



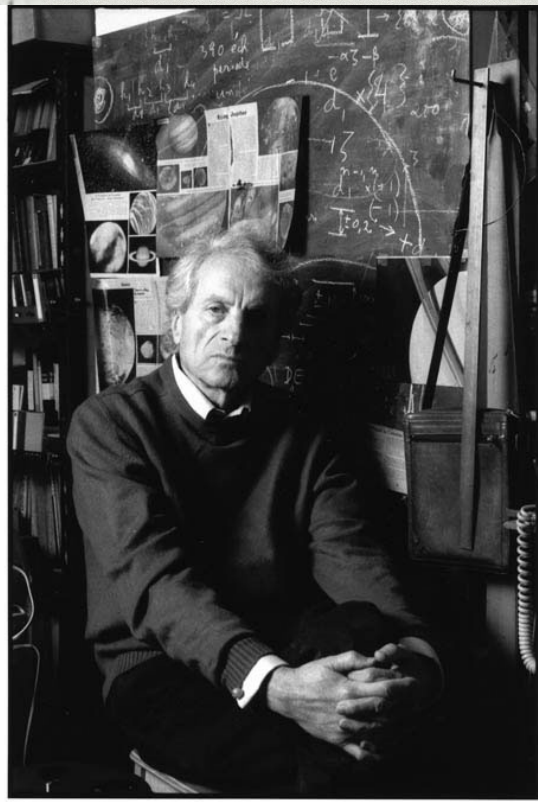
IANNIS XENAKIS

1922 - 2001

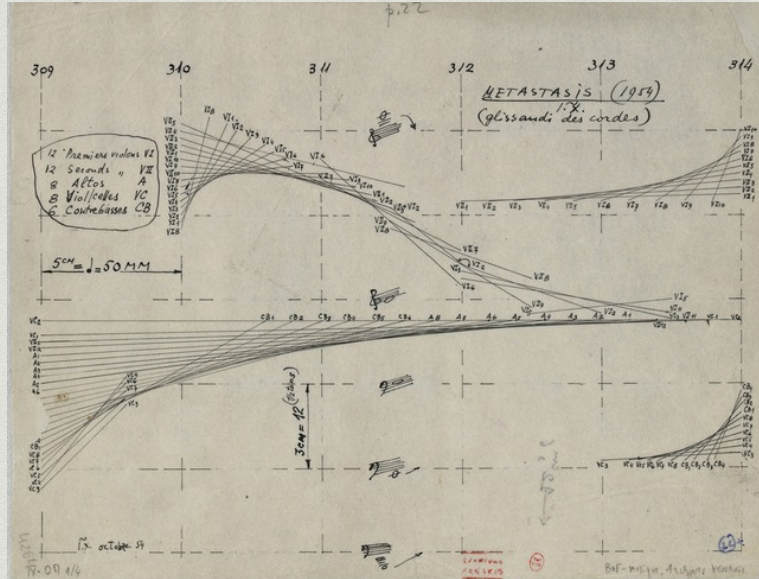
Bio



- * Greek/French
- * Born in Romania
- * To Greek parents
- * Then fled to Paris in 1947
- * Architect, mathematician, and composer



Metastaseis



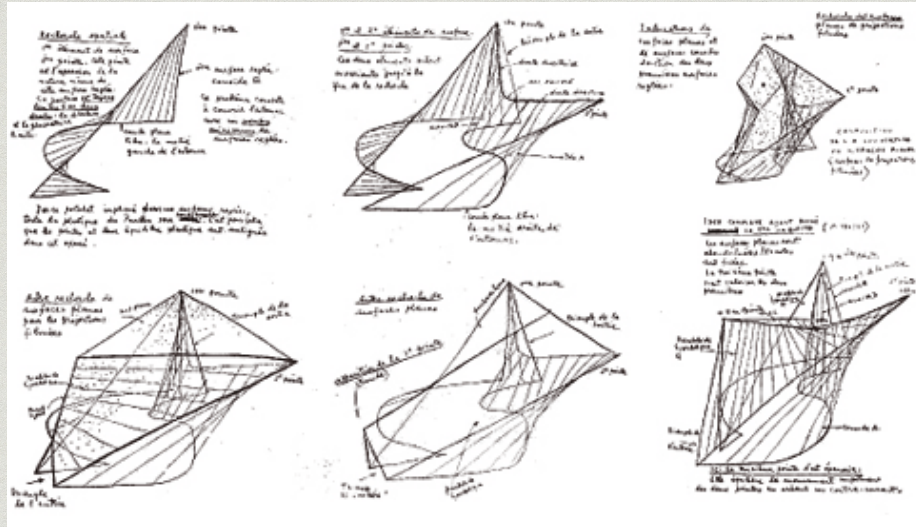
<https://www.youtube.com/watch?v=SZazYFchLRI>

Philips Pavilion - Expo 58

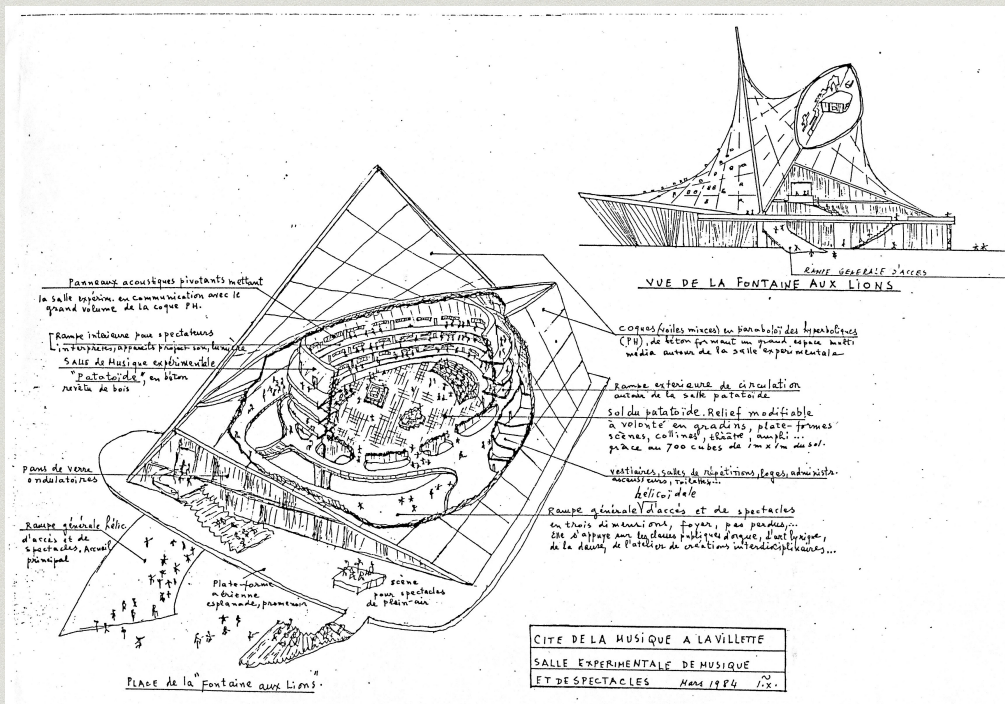
- * Xanekis/Corbusier designed the building
- * Varese: Poeme Electronique
- * Xanekis: Concret PH
 - * Sounds derived from burning charcoal



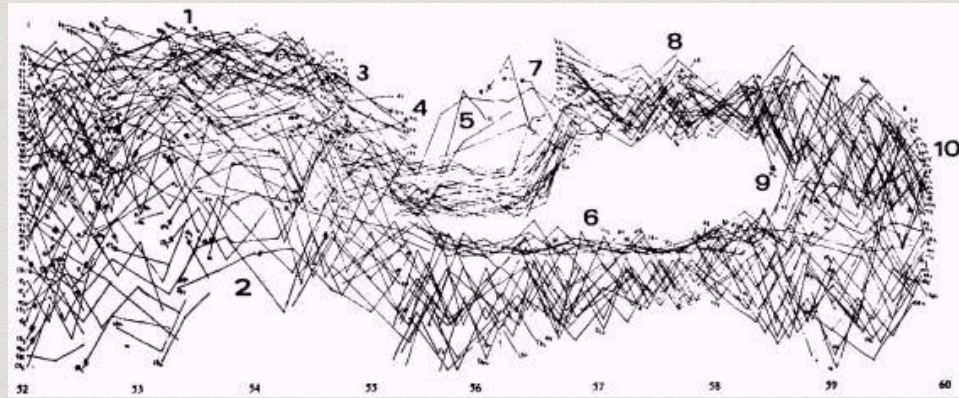
Philips Pavilion



Philips Pavilion

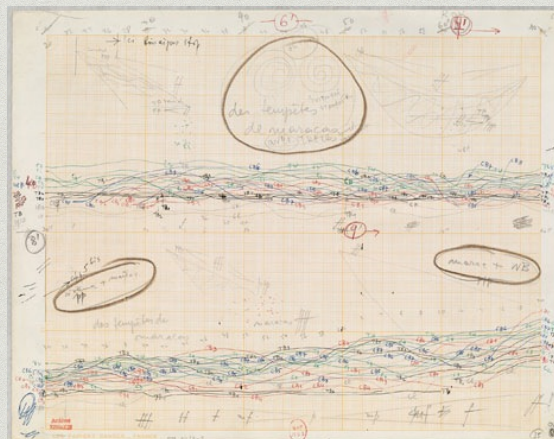


Pithoprakta

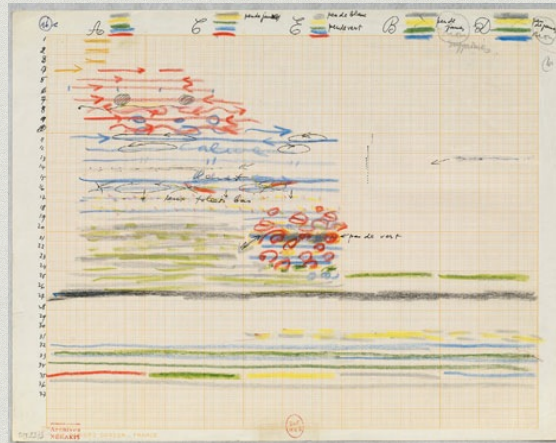


Each line represents a string instrument named on the vertical axis, starting with the lowest register at the bottom to the highest at the top while the horizontal axis represents time

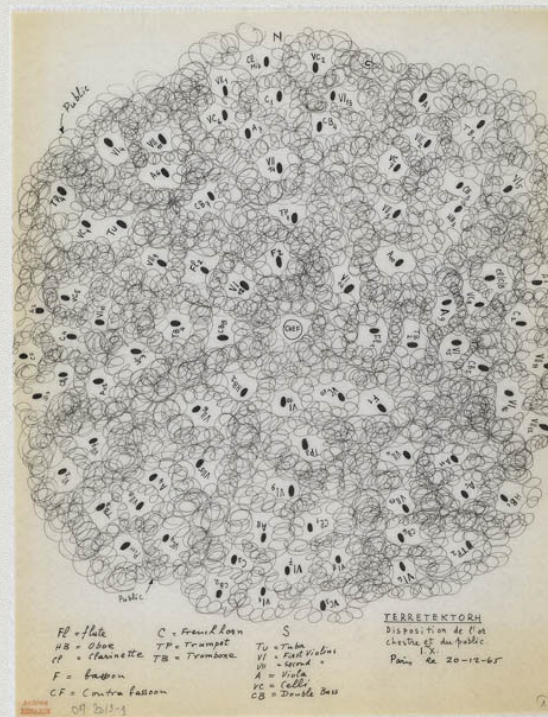
Other scores



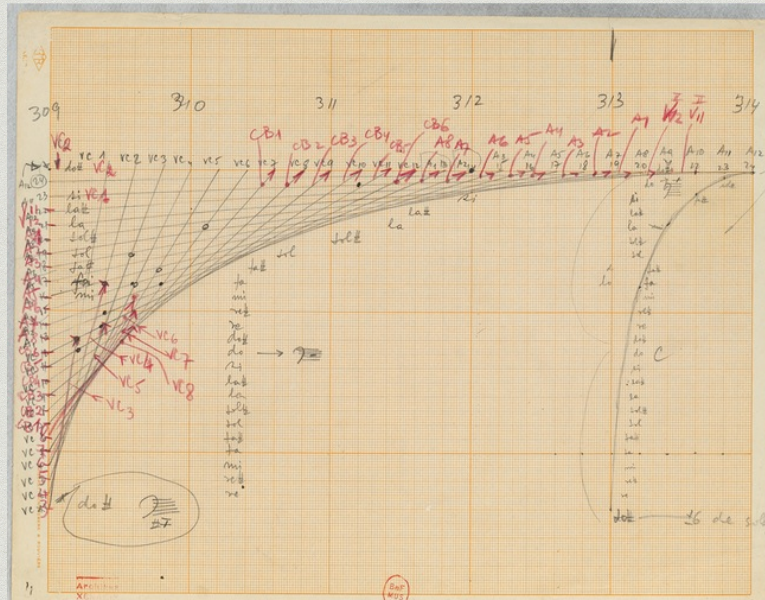
Other scores



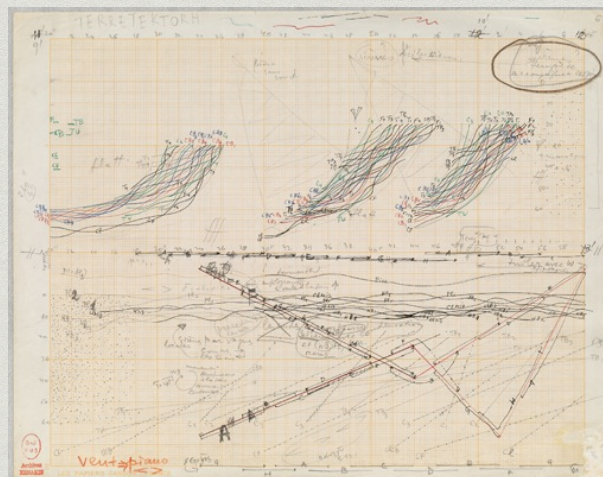
Other scores



Other scores



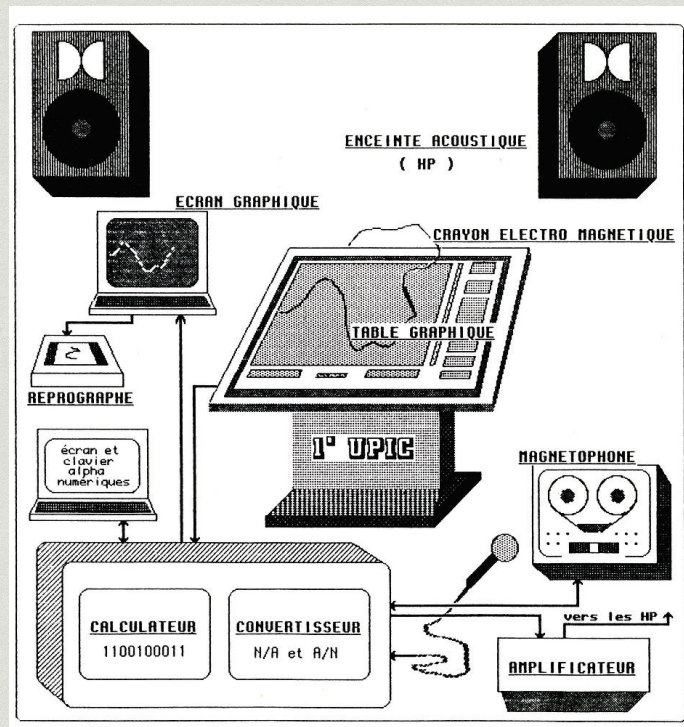
Other scores



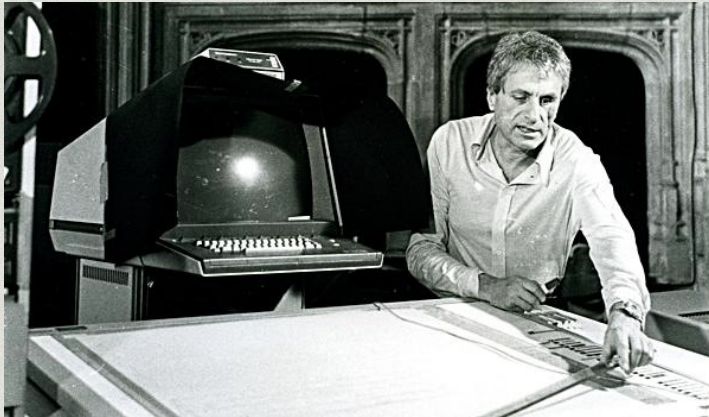
Computer Music

- * Started in the early 1970's
- * Xenakis is convinced that the future is "computer music"
- * Starts with a graphical input technique (UPIC)
- * Evolves to a "programming language" for describing sounds (GENDY)

UPIC



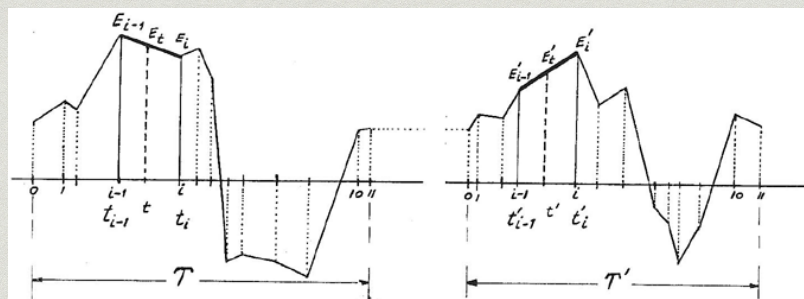
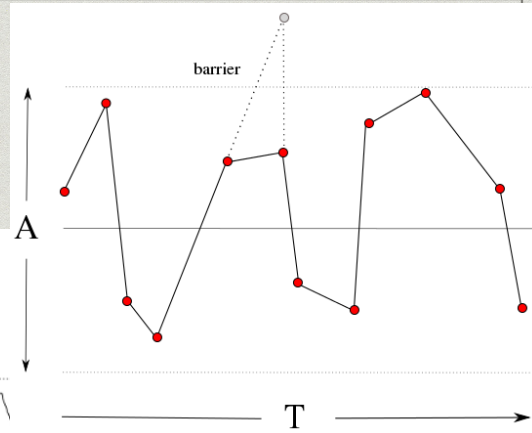
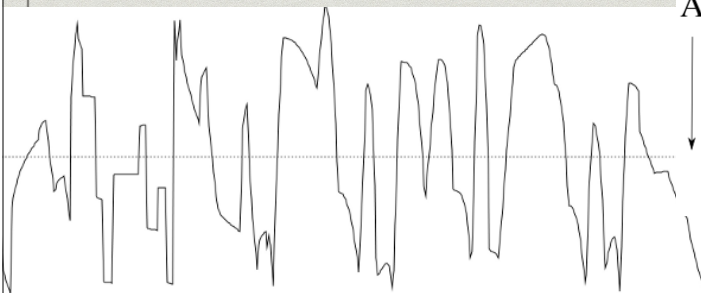
UPIC



<https://www.youtube.com/watch?v=yztoaNakKok>

GENDY

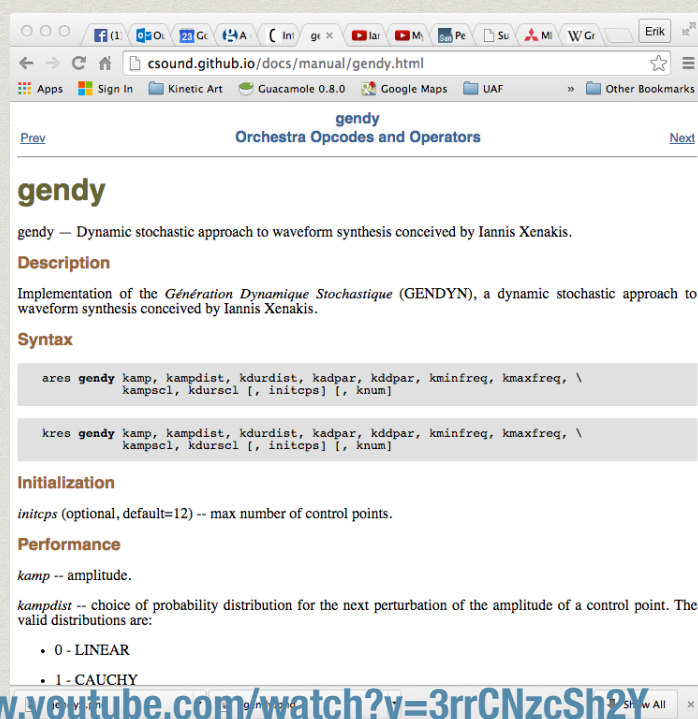
* waveform synthesis...



CSounds

- * There are newer computer music systems that have graphical patch editors (e.g. Max/MSP, PD, jMax, or Open Sound World), or that use more advanced techniques of software engineering (e.g. Nyquist or SuperCollider). Yet Csound still has the largest and most varied set of unit generators, is the best documented, runs on the most platforms, and is the easiest to extend. It is possible to compile Csound using double-precision arithmetic throughout for superior sound quality. *In short, Csound must be considered one of the most powerful musical instruments ever created.*

CSounds / GENDY



The screenshot shows a web browser displaying the Gendy documentation page. The browser's address bar shows the URL `csound.github.io/docs/manual/gendy.html`. The page title is "gendy" and the subtitle is "Orchestra Opcodes and Operators". The page content includes a description of Gendy as a dynamic stochastic approach to waveform synthesis, a syntax section with two code snippets for `ares gendy` and `kres gendy`, an initialization section for the `initcps` parameter, and a performance section for the `kamp` parameter. The page is styled with a clean, modern layout and includes navigation links for "Prev" and "Next".

gendy
Orchestra Opcodes and Operators

gendy — Dynamic stochastic approach to waveform synthesis conceived by Iannis Xenakis.

Description
Implementation of the *Génération Dynamique Stochastique* (GENDYN), a dynamic stochastic approach to waveform synthesis conceived by Iannis Xenakis.

Syntax

```
ares gendy kamp, kampdist, kdurdist, kadpar, kddpar, kminfreq, kmaxfreq, \
kampscl, kdurscl [, initcps] [, knum]
```

```
kres gendy kamp, kampdist, kdurdist, kadpar, kddpar, kminfreq, kmaxfreq, \
kampscl, kdurscl [, initcps] [, knum]
```

Initialization
`initcps` (optional, default=12) -- max number of control points.

Performance
`kamp` -- amplitude.
`kampdist` -- choice of probability distribution for the next perturbation of the amplitude of a control point. The valid distributions are:

- 0 - LINEAR
- 1 - CAUCHY

<https://www.youtube.com/watch?v=3rrCNzcSh2Y>