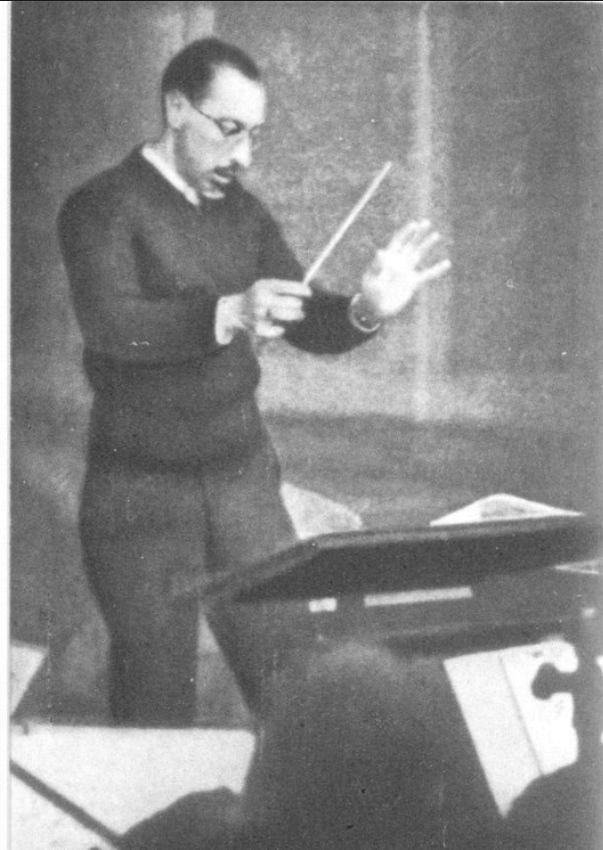


# ALGORAVE LIVE CODING WORKSHOP

# PRODUCER OR DJ



# MORE LIKE JAZZ



# VANTAGE

There is a lot of science and engineering that goes into music

- History
- Physics
- Architecture
- Engineering
- Programming
- Styles

# EVOLUTION OF MUSIC TOOLS

# ROCKS

## Hunter Gatherer

A brief history about Stone and Sound - the Feßmann story



WORLD'S OLDEST INSTRUMENT played by Ljuben Dimkaro...



# FLUTES

Peter Bastian is playing a straw like a double reed instrume...





# ARCHITECTURE

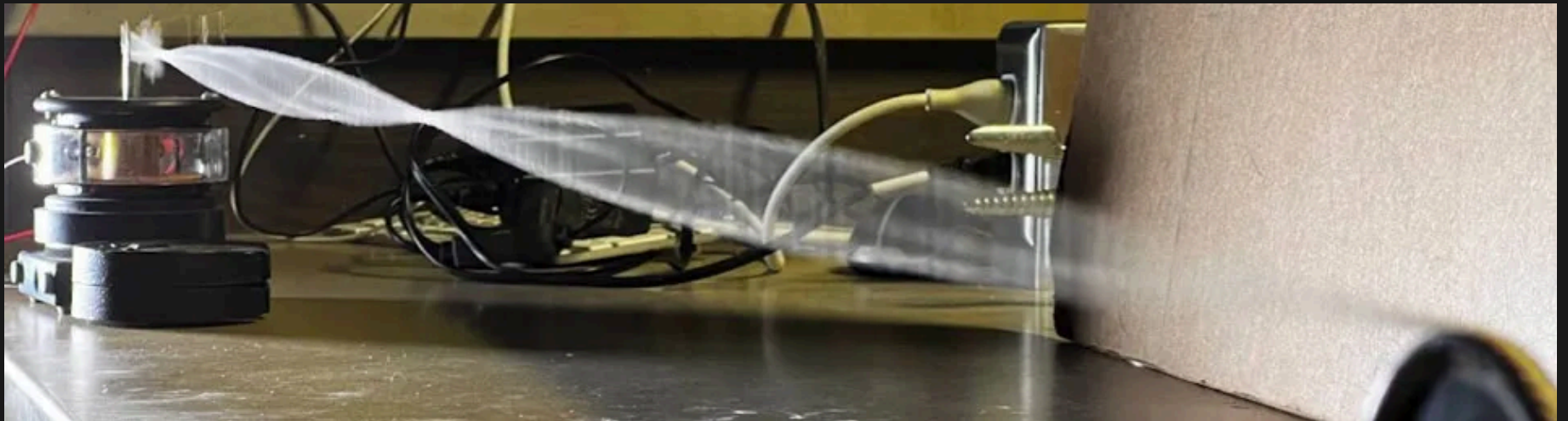
Music pillars of Hampi – Travel Karnataka



Epidavros theatre acoustics - stamping and clapping hands



# PHYSICS



# YOU DON'T NEED TECHNOLOGY

Car Horn Concerto



**NOTATION HOW ?**

# BINARY

Pingala

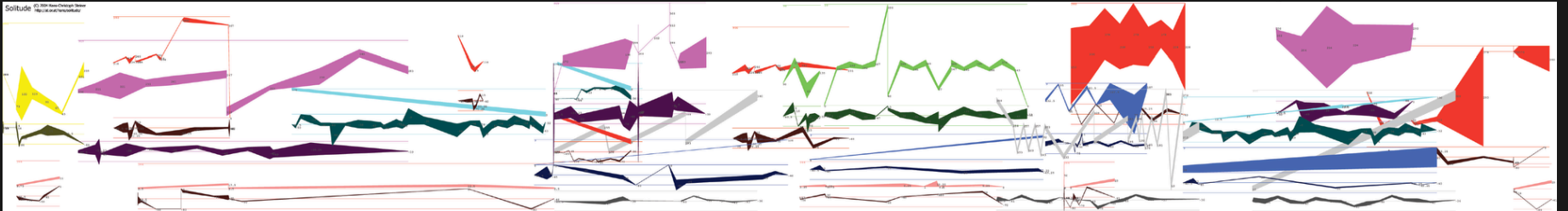
Possible combinations of *Guru* and *Laghu* syllables in a word of length  $n^{[10]}$

Word length ( $n$ characters)	Possible combinations
1	G L
2	GG LG GL LL
3	GGG LGG GLG LLG GGL LGL GLL LLL

# RECURSIVE

Bol

# VISUAL





# STAFF

First system of musical notation (measures 1-4). The right hand features a complex melodic line with many beamed sixteenth and thirty-second notes. The left hand has a steady eighth-note accompaniment. The key signature has two sharps (F# and C#).

Second system of musical notation (measures 5-8). The melodic line continues with intricate fingerings and articulation marks. The accompaniment remains consistent.

Third system of musical notation (measures 9-12). Measure 10 is marked *f* (forte). Measure 11 is marked *(p)* (piano). Measure 12 is marked *pp* (pianissimo) and *una corda\**. The tempo marking *(poco espresso.)* appears above measure 11.

Fourth system of musical notation (measures 13-16). Measure 14 is marked *(poco espresso.)*. Measure 15 is marked *f* and *tre corde*. The system ends with a repeat sign.

Fifth system of musical notation (measures 17-20). Measure 17 is marked *f*. The tempo marking *poco più lento* is placed above measure 18. The system concludes with a final cadence.

# DAW

Piano roll - FLEX ▶

The piano roll interface displays a piano keyboard on the left side, with notes labeled from C5 to D6. The main area is a grid with three measures labeled 1, 2, and 3 at the top. The notes are as follows:

Measure	Note	Color
1	G#5	Green
1	C#5	Green
2	A5	Red
2	F#5	Red
2	C#5	Green
3	A#5	Red
3	C#5	Red

Click & drag

# CODE

Music created with the C programming language



# THEORY ?

A typical song has a Theme and develops Exposition / Conflict / Resolution through time

**Background:** You use layers of rhythm and groove to set the mood.

**Foreground:** Lead, Counterpoint, Call Response, Chorus, Ornaments

Frequency doesn't matter

# THEORY ?

Analyse this and all the thematic motifs, conflicts here

Catch Me if You Can Opening Title Sequence



# MIDI

This generates MIDI messages like,

**Command** param1 param2 param3

**Command** param1 param2

**Command** param1 param2 param3

**Command** param1 param2

...

Important messages are,

Note **On** => Channel [1-16]\*\*, Pitch[0-127], Volume[0-127]

Note **Off** “

Controller => No [0-127], Value[0-127]



# SONIC PI

Sonic Pi

# OVERTONE

Overtone

# GIBBER

Gibber

# GENRES

Mechanical / Biological / Chemical

~ 2

Artist Invents Device That Can Listen To Plant Music



# GENRES

## CREATIVE CODING

- Live Coding
- Interactive Coding
- Adaptive Coding
- Physical Coding
- Machine Coding

Monkey Drummer by Chris Cunningham & Aphex Twin (108...



- Algorithmic Composition
  - Generative
  - Stochastic
  - Evolutionary
- Data Driven
  - Hard Coding
  - AI
  - Stock Market
  - Camera

End