

Real Kecak System

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The Real Kecak System (RKS) is an application for composing music. First, input any real number you like and then click the ENTER button. The RKS will display its expansion into continued fraction and convergence based on the Euclidean algorithm. Each n -th convergent corresponds to a planet in the RKS. Next, input starting point of time. You can set up it from (-2^*31) to (2^*31) . Zero is special point. All of planets line up exact same direction and do not sound. If you like, you can choose any instrument (according to the General Midi Standard), duration of sound, speed (milliseconds) and key. Finally, click the "play" button. Unique planets system will start to orbit and play music. When you want to stop playing, click the "stop". The "cont." button restarts the music from last time stopped continually. If you want to change some parameters, please stop the playing then click the "reset" button. Change anything you like. Click the "play" button again, you can see updated planets system. You can change anything as many times as you like.

I published the FIBONACCI KECAK (1995) using the Golden Mean based on the same algorithm. The Golden Mean (1.618034 or 0.618034) has the most numbers of planets because it is the hardest to approximate the Golden Mean using fraction. In other words, FIBONACCI KECAK SYSTEM is the rarest conjunction of planets. After comparing various numbers system, you should be aware that the Golden Mean is critical real number. In contrast with this, any integer has no planet.

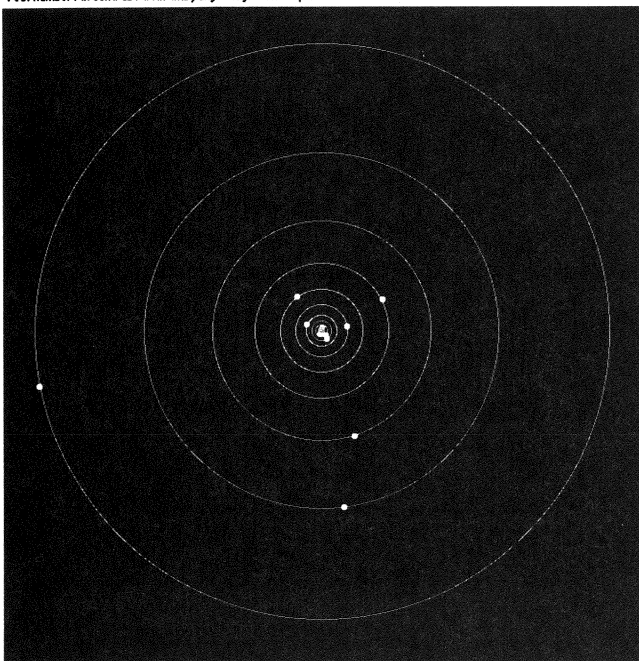
REAL KECAK SYSTEM

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1.618034

You have 17 planets

Choose any planets by increasing volume



| | | |
|--|-------------|--------------------------|
| $1 + \frac{1}{1}$ | 1 / 1 | <input type="checkbox"/> |
| $1 + \frac{1}{1 + \frac{1}{1}}$ | 2 / 1 | <input type="checkbox"/> |
| $1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1}}}$ | 3 / 2 | <input type="checkbox"/> |
| $1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1}}}}$ | 5 / 3 | <input type="checkbox"/> |
| $1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1}}}}}$ | 8 / 5 | <input type="checkbox"/> |
| $1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1}}}}}}$ | 13 / 8 | <input type="checkbox"/> |
| $1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1}}}}}}}$ | 21 / 13 | <input type="checkbox"/> |
| $1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1}}}}}}}}$ | 34 / 21 | <input type="checkbox"/> |
| $1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1}}}}}}}}}$ | 55 / 34 | <input type="checkbox"/> |
| $1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1}}}}}}}}}}}$ | 89 / 55 | <input type="checkbox"/> |
| $1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1}}}}}}}}}}}}}$ | 144 / 89 | <input type="checkbox"/> |
| $1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1}}}}}}}}}}}}}}}$ | 233 / 144 | <input type="checkbox"/> |
| $1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1}}}}}}}}}}}}}}}}}$ | 377 / 233 | <input type="checkbox"/> |
| $1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1}}}}}}}}}}}}}}}}}}}$ | 610 / 377 | <input type="checkbox"/> |
| $1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1}}}}}}}}}}}}}}}}}}}}}$ | 987 / 610 | <input type="checkbox"/> |
| $1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1}}}}}}}}}}}}}}}}}}}}}}}$ | 1597 / 987 | <input type="checkbox"/> |
| $1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1}}}}}}}}}}}}}}}}}}}}}}}}}$ | 2584 / 1597 | <input type="checkbox"/> |
| $1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1}}}}}}}}}}}}}}}}}}}}}}}}}}}$ | 4181 / 2584 | <input type="checkbox"/> |

Choose any instrument
109 Kalimba

duration play stop store

speed cont. reset

key

from step

REVERB

write read clearall

This example will not be repeated for 522,629,966,200,000,000 years.

The "Real Kecak System" is interactive computer music in which polyrhythms correspond to any combination of real numbers. In this work, it was my main aim to innovate musical form through recursive structures of any irrational numbers. No random numbers or stochastic processes were used in this work, which was based on the quite deterministic laws of mathematics. The real numbers are infinite; musical forms are infinite!

Any real number has their own hierarchy of the convergences derived from a continued fraction. Each convergence has their own periodic sequence. The Real Kecak System plays polyrhythm music consists of these sequences of convergences. When you input an irrational number, e.g., $\sqrt{2}$, $\sqrt{3}$, e , or Golden Mean, the music is fantastic, and we do not get tired of it. The musical texture goes on changing little by little beyond the astronomical period. We enjoy it as ethnic music. We can exhaustively make the best use of the self-similitude of irrational numbers for music. Our ears can recognize the characters of real numbers. Since most of the real numbers are irrational numbers, most of the music made should be non-periodic and eternal.

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