



## Xavi-Manzanares

Electronic Artist  
Algorithmic music  
New Media Researcher

**Immersive Installations // Live Sets // Research Knowledge**



## INSTALLATIONS

NewMedia Experiences driven by Automats



## ONES HÀPTIQUES (HAPTICAL WAVES) INSTALLATION

**Ones Haptiques / Haptical Waves (OH)** is an immersive installation inspired in the SciFi imaginary of space time teleport. An algorithmic generative automat drives the experience in live inspired by the multiverse paradigm from physical sciences. The device constitutes a sensorial and full body listening experience through a binaural and haptical system that reproduces the live soundscapes generated by the automat.





The Sonic Algorithm (OHPI · Sonic BOT) is inspired by physical theories that assumes the existence of a set of universes, consequently a multiverse structure.

OHPI is a particular 'tuned' generative algorithmic instrument with a ratio of 27.7\* (55, 83, 111, 139, 166 etc ) both in frequencies (hz) and in time (ms).

\* This ratio comes from a hypothetical assumption of 13D, dividing a loop of  $360^\circ / 13 = 27.7$ .

[For reference, in the following recording you can hear the base of the algorithmic instrument recorded in live.](#)

**Ones Haptiques / Haptical Boards (OH)** is a research project started in 2015.

Its main experiment in the form of an installation has been exhibited (as well as in its project reverberations) in spaces such as Etopia/CtrlAltPlay (Zaragoza), Eufonic (La Ràpita), LaCapella, Merkatua (Iruña), Fundació Miró (Bcn), Kunsthausbaselland (Basel), Escola d'Art and Disseny BAU (Bcn), OneDroneDay festival (Bcn), Digital Nights Festival (Vic) or Casal Prosperitat (Bcn).

(OH) reverberated in other projects with the same immersive perceptual concept (spatial sound and haptic perception). **Eixams** (co-produced with the video artist AlexMuñoz) was an installation driven by a live beehive monitored with sensors that is located outside the exhibited piece. Different behavioral changes and 'mood' of the swarm are translated into an algorithmic instrument reactive to the sensor data, being able to listen to these changes through a mutant soundscape with rhythmic structures in base 6, both binaurally and through hexagonal haptic surfaces (Eixams was exhibited at the Miró Foundation -bcn- and KunsthausBaselLand -Basel-).

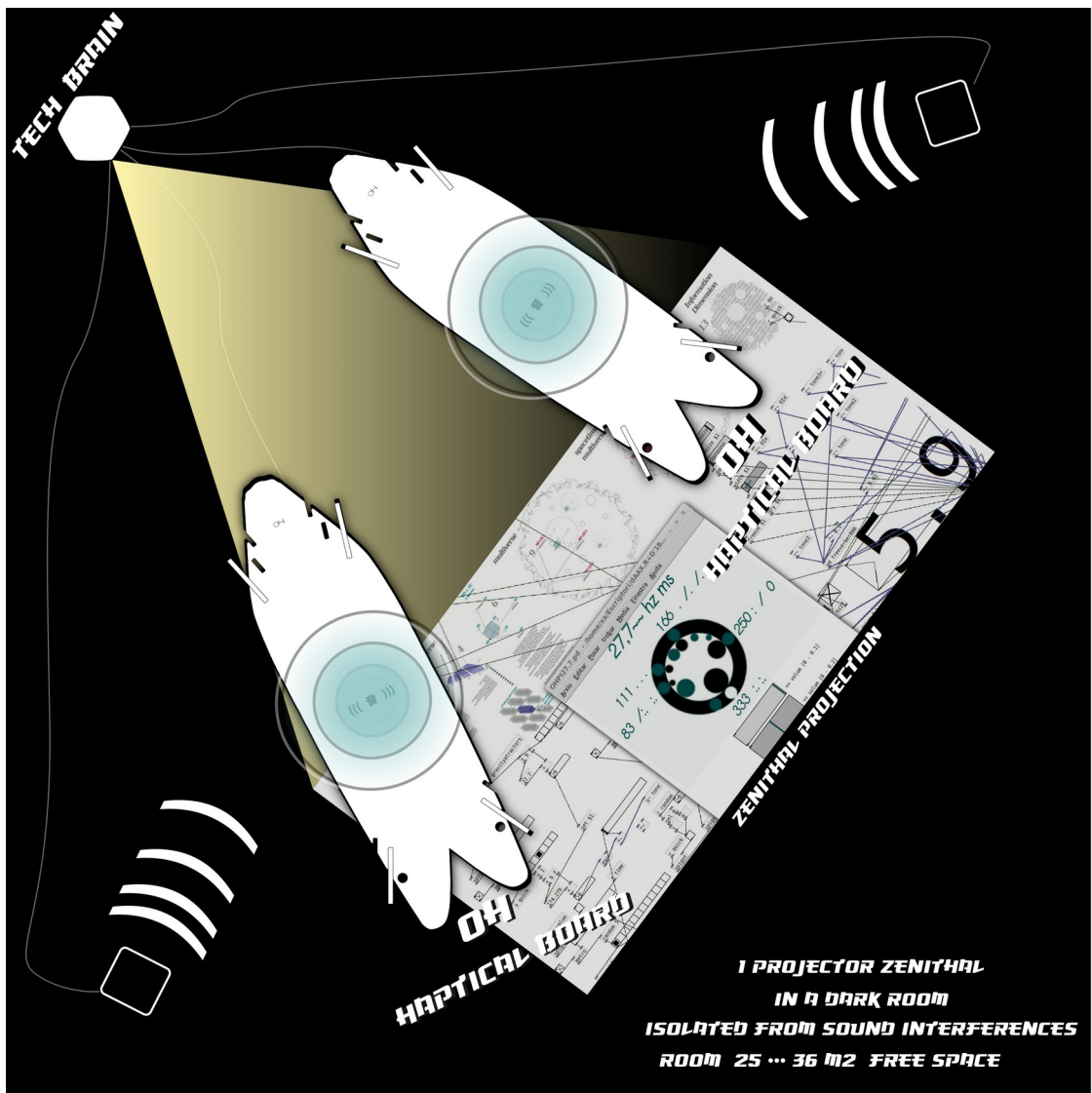


Another occasion that OH reverberated was the 12m.Haptical Boards within the Audience in the OneDroneDayFestival\*. Boards were connected to the live performers signal output, therefore they could listen to the live performances in a full body experience.

\*OneDroneDayFestival ODD : a Drone music festival, in which during 12 hours the audience enjoyed highQ-powered quadraphonic and immersive live sound

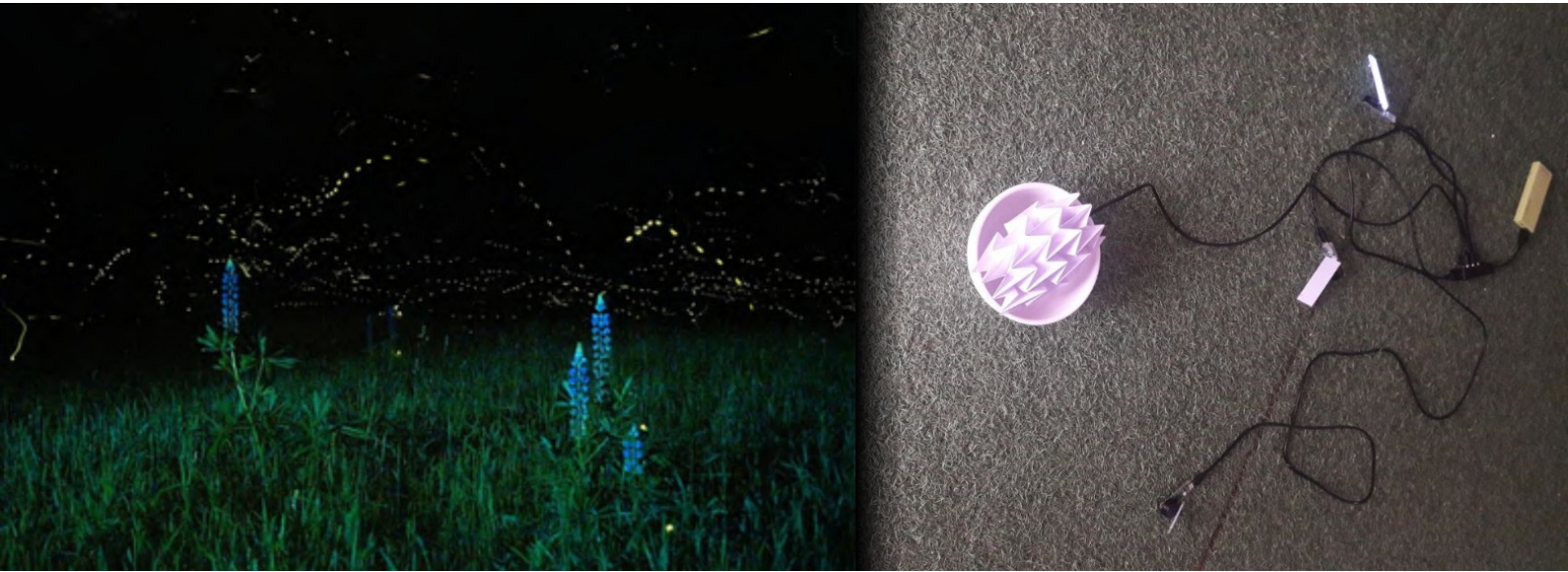


+info  
<http://oneshaptiques.space/>



1 PROJECTOR ZENITHAL  
IN A DARK ROOM  
ISOLATED FROM SOUND INTERFERENCES  
ROOM 25 ... 36 M2 FREE SPACE

# EMERGENCES INSTALLATION



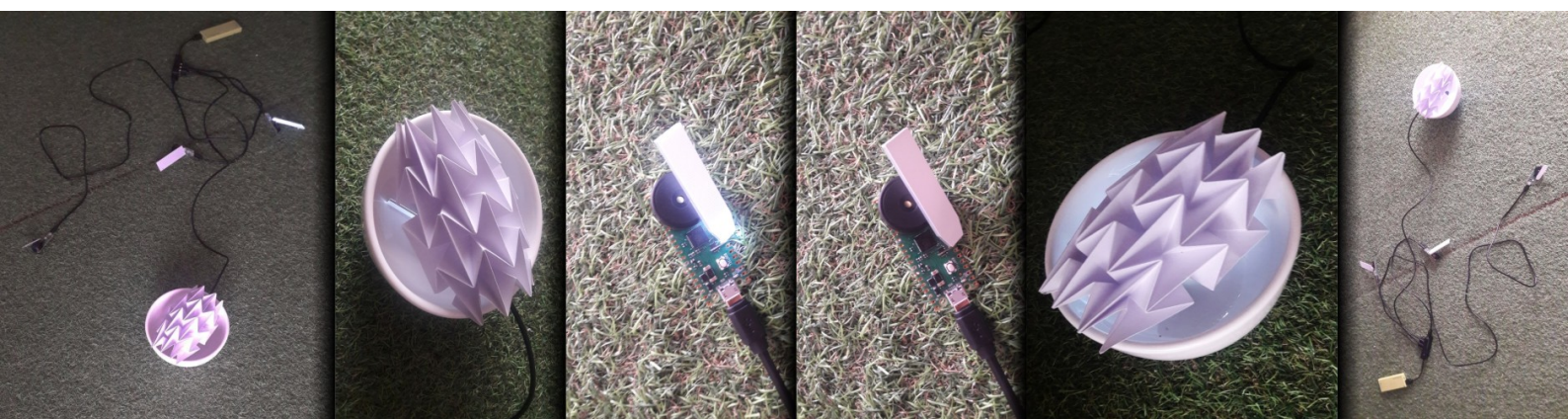
**Emergences** is an installation displayed as a rhizome of computing micro-units, with the idea of recreating a tiny light and sound atmosphere featuring the link between organisms, generative computation and emergent systems.

\*light atmosphere inspired by **fireflies** and a (micro) sonic tunes inspired by **crickets**.

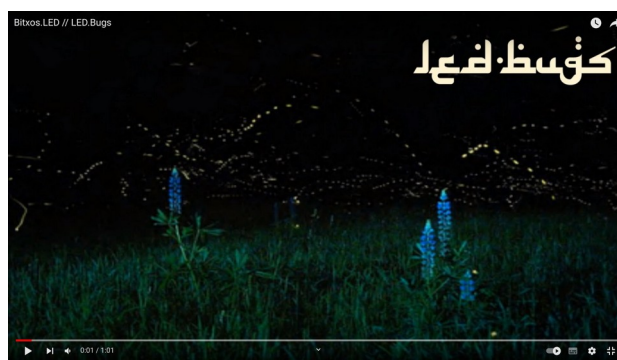
The micro-units have embed **temperature sensors**, slide / matrix **LEDs**, and **buzzers**, that generates rhythmic patterns of sound and light in a micro scale.

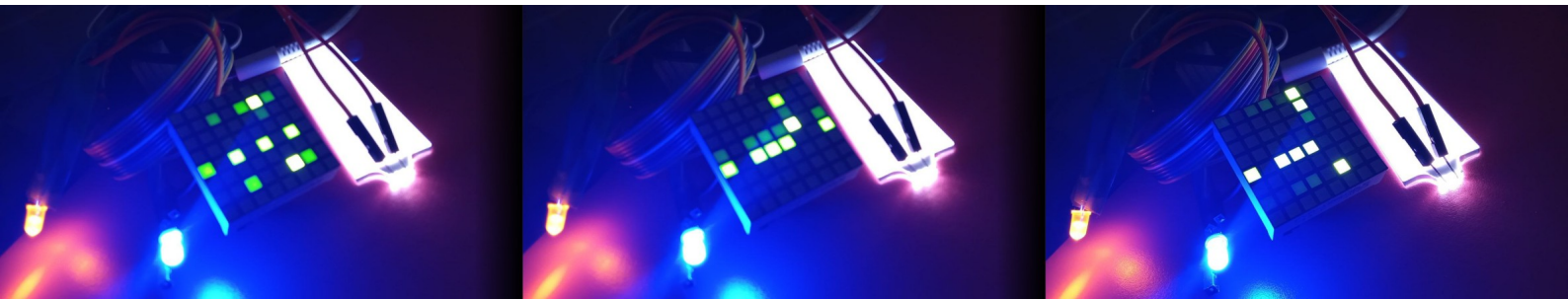
Eventually, displayed as 'bugs' or electronic insects, those micro-units interacts between each other and with the environment, since they have a **genetic algorithm technique** [the algorithm has a common structure with small variations in a way as biological DNA does].

Patterns of micro buzzes and led flashes are running until the observation of **emerging events and synchronization** such as those that happens in nature.



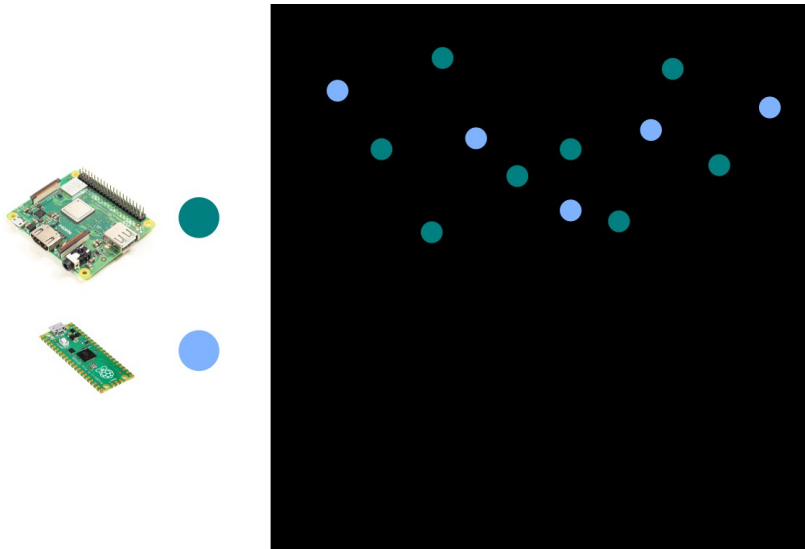
This installation is under construction. Check out a prototype here :





'Emergences' Light Interaction Prototyping

The setup is an intimate **experience in a dark room** with several units in a **rhizome** structure.

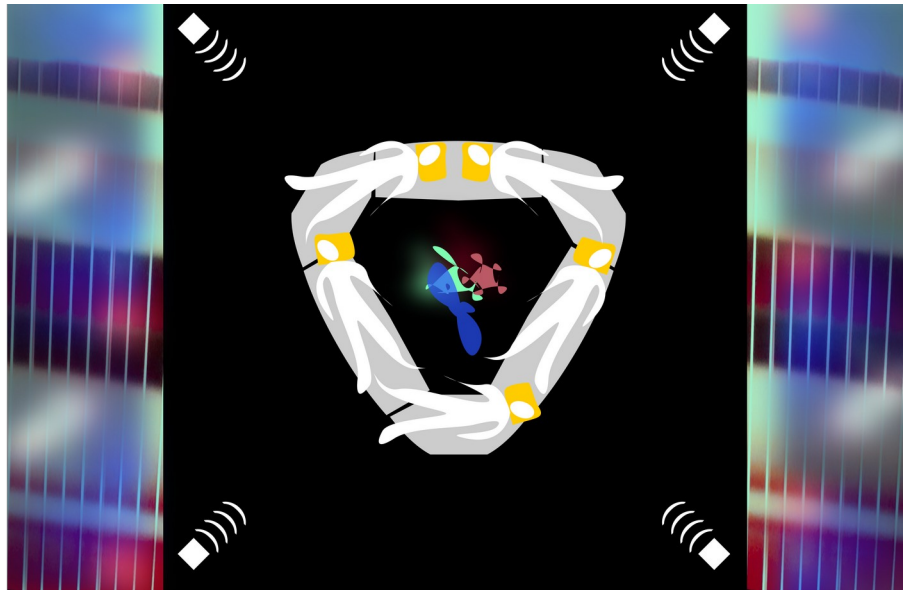


Between the lines, the project is a contemplatory critical warning of the ongoing Climate Crisis, putting the focus between generative computation, biology and sustainability through a very low consumption computation systems (confronting the usual massive power wasted in AI systems): for example, a rhizome of 4 units is powered by a regular mobile power bank.



## INSTALLATIONS IN DEVELOPING

**DroneBot** is an installation in which an 'MC-automat' is driving a drone music generative composition in live. The experience focused on meditation and lucid dreams within an exhibit space, is offering us an opportunity to break down the space time routine in our daily lives, even when we are going to such a noble experience like visiting an artistic exhibition.



### **Magma**

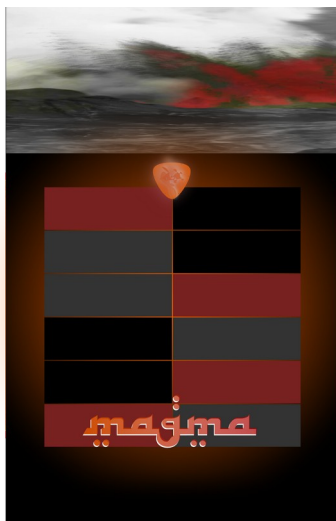
All frequencies of the human audition range are released.

Then almost all of them (about 99.5%) are cancelled out.

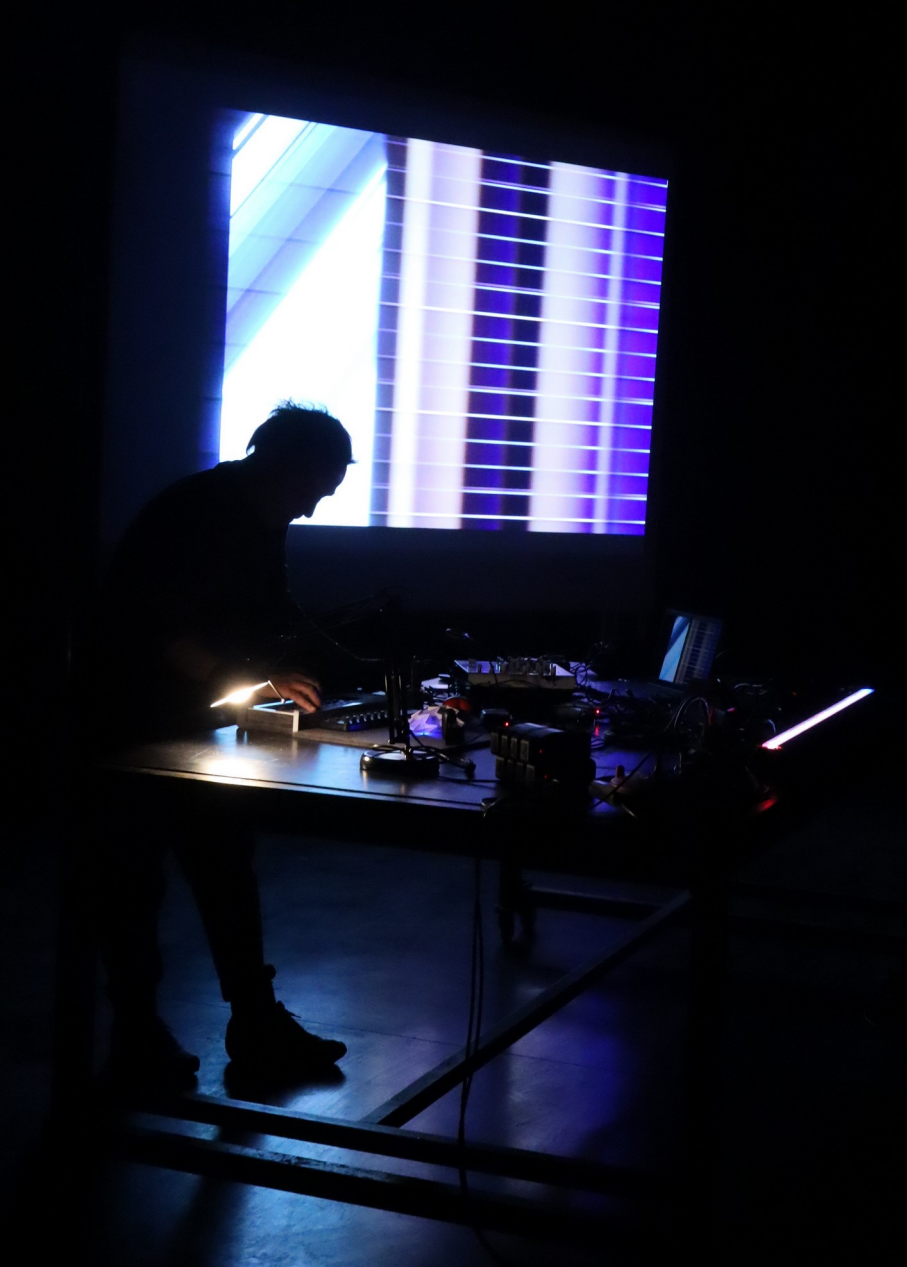
The result is a live stream of subsonic frequencies until 80hz which never is the same, but because of this sonic constraint it features an unique synthesis of organic and telluric deep listening.

The experience is listened by feet through an 16m2 haptic floor, allowing people with partially or total audition loss, to join the experience.

The concept relates over the relationship of generative techniques on subtractive synthesis and nature phenomena such as vulcano eruptions, earthwakes and other telluric perturbations.







## LIVE PERFORMANCES

### Generative Algorhythmic Live AV Set

Under the artistic labels **dAAX** and **XaniaH**, **Xavi Manzanares** has performed in many events and festivals worldwide\*.

The main purpose is to build custom generative /algorhythmic instruments and its inner particular properties, in which explore the limits of those digital techniques translated into the physical and tangible space during the live experience.

Any live session outcomes as a unique experience directly connected with the context, space and tech equipment. Also because any occasion deserves a different approach within the generative algorhythmic techniques, which means that any live is different to the previous in regards to the engineering and sonic engines running in live.

This is a feature that luthieristic-musicians usually shares in order to feat their advances and researches in music techs.

\*From late 2000s, has performed in many international festivals, such as : Algorave/TOPLAP, Rarefacció Hangar, Leplacard, Sonarama/Sonar, OneDroneDay Festival, Nits Digitals, SIGNAL Festival, Surpas Festival, PdConvention, LinuxAudioConf, or Tramuntana Festival, among others. Detailed list can be checked it out here.

## :// Featuring Instruments

**Generative Algorithmic Live AV Set** features a set of custom physical devices embedding custom generative algorithmic techniques.

Sonic Live set proposed each occasion is an exploration crossing over the boundaries between the next genres :

abstraction, noise, drone, (deep/dub) techno, soundscaping, electroacoustics.



### 433 GNRTV RhythmBOX

Generative synthesizer which includes different percussive elements like a rhythm box, soundscapers, basses, drones and an FX rack.

The code is embed into a RapberryPi 4 within the device.

A controller midi is tweaking different growing values and rhizomes of values (somekind of macros) within the programming, allowing an unique construction of beats, particles and other emerging and unkwown sounds.

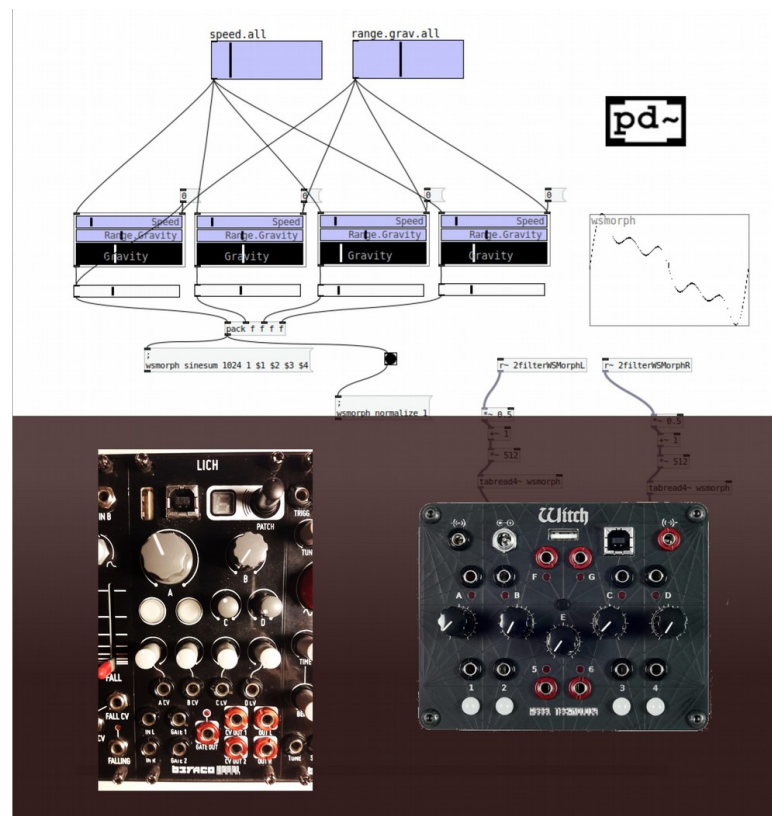
### WITCH

In the Live Set Witch constitutes the PostFX element of the other instruments.

The code is embed into the module as a Granular Synth Post Processor with reverb.

The result is a pretty uncommon texturization and resynthesis of the incoming signal.

Witch hardware is build by Befaco and RebelTech Electronic Luthiers.





### **gnrtv.nano.synth**

Generative synthesizer with different complementary elements to the first instrument (gnrtv-rhythm-box).

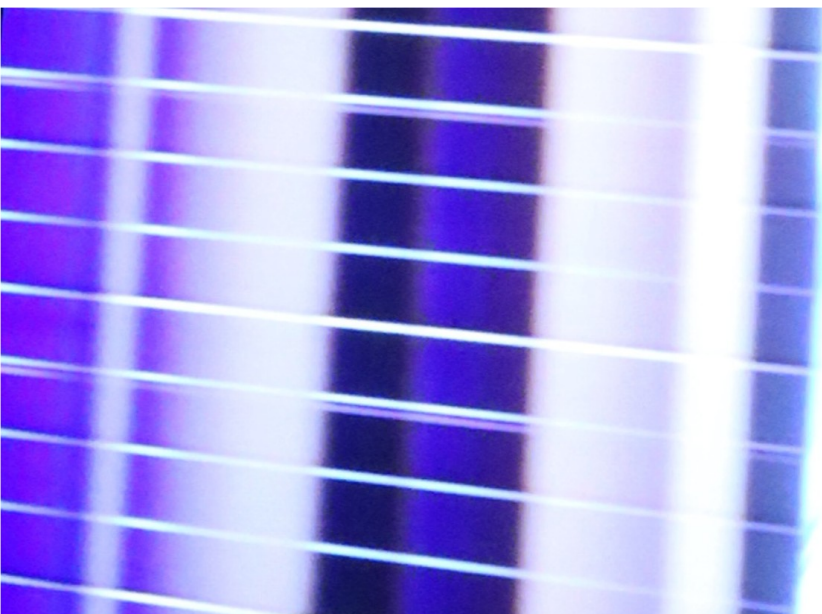
Similarly to the first instrument, code is embed into a RapberryPi 4 within the device. A tiny controller midi is tweaking different growing values and macros within the programming, allowing an unique construction of beats and particles and other emerging sounds.

### **AV // Camera-Automaton**

Triggered LEDs of the previous instruments are 'Reprocessed' in live by a Camera automaton displaying an abstract dinamic pattern, which in fact translates what we are hearing into an abstract data visualization.

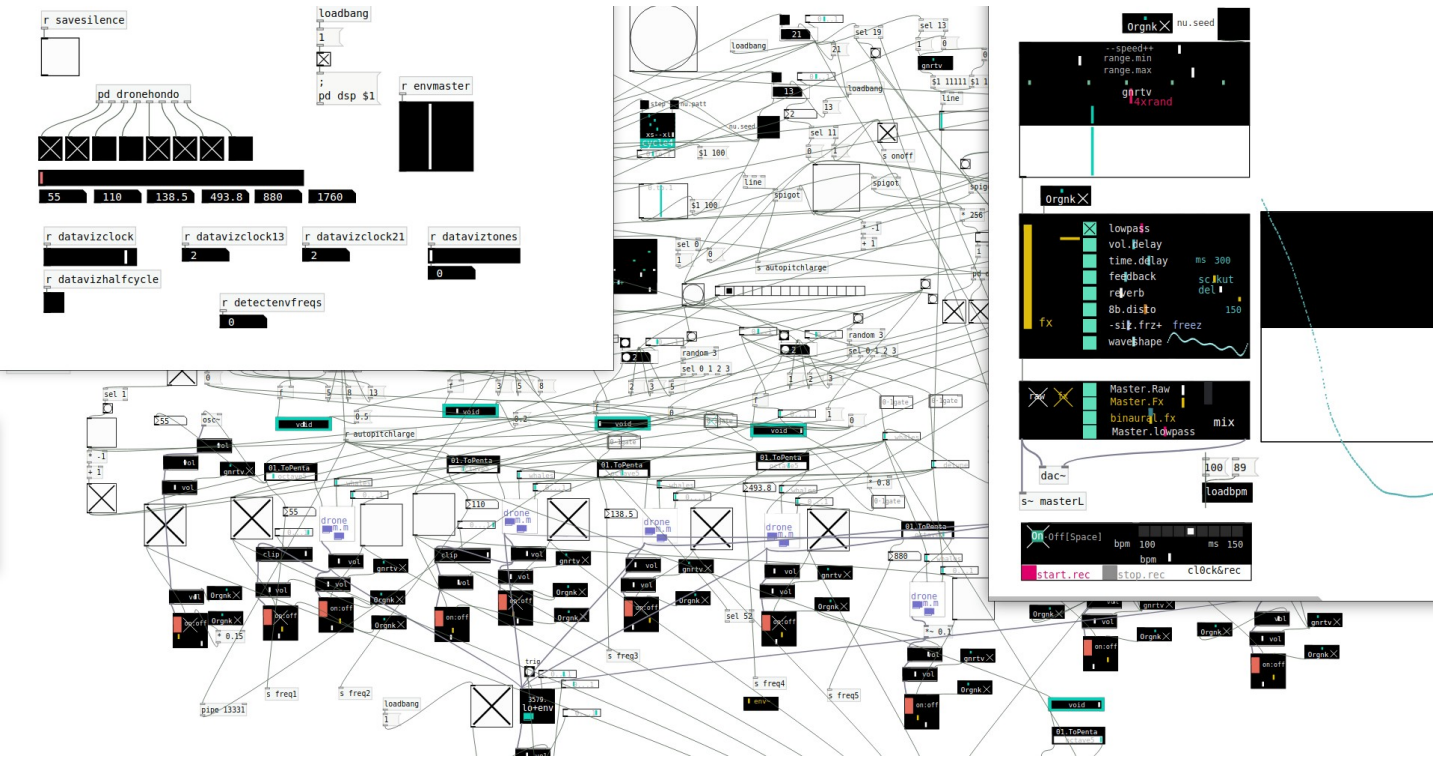
Conceptually the intangibility and complexity of sonic generative alorythms executed in live, can be identified as an abstract codification of colors and textures. In other words, sonic alorythms in live, are somehow represented in the visual domain.

Camera automaton is a program build with processing, executed in a laptop.



## Custom programming

Any occasion of a live performance deserves a different approach within the generative algorithmic techniques, which means that any performance is unique and different to the previous in regards to the engineering and sonic engines running in live.  
Example of algorithmic application programmed with pd language/gnrtv.cells toolkit.



As a reference of the language used during the live performance you can check out some examples recorded in live in this playlist :

YouTube ES Cerca

Ordena

- Xaniah - Organic Function EP  
Xa.Manzanares • 231 visualitzacions • fa 2 mesos
- Xaniah - Organic Function  
Xa.Manzanares • 28 visualitzacions • fa 2 mesos
- dAAX! - Zalqia // CasioPT-20 Transmissions  
Xa.Manzanares • 239 visualitzacions • fa 2 anys
- dAAX - Aquàtiques (( Live Rec ))  
Xa.Manzanares • 141 visualitzacions • fa 3 anys
- Meta Patterns : a tool to fastly create Generative Patterns  
Xa.Manzanares • 62 visualitzacions • fa 11 mesos
- GNRTV.CELLS EP [ dAAX! / Xa. Manzanares / Ones Hâptiques LAB ]  
Xa.Manzanares • 151 visualitzacions • fa 1 any

## Optional Live Setups

### // Sonic Space // 360°

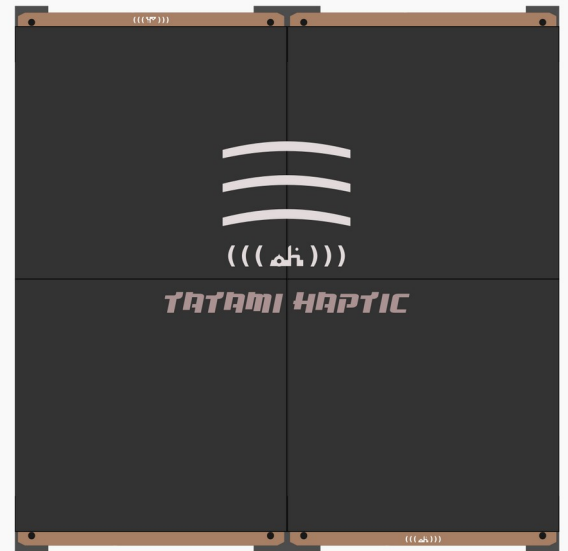
Live Set can be rearranged into a 360° environment in which listening a much detailed outcomes of moving sonic events across the space. Live AV Sound Spacialization can be from 4x to 8x speaker set up.



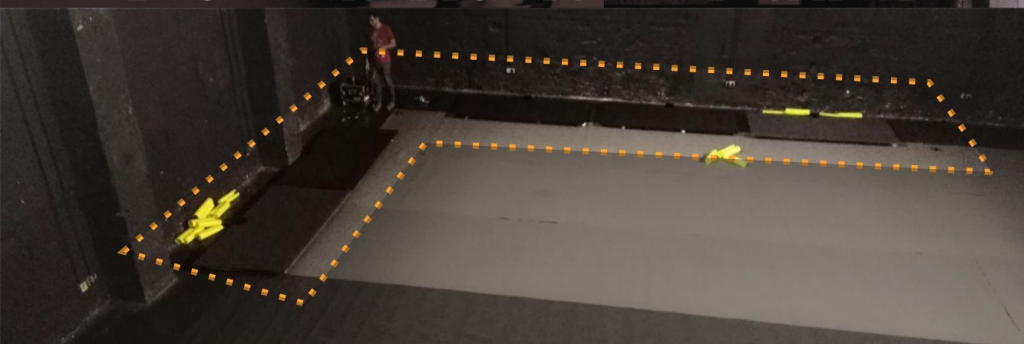
### // Live Set with Haptical Boards

Crossing over another projects within the newmedia arts domain, Live Performance can be joined in special occasions with haptical boards in the audience which allows an horizontal and full body listening of the experience.

Even this is a particular and ambitious feature, we did it successfully in two editions of the OneDroneDay festival (in which Xavi Manzaneres is in the production crew).



12M OF HAPTICAL BOARDS AT THE AUDIENCE





## WORKSHOPS + LABS + TALKS

### Knowledge Transmission

On the educational side, Xavi Manzanars offers workshops on creative programming, sonology and electronic music theory in festivals, cultural spaces and international laboratories.

In the last years combines their researches with the academic transmission, working as a collaborator professor at CITM / UPC and BAU, both universities based in Barcelona Metropolitan Area. Those collaborations are focused in the learning of electronic music theory combined with generative algorithmic techniques.

1////

## LAB · WORKSHOP Generative Instruments, Automats and Haptical Techs.

4h Introductory LAB-Workshop related to generative algorithmic composition with GnrtvCells/Pd toolkit for building sonic automated instruments (mainly for lutherism and installations). In addition includes a sonic instruments expansive layer of haptical techniques which can improve sonic & newmedia projects for a full body listening.

Includes documentation, resources and multiplatform code. (optionally can be considered extra hardware kits for participants).

This workshop requires basic Electronic Music Theory and basic programming skills.

2////

## LAB · WORKSHOP Generative Automats for NewMedia installations.

4h Introductory LAB-Workshop related to generative algorithmic methods and autonomous computation systems oriented for low powered installations and lutherism.

Use of micro computation platforms > Raspberry Pico / Raspberry Pi 3 / 4 / 5

Wiring Pi library and GPIO ports control.

Includes documentation, resources and multiplatform code. (optionally can be considered extra hardware kits for participants).

This workshop requires basic Electronic Music Theory and basic programming skills.

3////

## LAB · WORKSHOP Generative AI techniques

2h Introductory LAB-Workshop related to AI gen techniques applied to music composition, with several popular techniques.

4////

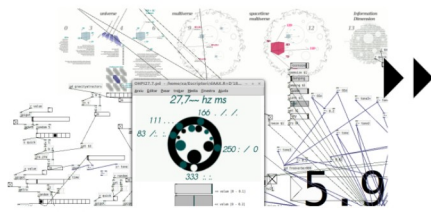
## TALK AI is passing us by

1h Talk / Conference session / Q & A included

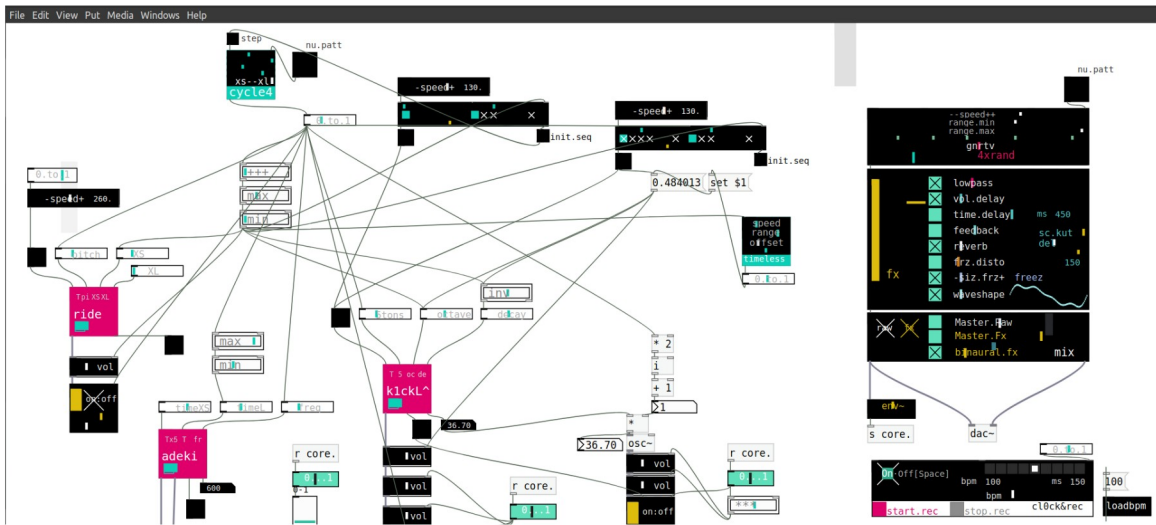
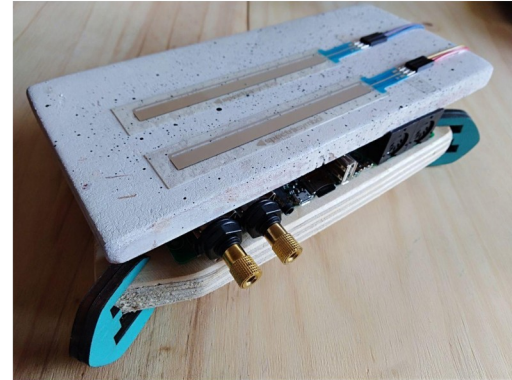
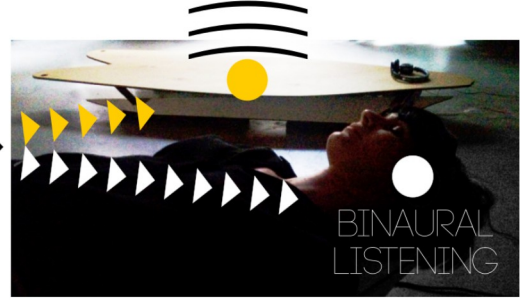
Subjects :

- \_The future of music techs
- \_AI ethical questions
- \_Which is the level of creativity of Generative AI systems?
- \_Problems of latency in AI systems.
- \_Sustainability and power consumption on AI systems.
- \_Human Cognition and ANN blind spots.

# SONIC GENERATIVE ALGORITHMS



# HAPTICAL LISTENING





# BIO



## Xavi Manzanares

(Bcn 1974)

Electronic Artist

Algorithmic music (dAAX / XaniaH)

New Media Researcher

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Twitter/X @txa

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<http://oneshaptiques.space>

Founder of **Ones Hàptiques (Haptical Waves)**, a speculative and experimental research framework, in which investigate and experiment with binaural brain perception, haptic perception, bio-perception, sound spatialization, immersiveness and generative / automated algorithmic sound with different degrees of interaction and autonomy.

In the scenic arts context, has featured performances and installations in several Electronic Arts Spaces and Festivals, like CtrlAltPlay/Etopia, Rarefacció.Hangar, Kunsthausbaselland, Fundació Miró, Sónar, 948Merkatua, ODD, Eufònic, Nits Digitals, Signal, Pd-Convention among others.

On the educational side, offers laboratories on creative programming, sonology and electronic music theory in various scenic spaces and international cultural contexts.

In the last years combines artistic and research works with the academic transmission, working as a collaborator professor within the fields of music theory, sonology and generative / algorithmic techniques at **CITM / UPC** and **BAU**, both universities based in Barcelona Metropolitan Area,

In the last couple of years with the **musIA** and **SentientS** projects, is researching the relationships between generative algorithms, emerging systems and AI/ML associated with the emotional layer in creative applications.

## .BIO details

### \_\_\_Studies

2001 **Architect** by Escola Tècnica Superior d'Arquitectura de Barcelona **ETSAB / UPC**

### \_\_\_Complementary studies

2014 MooC course / Coursera **The Brain and Space** // University of Duke

2014 MooC course / Coursera **CSP Science of Android Apps** University of Illinois at Urbana Champaign's

2012 MooC course / Coursera **Programming: The Fundamentals** Dep.Computer Science Faculty of Arts and Science. University of Toronto

2002 **Post Degree Program Sonic Art and Space / Art Sonor i Espai** at CCCB (Barcelona)

### \_\_\_Education experience

currently :

2021 -- Collaborator professor at **CITM · UPC** (Fonaments Disseny i Edició Sonora)

2023 -- Collaborator professor at **BAU** (Generative Audio @ Máster en Innovació Audiovisual i Entorns Interactius ).

Education experience outside academia, through workshops and labs.

Hybrid contents between open techs, creative coding, sonic experimentation and sonic/media interaction.

### Workshop list :

2020 > music AI (Telenoika / Canòdrom)

2016 > Sonology module at ENTI Video Games School (Barcelona, Cat)

2016 > Sonic Lab at CJ Les Basses (Barcelona, Cat)

2015 > AuDIYolab workshop // Obirar (Arbúcies, Cat)

2015 > AuDIYolab workshop // Neokinok (Barcelona, Cat)

2014 > AuDIYolab workshop // SummerLab / BOULTEK (Casablanca, Marroc)

2014 > AuDIYolab workshop // Artropocode'14 (Corunha, Galiza)

2014 > AuDIYolab workshop // Obirar Association (Arbúcies, Girona)

2014 > AuDIYolab workshop // Neokinok Association (Barcelona, Cat)

2013 > AuDIYolab workshop // Boultek Centre de Musiques Actuelles (Casablanca, Marroc)

2012 > AuDIYolab workshop // SummerLab @ Guimaraes (Guimaraes, Galiza)

2012 > AuDIYolab workshop // SummerLab / Feira Imaxinaria @ Alg-a Lab (Vigo, Galiza)

2012 > AuDIYolab workshop // SummerLab Euskalherria (Bilbao, Euskalherria)

2012 > AuDIYolab workshop // LCD Laboratorio de Criação Digital (Guimaraes, Portugal)

2012 > AuDIYolab workshop // Neokinok Association (Barcelona, Cat)

2011 > AuDIYolab workshop // Artropocode'11 (Santiago, Galiza)

2010/11 > AuDIYolab subject 'Aplicacions Especialitzades' // SAE Institute (Barcelona, Cat)

2011 > AuDIYolab workshop // Telenoika AV Comunitat d'Audiovisual (Barcelona, Cat)

2010 > AuDIYolab workshop // Telenoika AV Comunitat d'Audiovisual (Barcelona, Cat)

2009 > AuDIYolab [HTDj! Workshop] // 1st Libres (Recife, Brasil)

2009 > AuDIYolab [HTDj! Workshop] // ISCL'09 (Salvador de Bahia, Brasil)

2009 > AuDIYolab [HTDj! Workshop] // Pdconvention09 (Sao Paulo, Brasil)

2009 > AuDIYolab [HTDj! Workshop] // Associació Ningun Lugar (Barcelona, Cat)

2009 > Pd workshop // Associació Riereta.net (Barcelona, Cat)

2008 > workshop 'frequencies pixels and ports' at CCL matadero (Huesca, Esp)

2007 > audio'nlinux > workshop of pure-data + free tools on Gnu/linux at HANGAR (Barcelona, Cat)

2007 > gohan > workshop pure-data+processing+arduino at Centro de Ha de Zara

## **.Published Code**

Apps and code produced in the last years:  
Check Out repositories at <https://github.com/xamanza>

Special Featuring

code:// gnrtv.cells  
[https://github.com/xamanza/gnrtv.cells.v.nano\\_edu](https://github.com/xamanza/gnrtv.cells.v.nano_edu)

[All the list are Open Source applications]  
code:// Code generated at OH Autonomy of Things Research 2019  
<http://noconventions.mobi/oneshaptiques/AoT/coding/Package27022019AoT.Rckr.zip>

code:// Pd App OHPI 27.7~ OH16 (Ones Haptiques Algorhythm)  
[http://noconventions.mobi/oneshaptiques/code/OHPI27.7\\_OH16.zip](http://noconventions.mobi/oneshaptiques/code/OHPI27.7_OH16.zip)

code:// Pd App OH Bio-Sensors  
<http://noconventions.mobi/oneshaptiques/code/OHBioSensors.zip>

code:// V!BR Android App  
<http://noconventions.mobi/android/V1bR.apk>

code:// DNA Spiruline Rhythm Box  
<http://noconventions.mobi/daax/img/portfolio/DNA.Spiruline.RhythmBOX.zip>

code:// SynthPiBOTS Pd Apps  
[http://noconventions.mobi/RPi/404PiBots/PackSynthPiBOTS\\_\\_PdApps.zip](http://noconventions.mobi/RPi/404PiBots/PackSynthPiBOTS__PdApps.zip)

code:// SK8Sound Pd App > SK8SOUND / Mobility Lab  
[http://noconventions.mobi/mobilityLAB/SK8Sound\\_-\\_BeatZ.zip](http://noconventions.mobi/mobilityLAB/SK8Sound_-_BeatZ.zip)

code:// DataTranslations  
[https://audiolab.wordpress.com/datatranslations/tis3d/morphogenesis\\_-\\_pd](https://audiolab.wordpress.com/datatranslations/tis3d/morphogenesis_-_pd)

Python scripts at  
<https://audiolab.wordpress.com/datatranslations/>

code:// TWFO Pd App > SonicInteraction @ The Wearable Fashion Orchestra  
[http://noconventions.mobi/TWFO/TWFO\\_-\\_\\_.zip](http://noconventions.mobi/TWFO/TWFO_-__.zip)

code:// DanceJ / Artropocode Node Apps  
[http://noconventions.mobi/Artropocode/BodyMouserKinect\\_-\\_OFApp.zip](http://noconventions.mobi/Artropocode/BodyMouserKinect_-_OFApp.zip)  
[http://noconventions.mobi/Artropocode/B%c3%98dyMouserKinect\\_-\\_\\_.pd](http://noconventions.mobi/Artropocode/B%c3%98dyMouserKinect_-__.pd)

code:// Light Delais Pd App  
[http://noconventions.mobi/auDIYolab/LD/nmvsThz8m\(\(-\\_-\)\).pd](http://noconventions.mobi/auDIYolab/LD/nmvsThz8m((-_-)).pd)

code:// METEO Sonification Guimaraes LCD [P5 + PD Apps]  
[http://noconventions.mobi/auDIYolab/AuDIYolab\\_Guimaraes\\_\\_Production\\_\\_ptx.zip](http://noconventions.mobi/auDIYolab/AuDIYolab_Guimaraes__Production__ptx.zip)

code:// S7 Android App  
<http://noconventions.mobi/Droid/S7.apk>

code:// / HacktheDj! Pd Full App  
[http://noconventions.mobi/arrel/HTDj!\\_\\_vX\\_\\_unauthorized.zip](http://noconventions.mobi/arrel/HTDj!__vX__unauthorized.zip)

## Artistic Background

### LIVE Performances & Installations

abril 2024 > Algorave @ SalaVOL (Bcn)  
may oct 2023 > Live dAAX Rarefacció @Hangar (Bcn)  
may oct 2022 > Ones Hàptiques @ CTRL ALT PLAY / ETOPIA (Zaragoza)  
nov 2019 > Ones Hàptiques @ 948 Merkatua (Iruña)  
nov 2018 > Ones Hàptiques @ OneDroneDay Festival Hangar (Bcn)  
sept 2018–nov 2018 > Eixams\* Installation Beehave Kunsthausbaselland (Basel)  
\*coproduction Alex Muñoz + Xavi Manzanares  
feb 2018–May 2018 > Eixams\* Installation Beehave Fundació Miró (Barcelona)  
\*coproduction Alex Muñoz + Xavi Manzanares  
nov 2017 > Ones Hàptiques @ OneDroneDay Festival Hangar (Bcn)  
oct 2016 > dAAX Live coding Session @ Algorave (Bcn)  
nov 2015 > Ones Hàptiques @ Nits Digitals Festival (Vic)  
nov 2014 > StringS / dAAX! + AlbaG.Corrall at Nits Digitals Festival (Vic)  
may 2014 > dAAX! @ OneDroneDay Festival / HANGAR (Bcn)  
oct 2013 > dAAX! + Pineada at FamiliarFest (Sevilla)  
sept 2013 > dAAX! at SOLMA (Casablanca)  
sept 2012 > dAAX! + DiegoDLLeon (Bcn)  
aug 2012 > dAAX! at SOLGA SummerLab (Vigo)  
aug 2012 > dAAX! at SOLEU SummerLab (Bilbo)  
nov 2011 > dAAX! + Sonom at Nits Digitals Festival (Vic)  
july 2011 > dAAX! + Sonom at SIGNAL Festival (Sadali /Sardegna)  
dec 2010 > Generatex'10 (BCN)  
nov 2010 > Spa @ Telenoika (BCN)  
jul 2010 > dAAX! + Madame Cell at Xeneratex / alg-a lab (Vigo)  
may 2010 > dAAX! At Hardmeeting 010 (Bcn)  
oct 2009 > dAAX! At FPLL (Ripoll)  
oct 2009 > dAAX! + D.R.E.G.S. At Generatex (Valencia)  
sept 2009 > dAAX! Live at festival Surpas 09 (Portbou)  
aug 2009 > Segmentation Fault! at 1st Libres Recife (Brasil)  
aug 2009 > Segmentation Fault! at ISCL 09 Salvador de Bahia (Brasil)  
july 2009 > Segmentation Fault! At Pure-data Convention 09 Sao Paulo (Brasil)  
march 2008 > Segmentation Fault! At LAC'08 (Linux Audio Conference) (Koln, Germany)  
sept 2008 > dAAX! Live at festival Surpas 08 (Portbou)  
july 2008 > Segmentation Fault! At Tramuntana Festival (Cadaqués)  
may 2008 > dAAX! at Nitcasm08. Centre D Art Santa Mònica (Barcelona)  
feb 2008 > dAAX! at jam AV streaming fest >> noplacard.org  
feb 2008 > dAAX! at flow club (huesca)  
jan2008 > dAAX! at Xbass'08 (napoli) (Italia)  
nov 2007 > dAAX! at Distorsionfest'07 (mataro)  
nov 2007 > dAAX! at Nitcasm07. Centre D Art Santa Mònica (Barcelona)  
may 2007 > dAAX! at Homework festival. (bologna) (Italia)  
feb 2007> dAAX! at XXYZ (toulouse) (France)  
dec 2006 > dAAX! at Nitcasm06. Centre D Art Santa Mònica (Barcelona)  
July 2006 > dAAX! festival fascurt (Masnou)  
mar 2004 > pd open dev @ straddle3. (Barcelona)  
june 2003 > Skeezo with R3, at Sonarama / Sónar'03 (Barcelona)

Urls

Portfolio Web

<http://xavimanzanares.oneshaptiques.space>

Ones Haptiques

<http://oneshaptiques.space>

Open Researches // public granted

Ones Haptiques

<https://noconventions.mobi/oneshaptiques/>

[https://noconventions.mobi/daax/oneshaptiques/research/pdfs/OHFULL\\_CounterPapers+Papers+Xperiments.pdf](https://noconventions.mobi/daax/oneshaptiques/research/pdfs/OHFULL_CounterPapers+Papers+Xperiments.pdf)

Autonomy of Things AoT

<https://noconventions.mobi/oneshaptiques/AoT>

Sentients

<https://oneshaptiques.space/sentients/>

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