

Flow - a Fourth Musical Element

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Abstract

Music is typically defined as having the attributes of melody, harmony, and rhythm. In this article, a fourth element is proposed - "flow". "Flow" is a new dimension in music that has always had the potential to be present, but, it is important to note, not ALWAYS present (examples of "music" NOT in flow are referenced in the main body of this paper. If we accept the premise that "flow" is a necessary component for sound to be classified as "music", then this begs the question, are the pieces referenced "music" or just "organized sound"?). *The Flow Machine*, invented in 1968, FINALLY enables us to measure flow in music, and indeed, determine if flow even exists in a given piece of music.

The Flow Machine utilizes musical "hit points", such as a transition from one musical section to another (for example in a musical composition utilizing the sonata form, a transition from the exposition to the development section) to help define the composition's flow rate. Once the flow rate is established, *The Flow Machine* can be used to determine if the composer/performer/conductor has correctly maintained the proper rate of flow throughout the performance. An example is provided using Mozart's *Piano Concerto Number 21*.

Working with *The Flow Machine* yielded an unexpected windfall; it was determined via an empirical study conducted at Nova University's Biofeedback Lab that watching *The Flow Machine* helped volunteers participating in a controlled experiment recover from stressors significantly faster than the control group.

In summary, *The Flow Machine* suggests a new approach to music theory and analysis. *The Flow Machine* was created specifically to measure the underlying "flow" in music. *The Flow Machine* is an entirely new way to experience and visualize music, to assist in performing music (both as a conductor and/or performer), and to provide a whole new methodology for music analysis and theory.

The Flow Machine can be thought of as a new arrow in the Musicologist's quiver. It provides a new, unique way of viewing the psychological impact and esthetic effectiveness of a music composition.

What is The Flow Machine?

The Flow Machine for Use in Musicological and Music Theory Applications



Since this is a unique one-of-a-kind instrument, unknown to but a few, perhaps it would be useful to initially express to the reader what *The Flow Machine* is **not**:

It is NOT tied to rhythm. In fact, it is almost the antithesis of rhythm, flowing and pushing back against the discreet rhythmic events.

It is NOT tied to melody or harmonic content, as “the flow” had no reference to pitch or duration of notes.

It DOES reveal and measure an entirely new dimension in music.

Flow Machine for Use in Music Therapy Applications

The Flow Machine, with repeated use, can positively affect the viewer psychologically. It has been scientifically validated in a research study conducted at Nova University to activate the right brain hemisphere, and to reduce the stress level in the study's experimental subjects. The article, <https://theflowmachine.org/research/>, provides an overview of this study, and contains a link to the original research document.

As a proven “stress reducer”, *The Flow Machine* (a.k.a., “Kinescope”) may be an effective tool in treating stress related diseases and personality/behavioral disorders, such as:

- PTSD
- Heart Disease
- Asthma
- Depression and Anxiety
- Inmate Rehabilitation
- Substance Abuse
- And many others

Flow Analysis Examples

The two and three dimensional illustrations (figures 1 and 2) help us to visualize and understand *The FLOW Machine*

“hit points”.

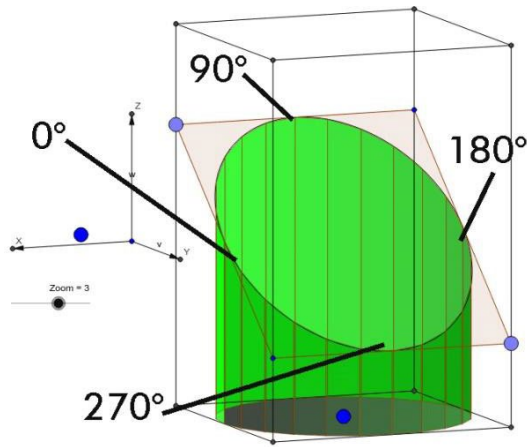


Figure 1: "Hit Points" for Flow Analysis

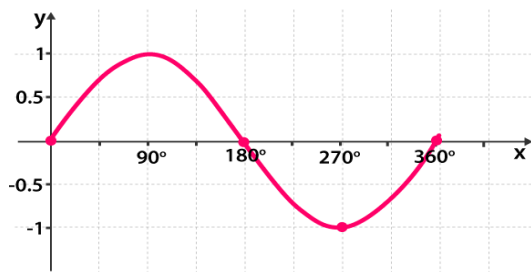


Figure 2: Hit points shown as 2 dimensions. Hit points are 0, 90, 180, and 270 degrees.

Mozart's *Piano Concerto #21* - Moderate Flow Rate Example

Video 1: [Flow Rate Analysis of Mozart's *Piano Concerto #21*](#)

In the video referenced above (Video 1), the visual of *The Flow Machine* fades at major "hit" points allowing the viewer to see the score. The score was used to identify major "hit points" as delineated in Table 1.

Table 1 identifies some major compositional events ("hit points") of Mozart's piece as it relates to *The Flow Machine*. You can use the illustrations above with the "The Flow Machine Rotation Point" column to orientate yourself as to where you are along *The Flow Machine* curve.

Composition Event	Bar #	Time from Beginning	<i>The FLOW Machine</i> Sine/ Rotation Point
Piano Entrance	24	1:36	180°
Transition		2:24	90°
Transition		2:56	270°
Transition		3:43	180°
Transition		4:44	180°
Melody repeats		5:48	180°
B theme enters		6:12	180°
Final cadence		6:31	90°
End		6:54	180°

Table 1

Additional Statistics

- The entire movement is 415 seconds long, requiring 5.5 rotations of *The Flow Machine* over the entire Andante movement
- *The Flow Machine* makes one revolution every 75" or .8 RPMs per minute
- *The Flow Machine* rotates 1/4 turn (90°) for every 4 bars of music

An Example of Music with a Slow Flow Rotation

[This YouTube video](#) provides an example of a Gregorian chant (with a contemporary arrangement). The movement of the Flow Machine is barely perceptible, with a rotation speed of only 1 rotation every 2' and 14", or .3 RPM. This slow movement would be a challenge to the beginner. Also note that this piece also has its compositional cadence, "end point", at 180°. Also note that the piano comes in at 36" from the beginning, at the 90° "hit point".

Music with a More Rapid Flow Machine Rotation

Here is a good music example of a piece with a rapid rotation rate, written by Gil Evans and performed by Miles Davis. It has a rotation speed of a revolution every 40", or a sprightly 1.5 RPM!

[Video 3: Video demonstrating a more rapid *The Flow Machine* rotation speed.](#)

Conclusion

The Flow Machine can be thought of as a new arrow in the Musicologist's quiver. It provides a new, unique way of viewing the psychological impact and esthetic effectiveness of a music composition. Additionally, with the current world-wide access to multi-media via the internet, flow analysis can be performed and shared with others with ease.

[This video](#) provides an overview of *The Flow Machine* research, use in "flow", and potential usage in psychology, medicine, musicology, music therapy, and the arts.

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