Quantified brain and music for self-tuning

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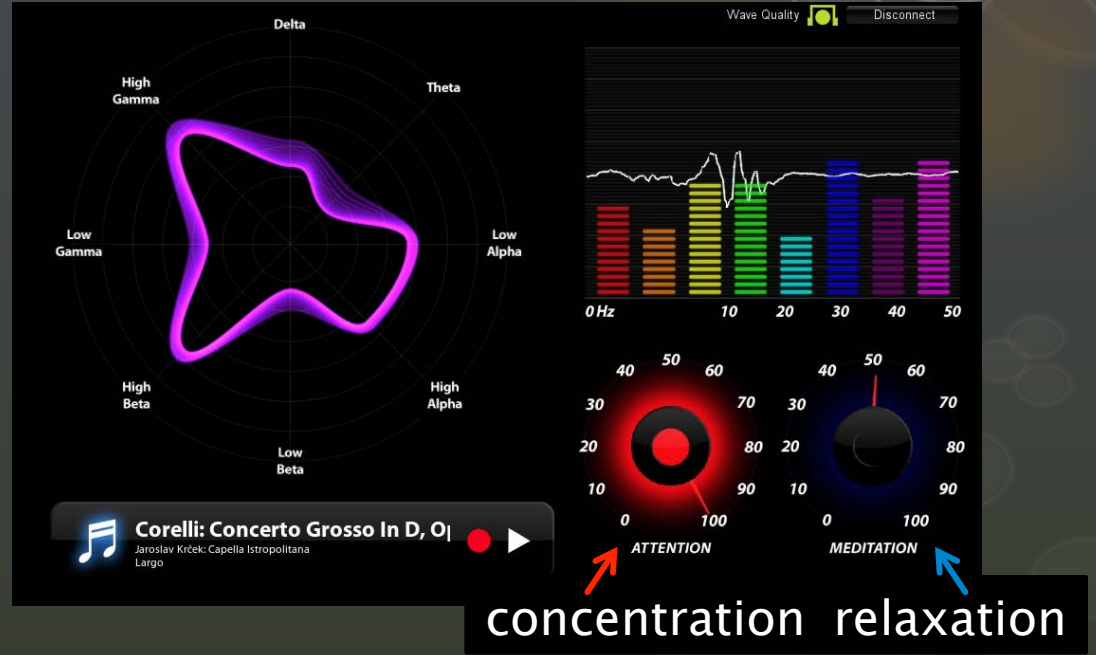
Concentration and Music

- I was studying for my final exams for a Master in Artificial Intelligence and had problems concentrating if

  - There was noise around

  - It was too silent

  - If I listened to music with lyrics or catchy beats

Concentration and Music

- I realized then that certain type of music helps me to concentrate.
  - A pleasant background noise to cancel the outside distractions.
 - Music without lyrics or catchy beats that make you feel like dancing.

I work with Brain–Computer Interfaces (BCI) like:

Single dry EEG sensor

Mindwave mobile from Neurosky

concentration relaxation

By measuring brain electrical activity can give some indicators of levels concentration and relaxation

We built a brain controlled artifact that uses brain waves to change the speed of a fan
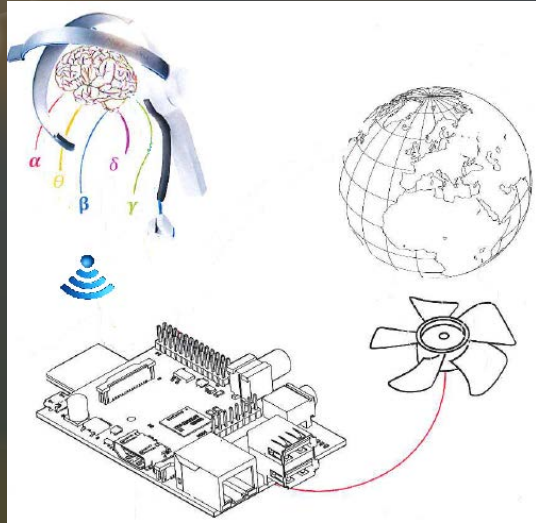
The higher the concentration level the faster the fan spins and the "world" is lifted

# I was surprised to see many people having difficulties concentrating.
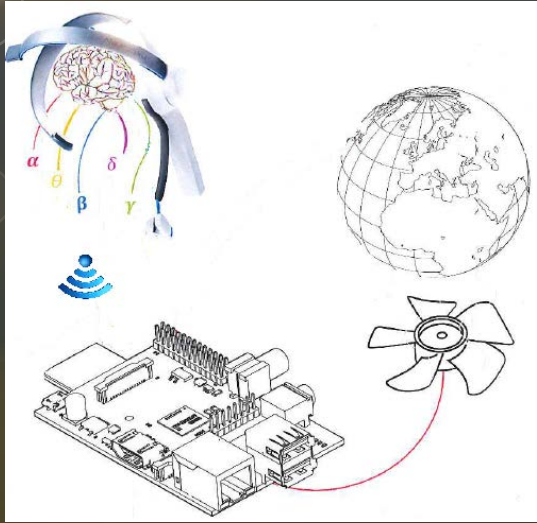
Music and Self Tuning

- I found out that certain music "tunes" me for better performance in reading.

- I have also found out that other type of music "tunes" me for better performance in other activities like programming or sports.

- But how to find the playlists that "tune" me best for different activities?
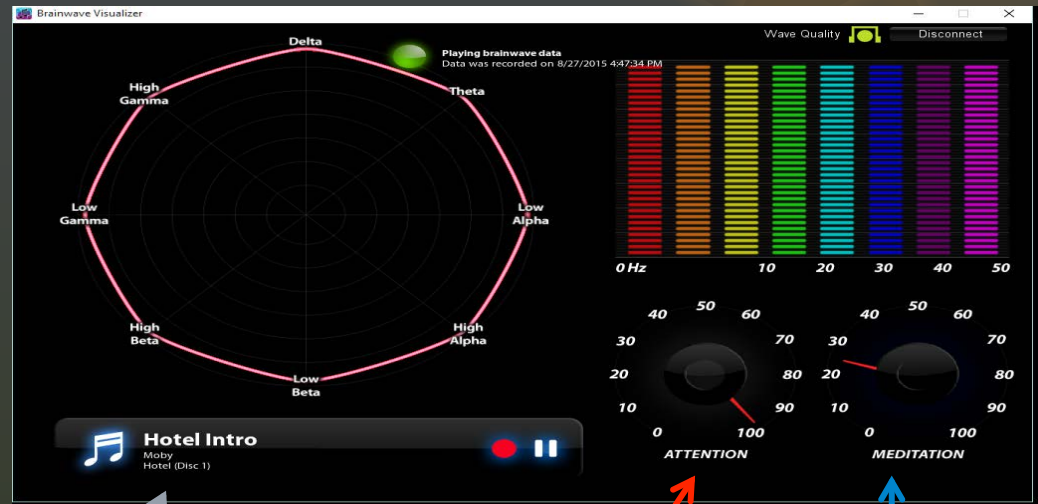
I decided to use the BCI to quantify my concentration and relaxation levels while listening to different music
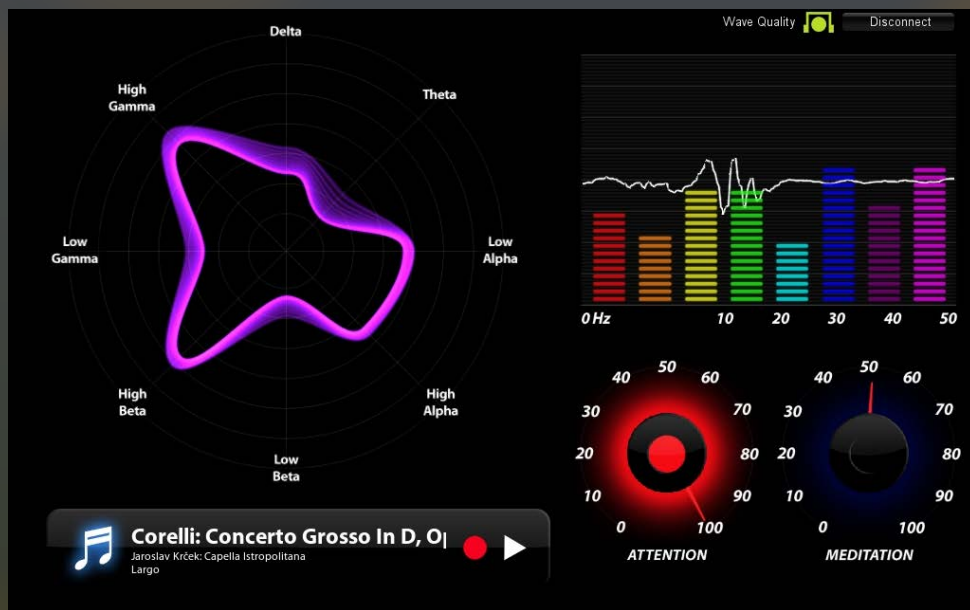
and while performing different activities
to find my self tuning tunes.

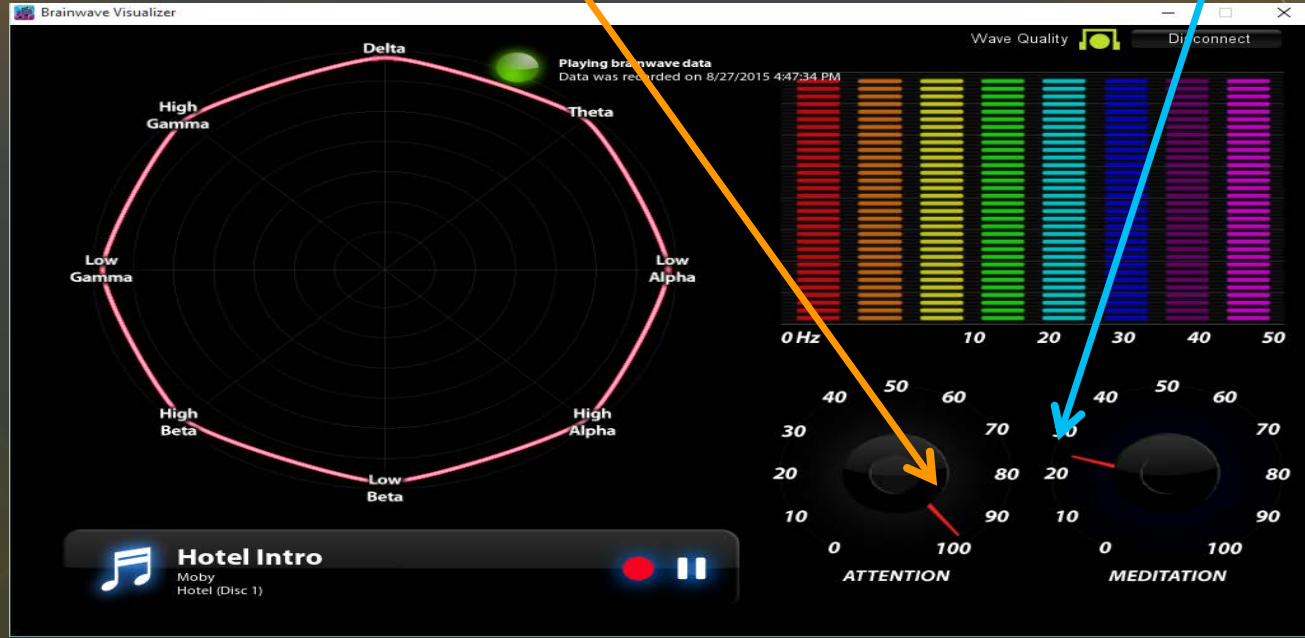# I used the BrainWave Visualizer program by Neurosky

For recording indicators of concentration (attention) and relaxation (meditation) while listening to different music.
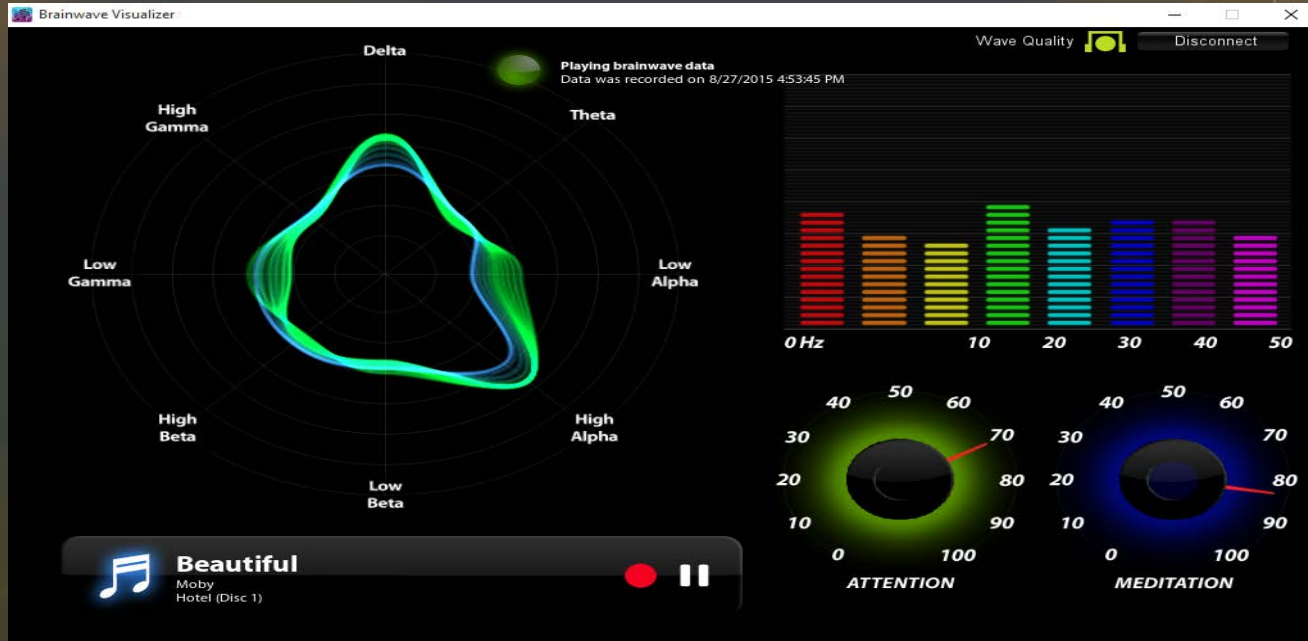

Music   Concentration   Relaxation

High concentration but low relaxation

Song: Hotel Intro by Moby
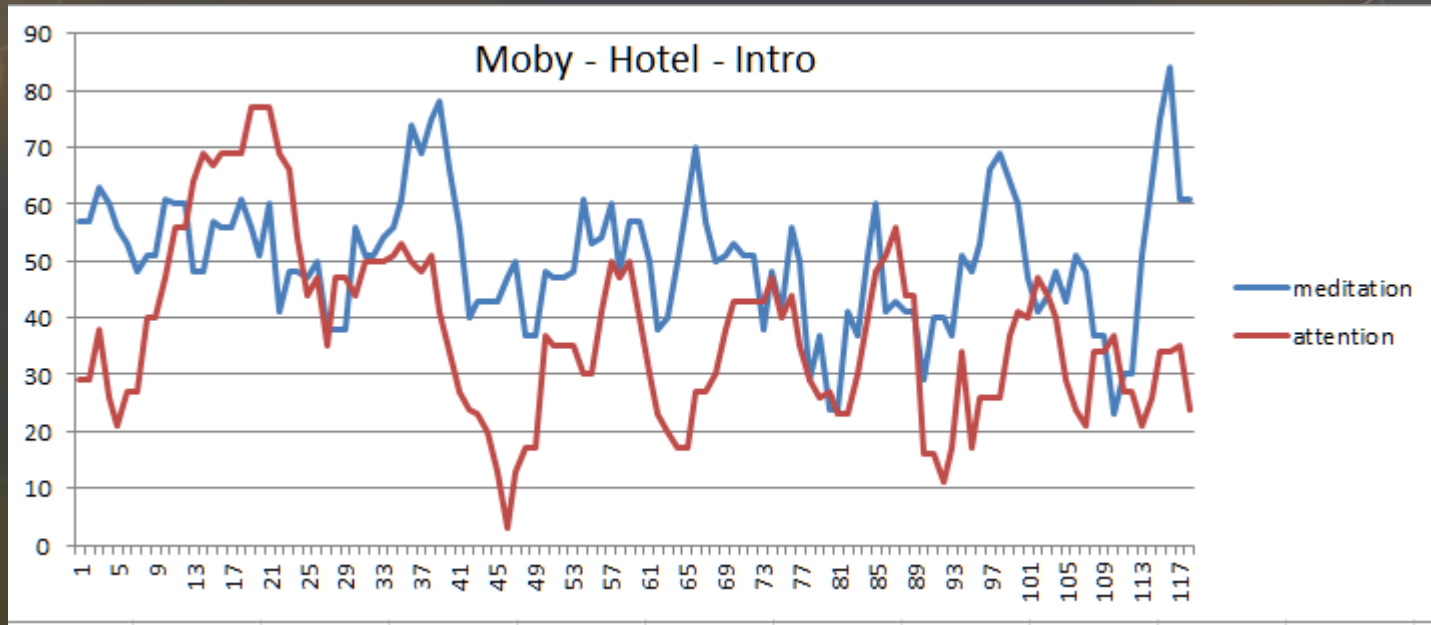Album: Hotel

Good level of concentration and relaxation

Song: Beautiful by Moby
Album: Hotel

High level of concentration with low relaxation

Song: Raining Again by Moby
Album: Hotel

Full song recording

Moby - Hotel - Intro

meditation
attention

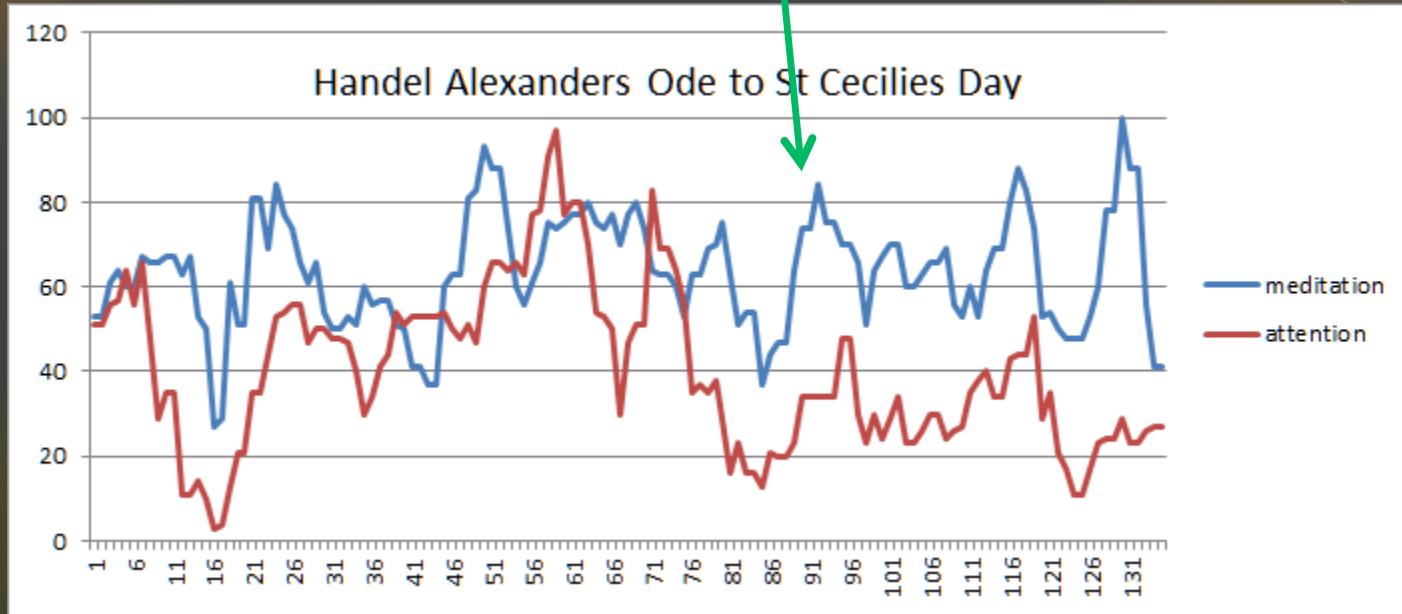# Higher relaxation than concentration

The recording settings for working activities:

- I recorded 2hrs morning sessions of concentrated reading working
  - 1 hr listening to Moby – Hotel
  - 1 hr listening to a selection of classical music
- I also recorded 2hrs afternoon sessions of more easy reading or programming with the reverse order
  - 1 hr classical music
  - 1 hr Moby – Hotel

Higher concentration than relaxation (played on 1st hr)

Moby - Hotel - Raining again

— meditation
— attention
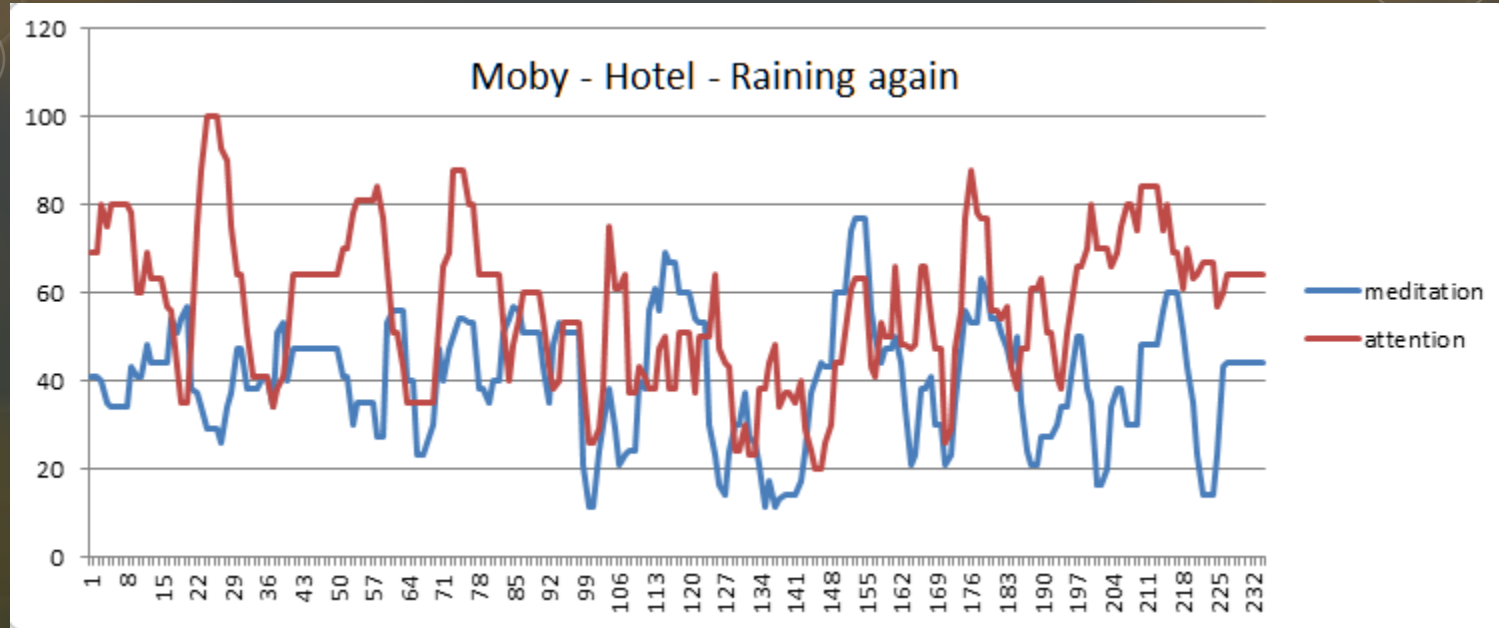
Second half higher relaxation than concentration (played on the 2nd hour)

Handel Alexanders Ode to St Cecilies Day

Higher concentration than relaxation, only at the end higher relaxation and very low concentration (falling sleep)
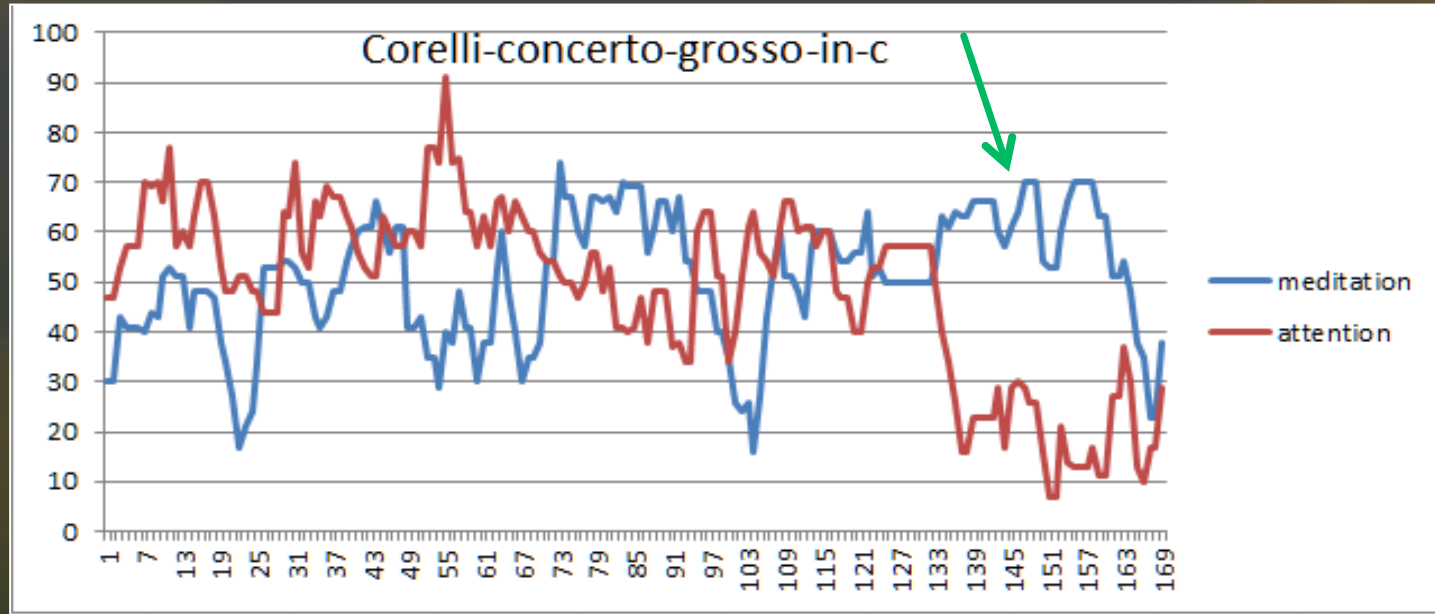
Self–tuning for other activities:

For a good performance in archery I need a good level of concentration and some level of relaxation…. but not too relaxed

After quantifying my brain I found these self–tuning tunes:

- For concentrated work/reading – Play list with classical music (even commercial CD's with "Music to Read") work for me.

- For practising Archery – Best performance with Moby – album "Hotel"

- For Programming – Playlists with high beat pop/electrical music

Self–tuning effect in archery

Without music

With Moby – Hotel music

Shots at 18 mts

Self-tuning effect in archery

Without music

With Moby – Hotel music

Shots at 70 mts

Music taste and tuning is personal

- Once I identify my "ideal" playlists,
- I find that by playing them it feels easier to get into the desired mindset,
- This is what I call self-tuning.

"I had no room now for this fear, or for any other fear, because I was filled to the brim with music."
– Oliver Sacks–

Thanks!
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