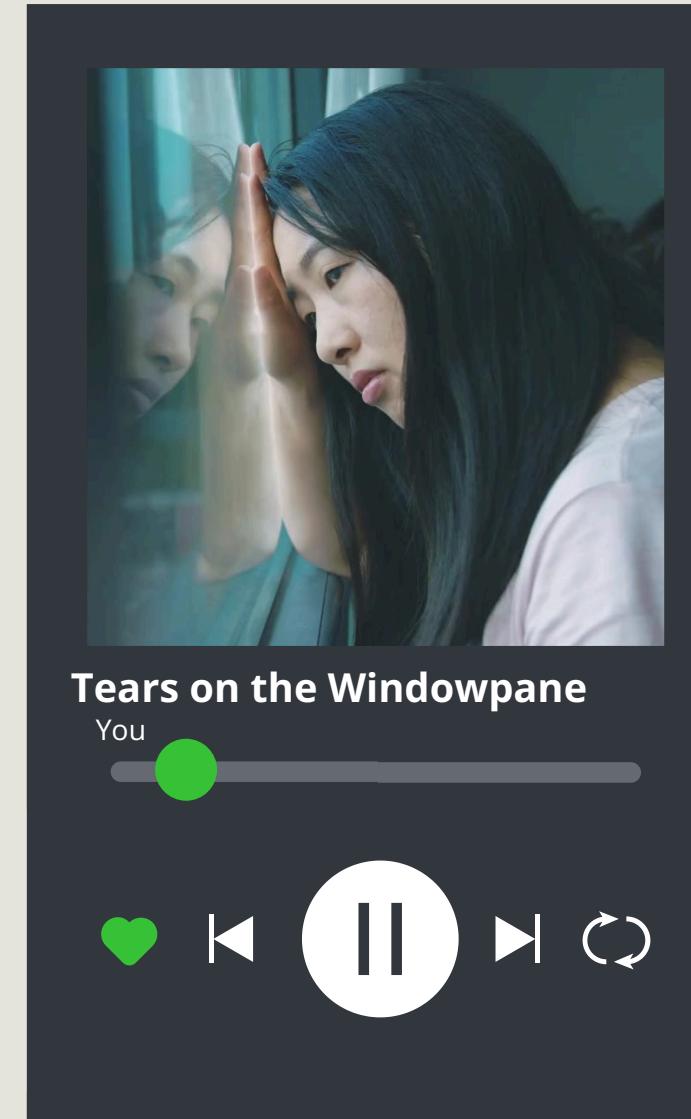
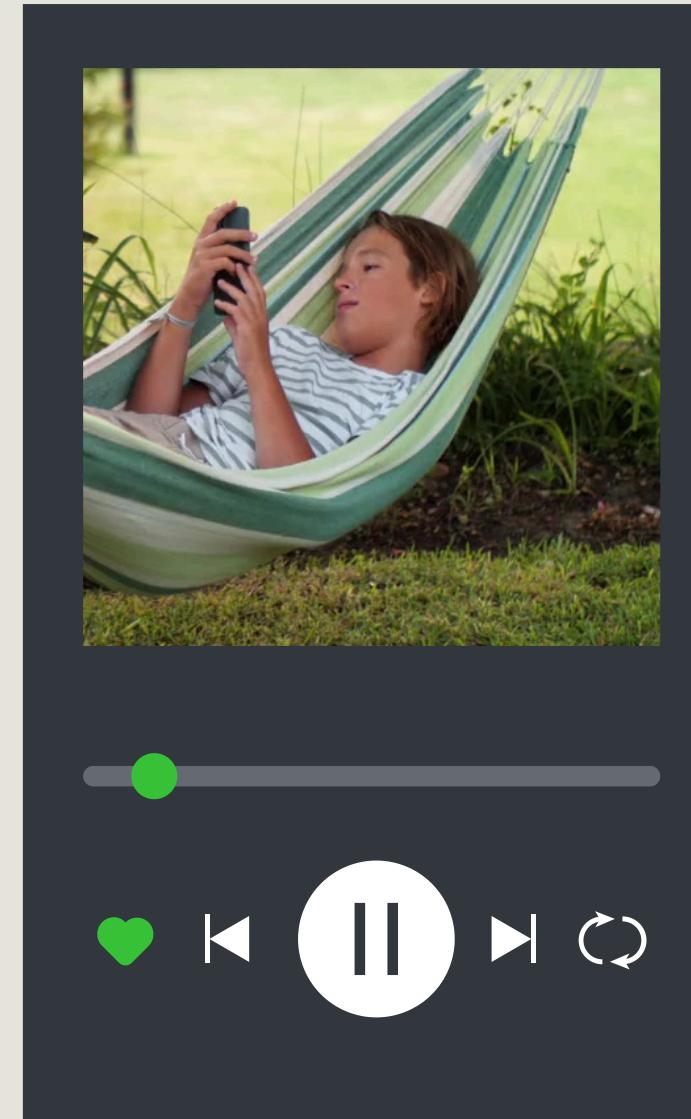
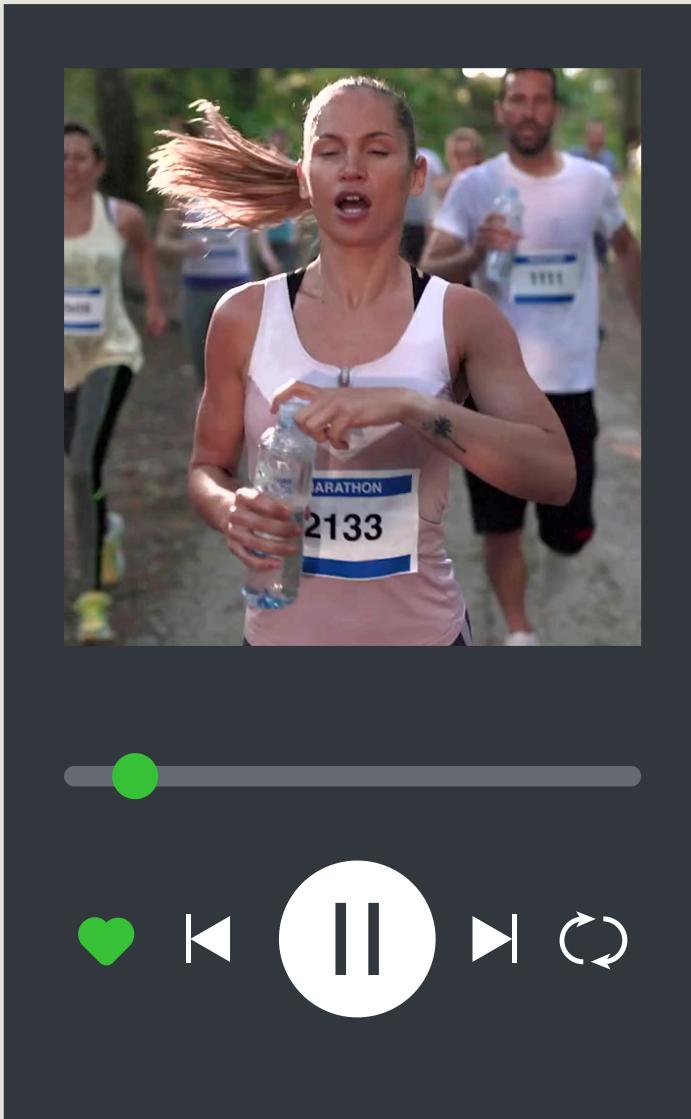
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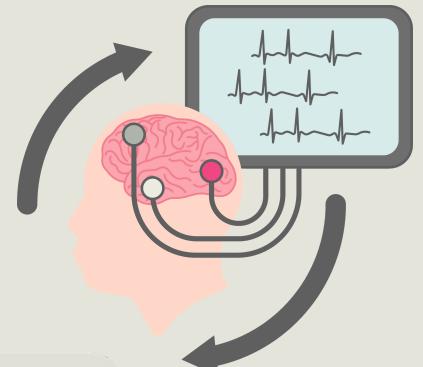
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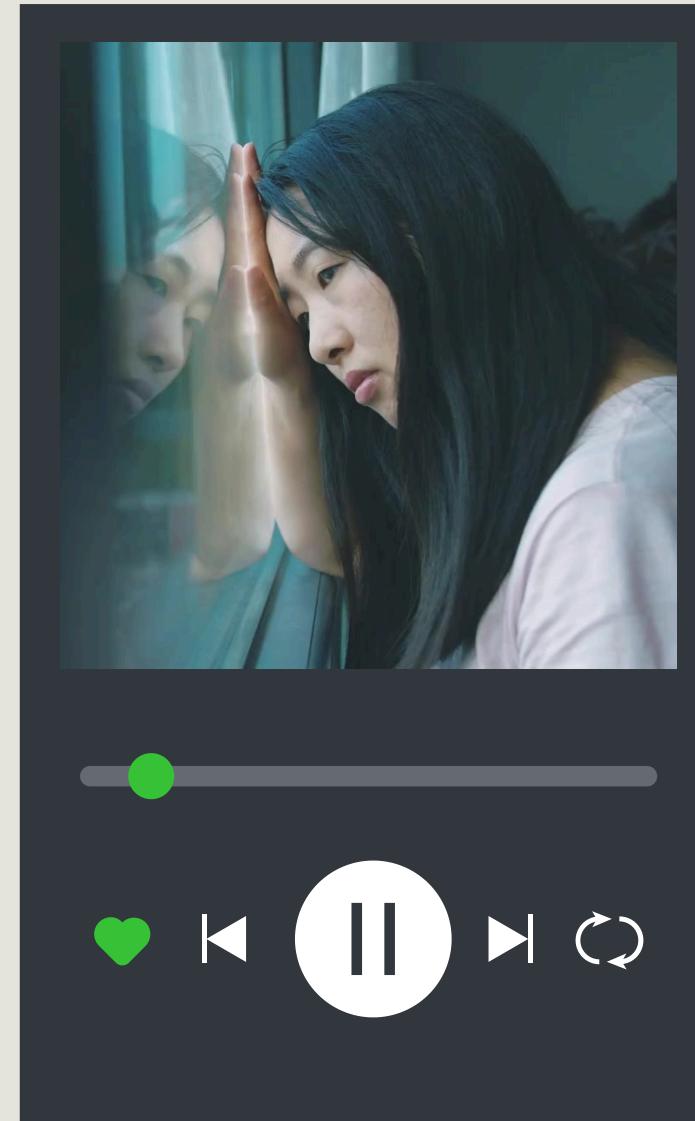
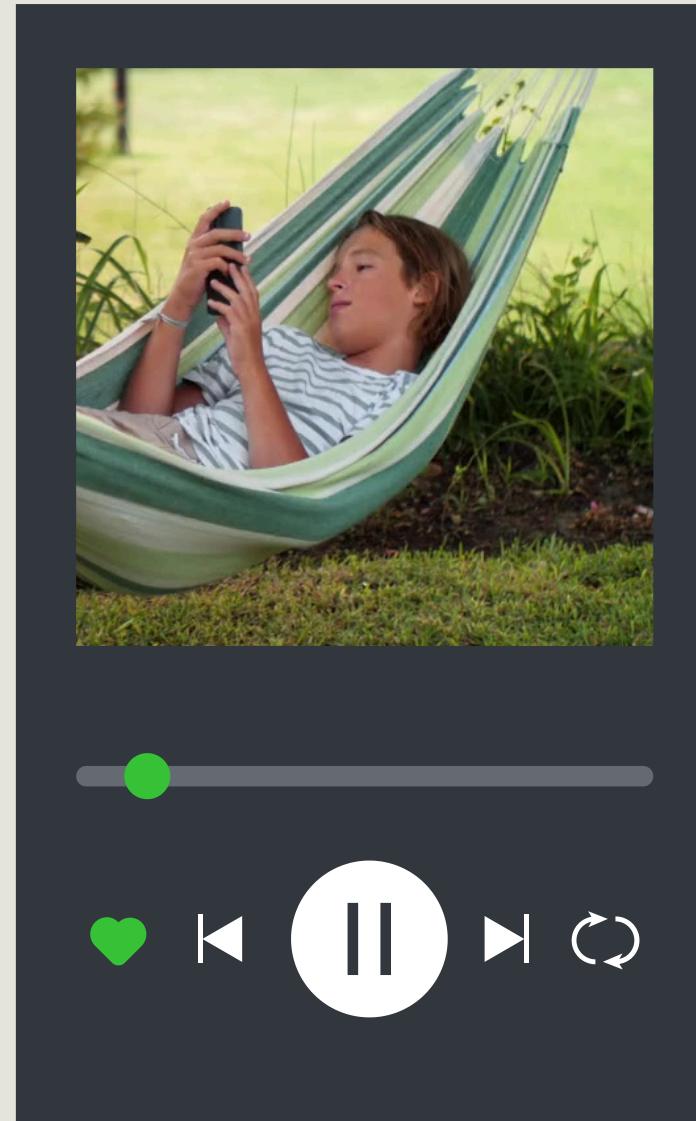
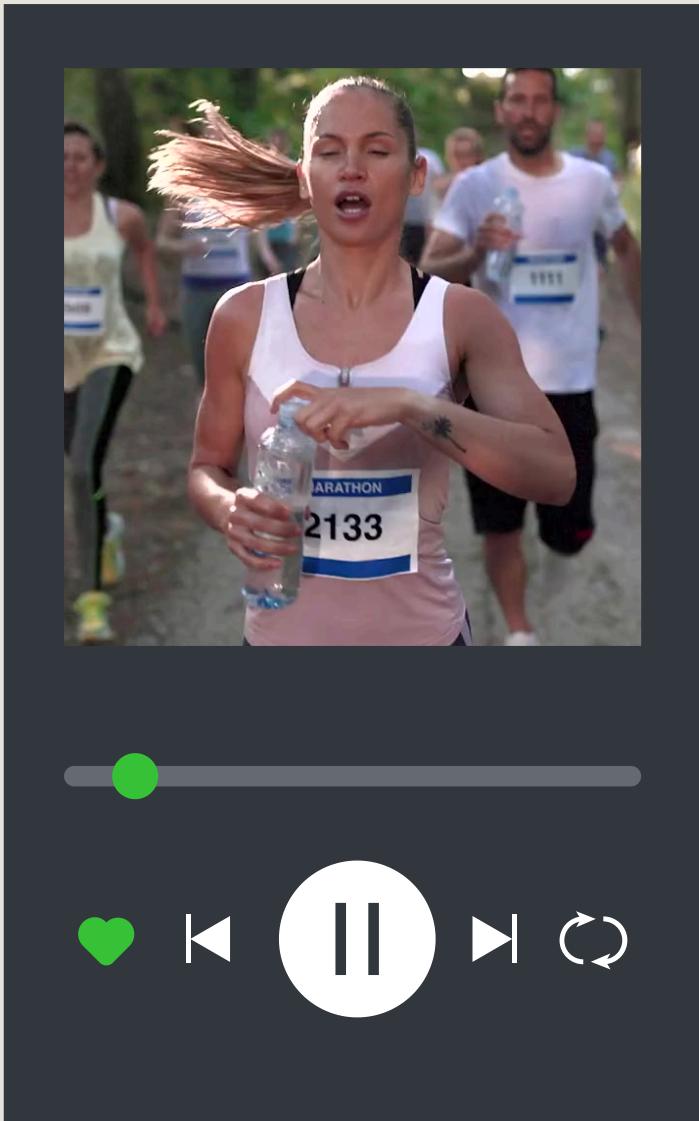
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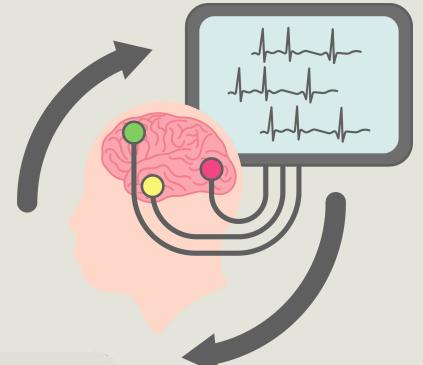
Song



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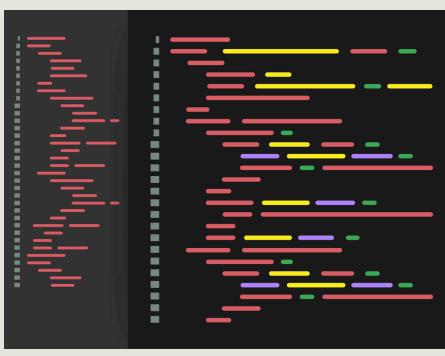
Recording



Feature extraction



Processing

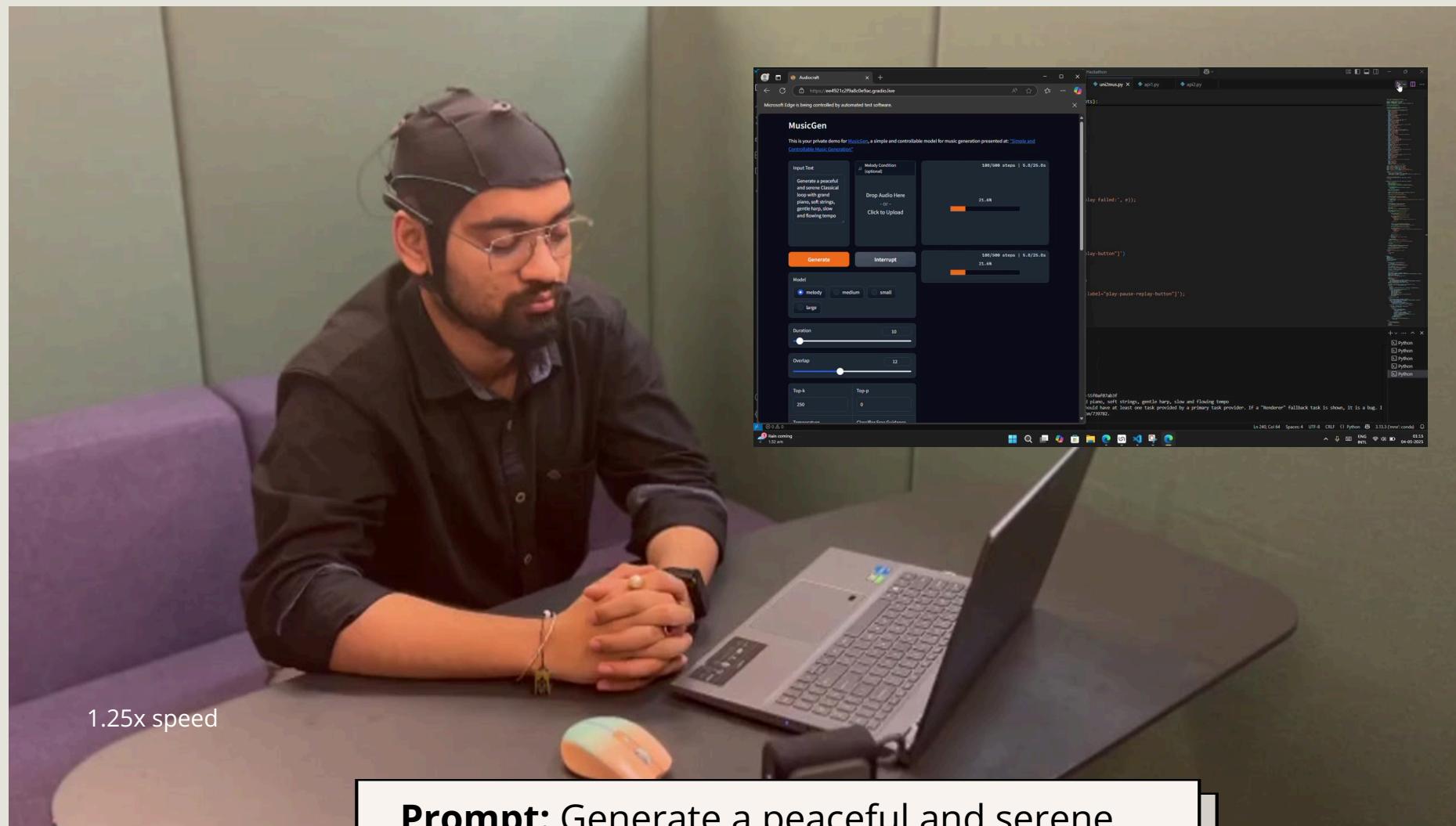


Song



# Demo

Relax condition



## Available Ressources:



## Feature Engineering consisting of:

- Theta power (4–7 Hz) – relaxation/meditation (Fz/Cz) [1]
- Alpha power (8–12 Hz) – calm/relaxation (C3/Cz/C4) [2]
- Beta power (13–30 Hz) – concentration/stress (Pz/PO7/PO8) [3]
- Gamma power (30–50 Hz) – emotion/energy (Oz) [2]

Additional computed features:

- Alpha asymmetry – emotion/stress (C3 – C4) [4]
- Theta/Beta ratio – attention/concentration [4]
- Gamma coherence (PO7 vs PO8) – emotional balance [4]
- Cz entropy – complexity/emotional engagement [5]

# Demo

Stressed condition



**Prompt:** Generate a tense and anxious Industrial loop with distorted guitars, harsh synths, aggressive drums, fast and unpredictable tempo

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Stressed condition



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# Bonus

gaming

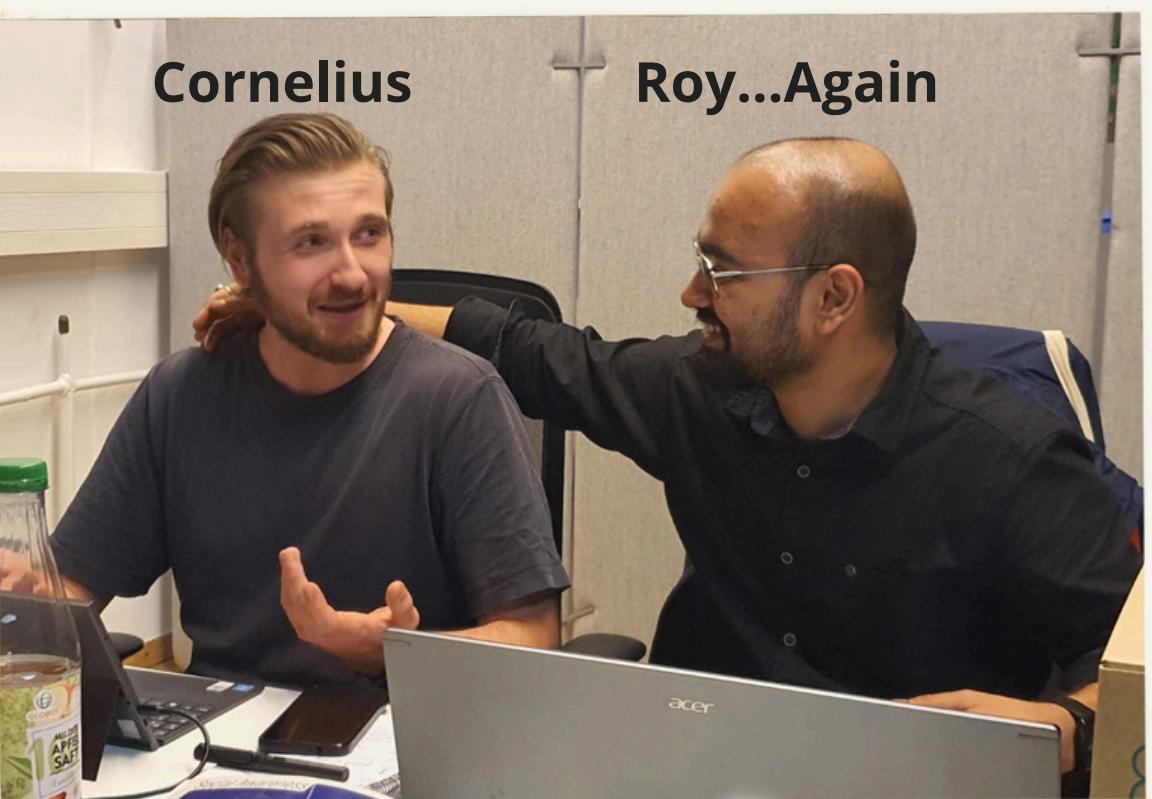


Recording of a “guitar hero” like game sample,  
using a melody generated during the  
“Soundtrack of your life” project

# Our Team



Thank you for your  
attention



# References

1. Harne, B., & Hiwale, A. (2020). Increased theta activity after Om mantra meditation with Fourier and wavelet transform. International Journal of Intelligent Systems Design and Computing.
2. Wang, S.-F., Lee, Y.-H., & Shiah, Y.-J. (2011, November). Time-Frequency Analysis of EEGs Recorded during Meditation. 2011 First International Conference on Robot, Vision and Signal Processing.
3. Alshorman, O., Masadeh, M., & Bin Heyat, M. B. (2022). Frontal lobe real-time EEG analysis using machine learning techniques for mental stress detection. Journal of Integrative Neuroscience.
4. Luo, Y., Fu, Q., & Xie, J. (2020). EEG-Based Emotion Classification Using Spiking Neural Networks. Published March 16, 2020.
5. Kumar, H., Ganapathy, N., & Swaminathan, R. (2025). Analysis of Dynamics of EEG Signals in Emotional Valence Using Super-Resolution Superlet Transform. IEEE Sensors Letters.