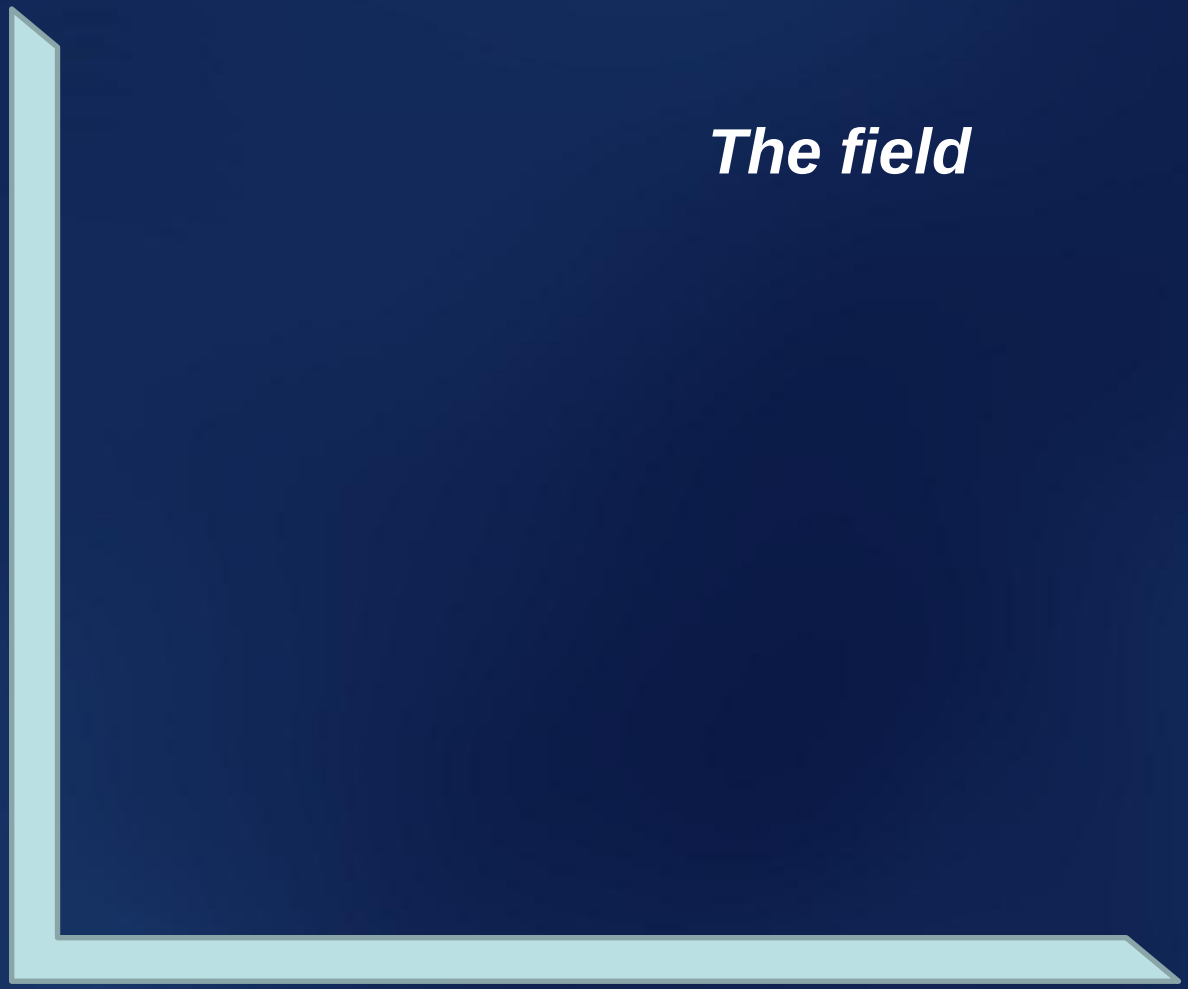
The field



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SOUNDSCAPES
SONIFICATION ENVIRONMENTS FOR STEAM LEARNING

ELLINOGERMANIKI AGOGI

The field

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Converting Charts into Audio for educational purposes

Audio

Computational

Detailed matching accuracy
Usually: direct match between numerical data and audible frequencies

Musical

Matching data to the chromatic musical scale (including dynamics, values or even chords)

Symbolic

Representation with sound.
Abstract sound used as a symbol to identify a certain notion or a characteristic related to the data flow

Age

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Petros Stergiopoulos, ΕΜΣΤ

gravitational waves

This was published 8 years ago

Gravitational waves: how they sound and why scientists are going nuts

Marcus Strom
Updated February 12, 2016 –
10.26am, first published at 9.00am

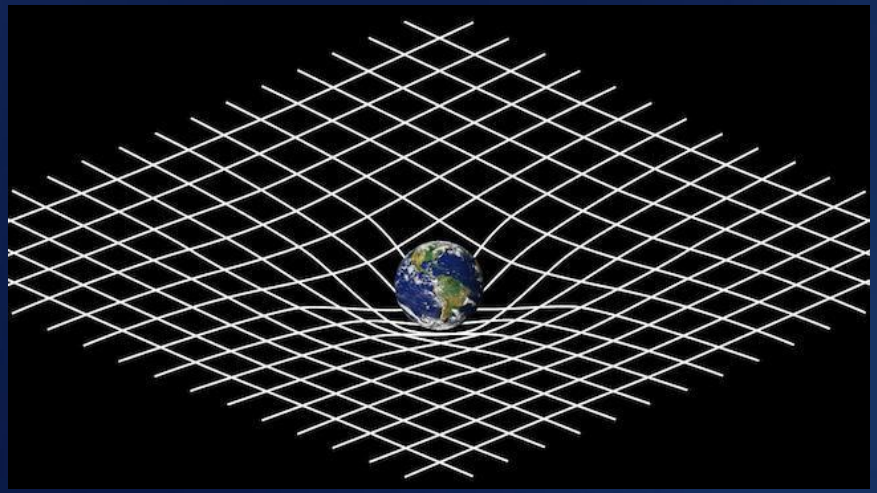
Save | Share | A A A

- Gravitational waves observed
- Gravitational waves: an explainer
- A new world of space

The confirmation of Einstein's gravitational waves has thrown the scientific community into paroxysms of joy.

Across the world, social media has buzzed with the sound of two massive black holes colliding; the aural imprint caused by the gravitational waves of this cataclysmic event 1.3 billion light years away.

Scientists around the world are so ecstatic at hearing the sound of two black holes colliding they begin to chirp.



VIDEO

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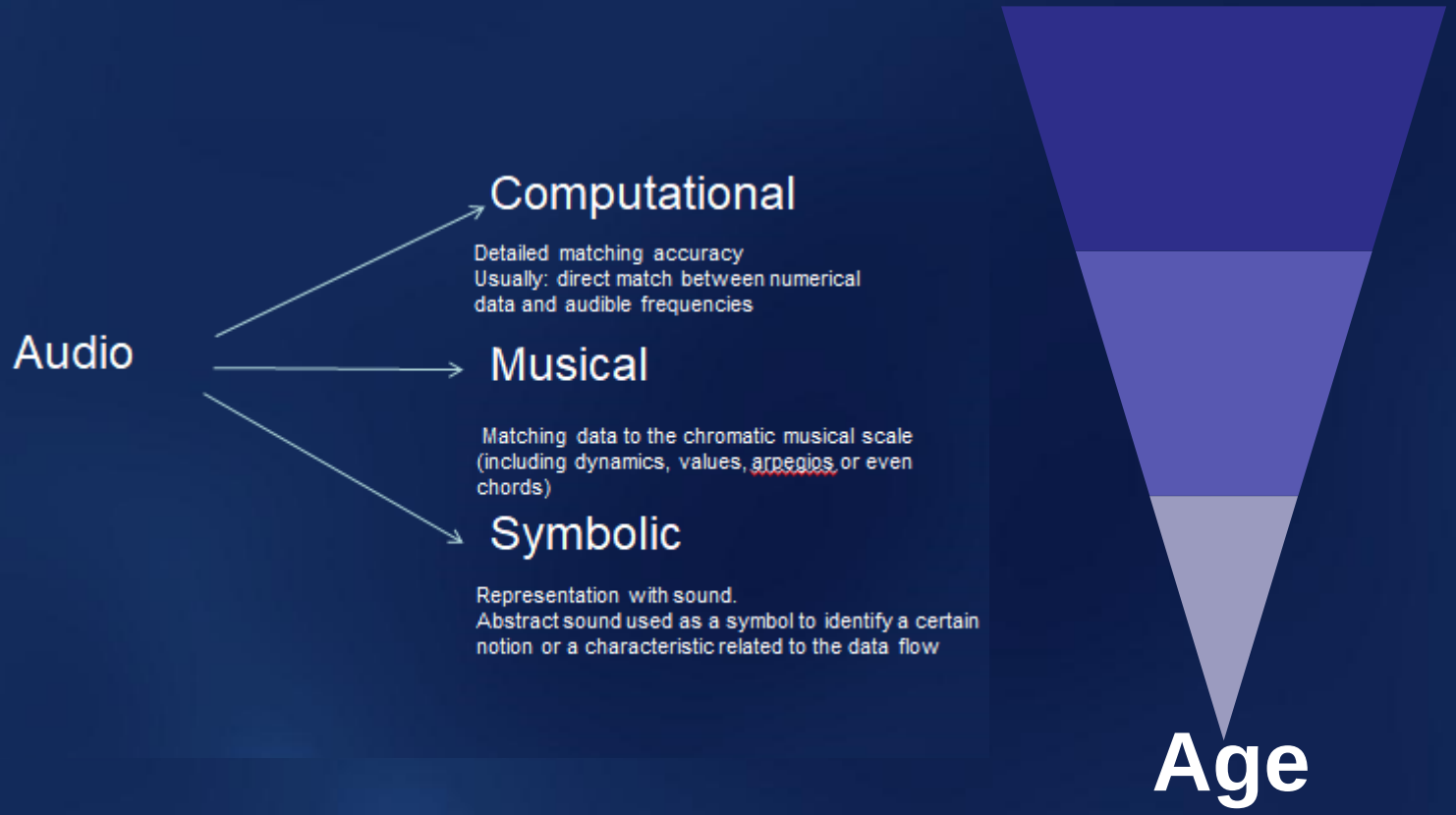
Converting Charts into Audio for educational purposes



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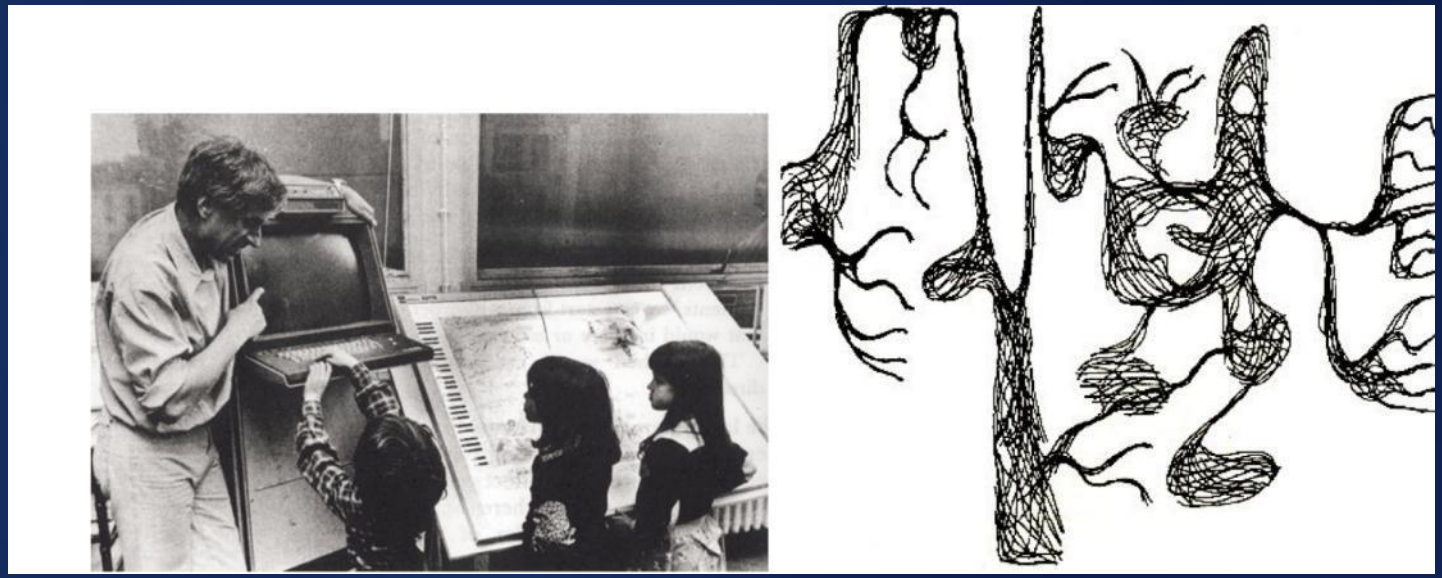
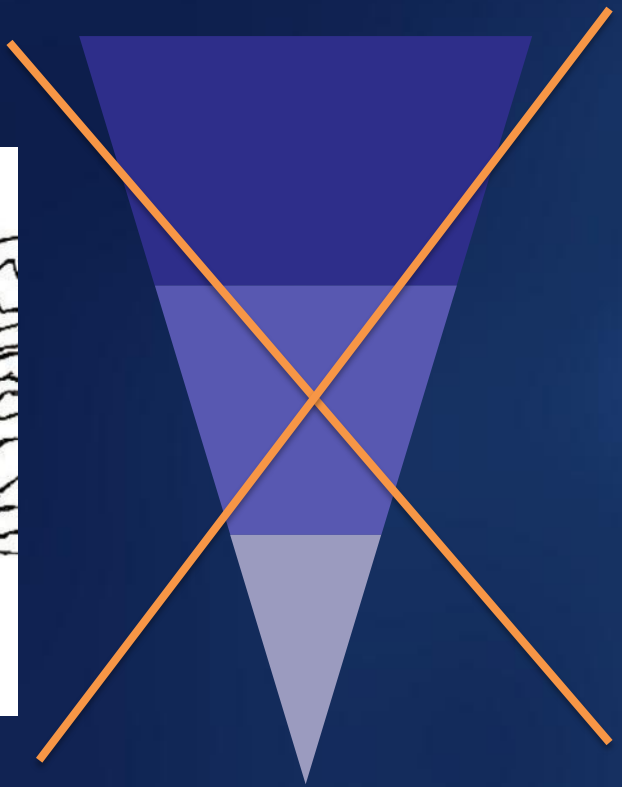
ΠΟΛΥΑΓΩΓΙΑ (POLYAGOGIA or UPIC)
the educational dimension
(or towards a holistic notion of sonification)





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POLYAGOGRAPHY
the educational dimension
(or towards a holistic notion of sonification)

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ΠΟΛΥΑΓΩΓΙΑ (POLYAGOGIA or UPIC)
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DESIGN ⟷ **TRANSITION** ⟷ **SOUND**

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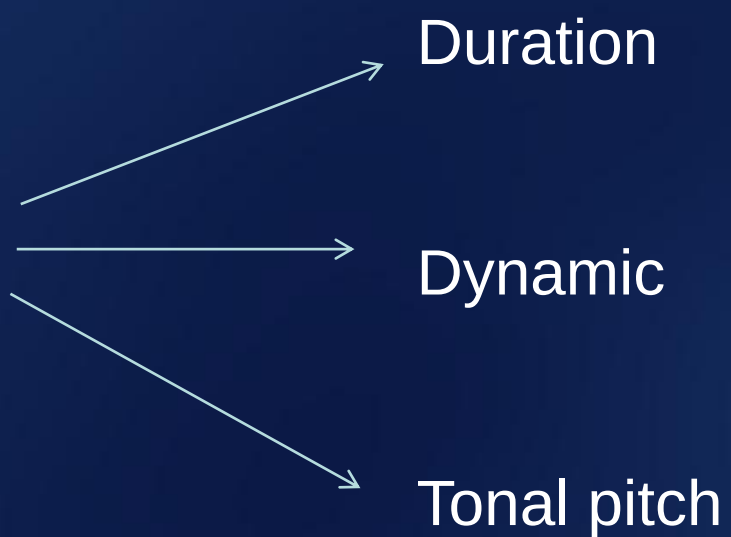
Convert a chart or numerical data sequence into Music Notation

Our **voice** produces

phonemes

that form melodic lines



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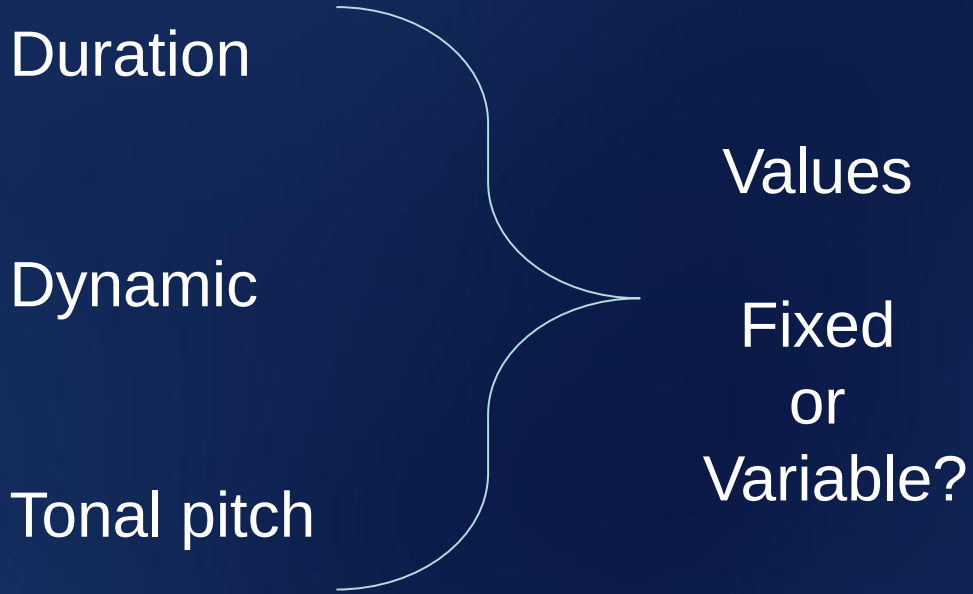

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ΠΟΛΥΑΓΩΓΙΑ (POLYAGOGIA or UPIC)
the educational dimension
(or towards a holistic notion of sonification)

Through the guidelines of UPIC

4) ΑΚΟΥΣΜΑ (ENTENDRE)

ΑΚΟΥΣΜΑ κυματομορφή ΕΠΙΚΥΡΩΣΗ
ή
τελική κύμανση

Στην περίπτωση κυματομορφής καθορίζεται με το μολύβι μια συχνότητα και ακούγεται ήχος σταθερής συχνότητας με το ηχόχρωμα της κυματο-

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Through the guidelines of UPIC

μορφής. Μεταβάλλουμε την συχνότητα μετακινώντας το μολύβι πάνω στον άξονα των y. Η μεταβολή της συχνότητας στην ζώνη σχεδίασης είναι 1 ημιτόνιο/cm, και διατρέχει 6 οκτάβες από do σε do. Για να βγούμε από άκουσμα κυματομορφής αρκεί να δώσουμε κάποιαν άλλη εντολή. Δεν πρέπει να είμαστε σε άκουσμα κυματομορφής την στιγμή που σταματάμε την εφαρμογή.

Στην περίπτωση τελικής κύμανσης ακούμε τον αντίστοιχο ήχο.

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ΠΟΛΥΑΓΩΓΙΑ (POLYAGOGIA or UPIC)
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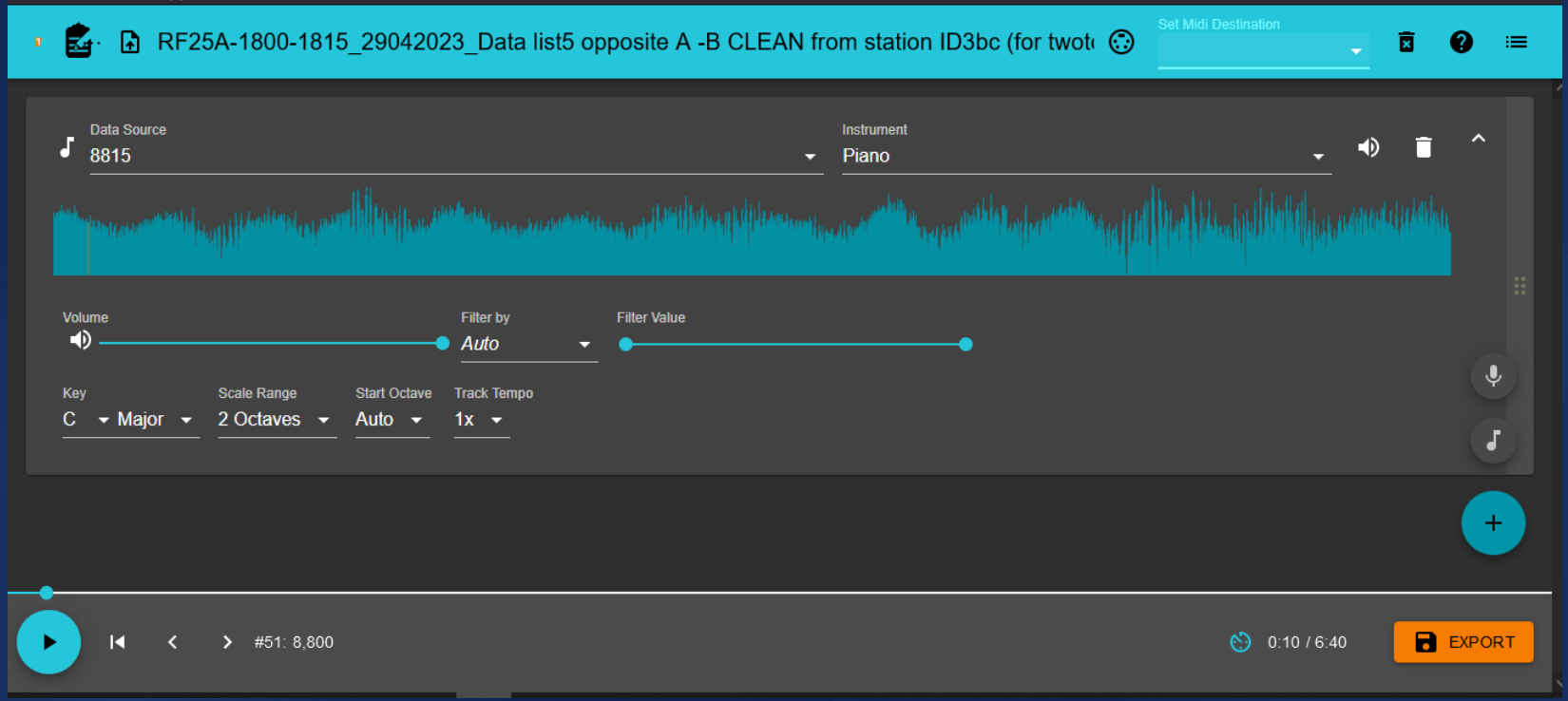
TwoTone



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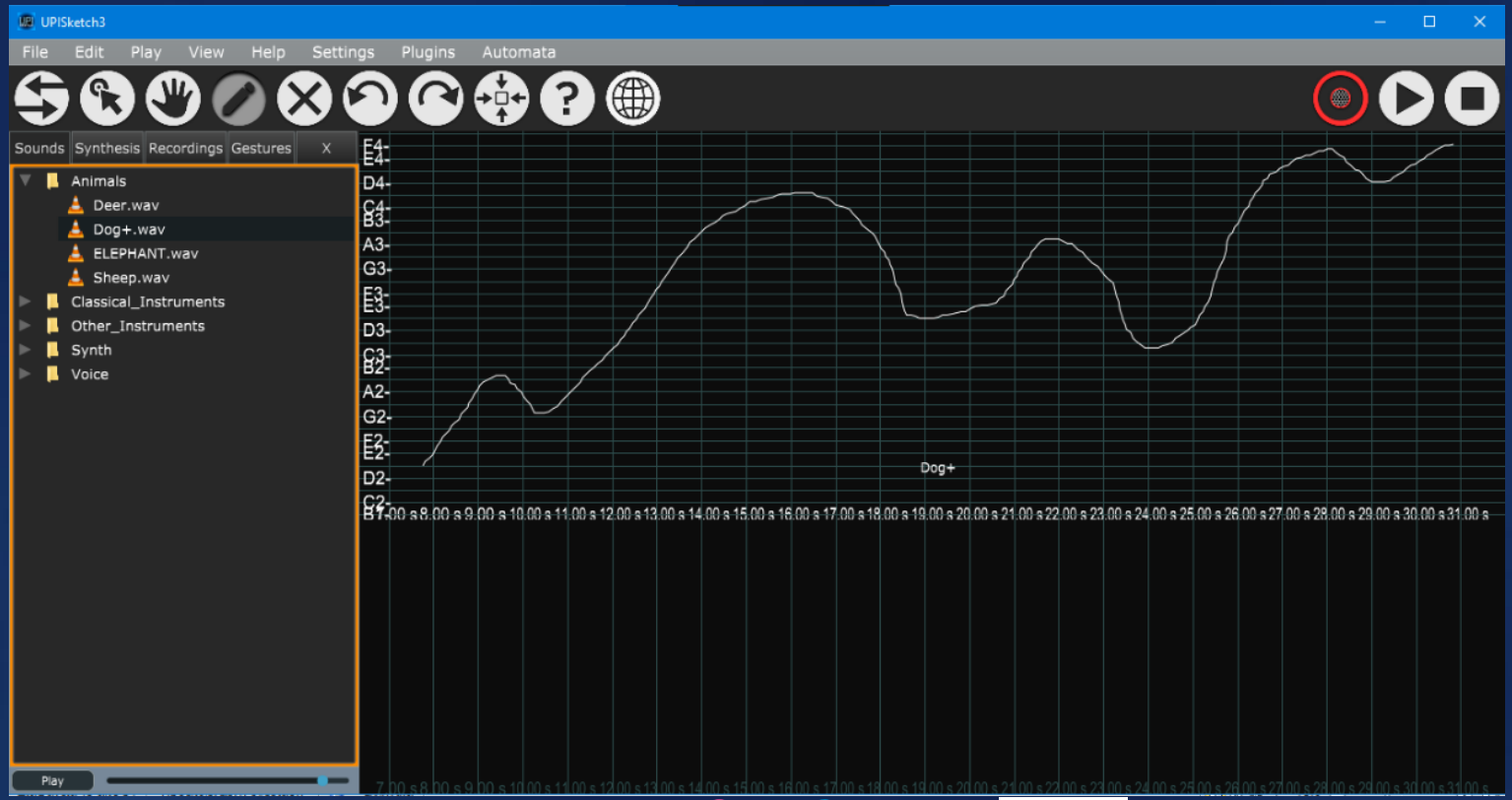

UPISketch

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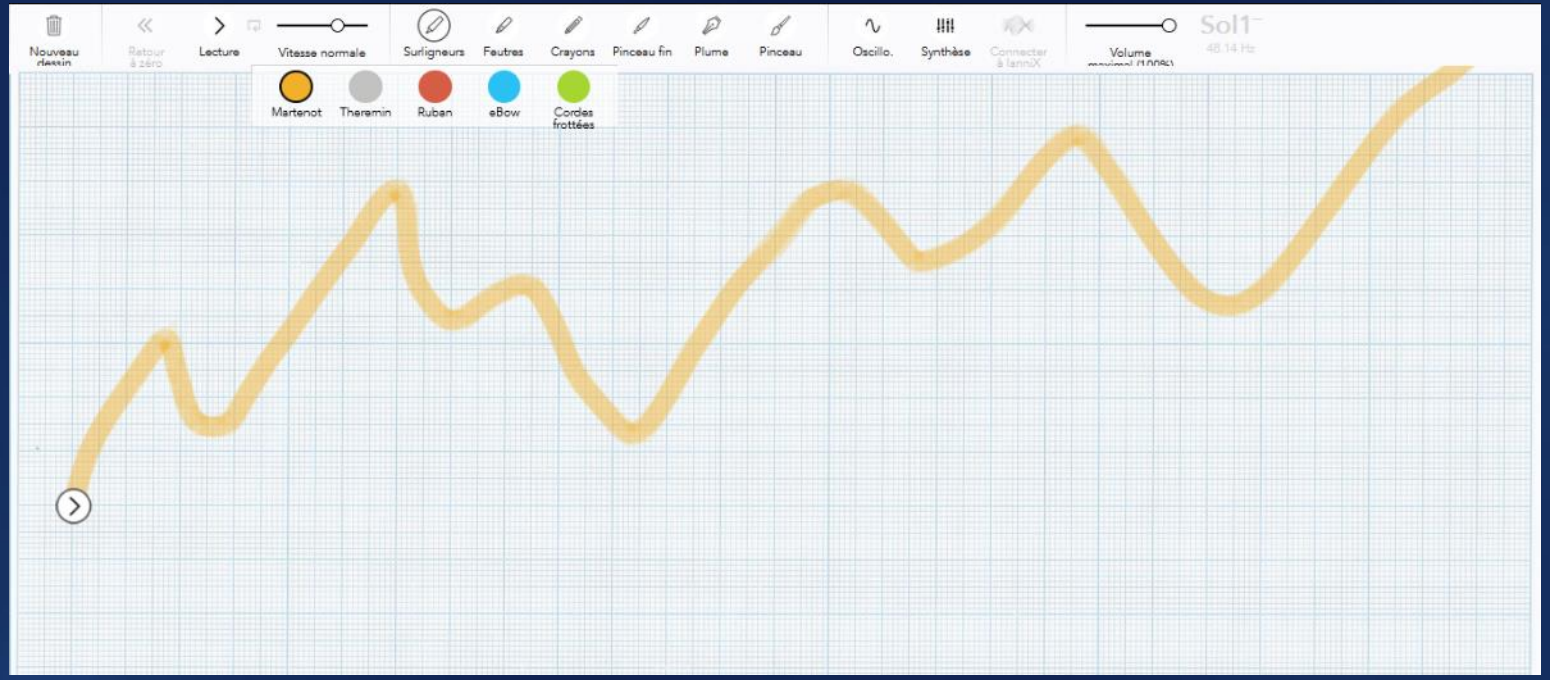
Synesthesia



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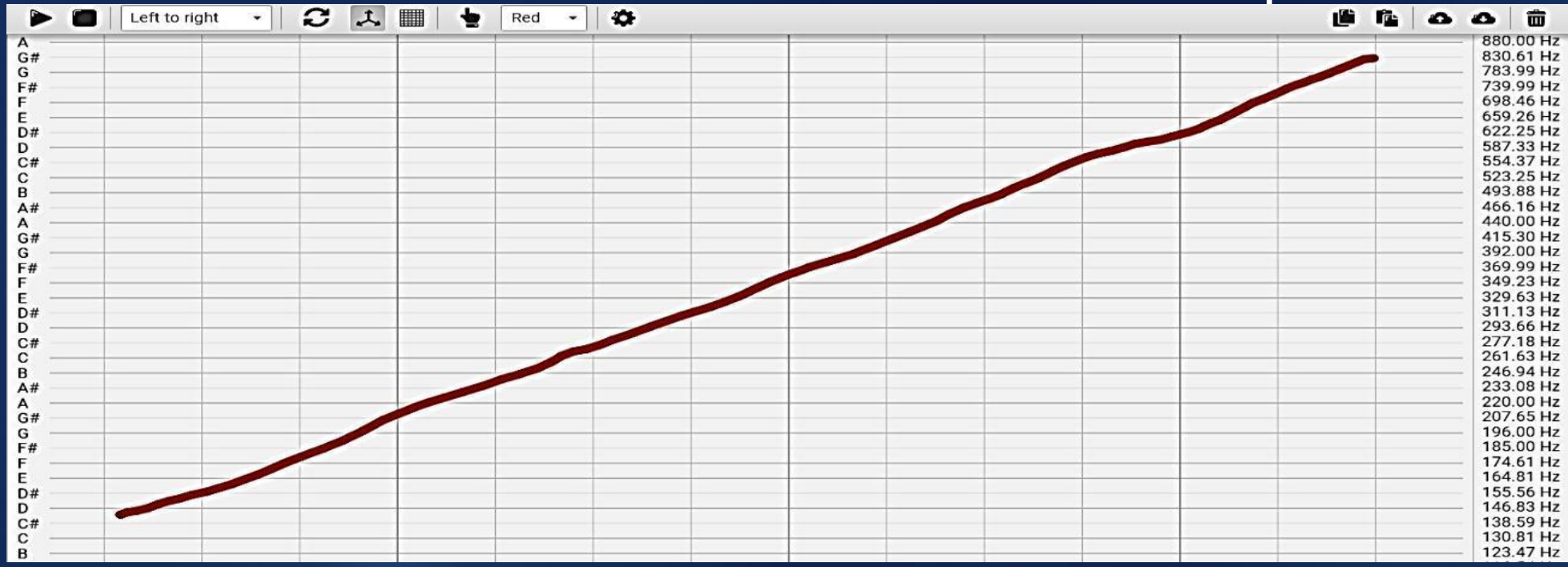
The case of iMuSciCA

Tonal pitch



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How many parameters to use in a data to audio sequence conversion

Duration

Dynamic

Tonal pitch

One?
Two?
All of them?

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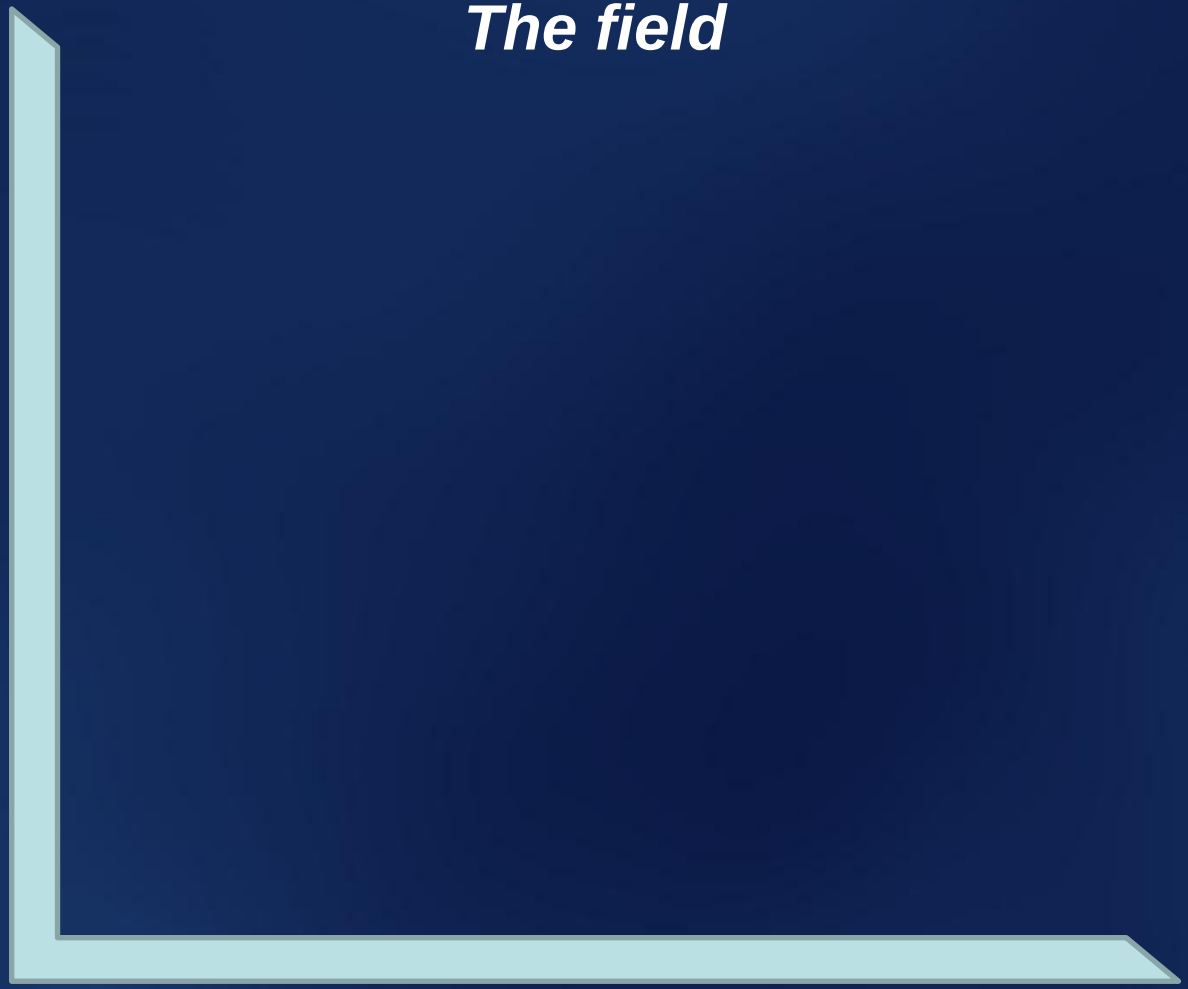
The field



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1) EA introduction https://www.ea.gr/
2) Schematic Sonification of seismograms
http://dma.ea.gr/sites/default/files/Eap%20-%20Tutorial%20Pureref%2BOnlinesequencer-Final-1.mp4

3) Summer School https://esia.ea.gr/soundscapes-summer-school/
4) Schematic Sonification of Green Harmony
https://drive.google.com/file/d/139zEMYppHJ4niuObsYWBNrDs7tpGMv3F/view
5) National funding project https://episteamousiki.athenarc.gr/
6) SOUNDSCAPES as an osos community
https://www.schoolofthefuture.eu/en/community/soundscapes

Petros Stergiopoulos

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plagiavlitis@yahoo.gr

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