modular
synthesis
school

MODULAR MOON

Modular Synthesis School Program for Public Workshops

EVERYTHING MODULAR | SPECIAL FOR ADE 2023

CONTENT

- About Modular Moon
- Tulpa Dusha
- Structure of the Masterclass
- Physics of Sound + Eurorack
- Basic Building Blocks
- Synthesis Methods
- Complex Patch
- Performance Logic
- Technical Requirements and Techdrive
- Links

Modular Moon Amsterdam

Tulpa Dusha | Pete Johnston
Modular Sound Synthesis On the Moon
PULSE WIDTH
VCO WAVE
VCO MOD AMOUNT
VCO MOD SOURCE
EG / VCO MOD
LFO
LFO RATE
SEMI-MODULAR ANALOG SYNTHESIZER
VOLUME
+5V
+12V
-12V

Tulpa Dusha | Pete Johnston
Modular Sound Synthesis On the Moon
Tulpa Dusha | Pete Johnston
Síntesis Modular de Sonido en la Luna
moog
rossum electro-music

moog
moog
intellijel

ABOUT MODULAR MOON

Modular Synthesis School

Modular Moon | Modular Synthesis School is the project, created in 2018 by Tulpa Dusha (Anna Martinova), DJ, Electronic Music Producer from the future.

The school developed unique method of learning the sound synthesis, that is described in Modular Sound Synthesis On The Moon, the book, by Tulpa Dusha and Pete Johnston. By now the school educated around a thousand people through the book, and has multiple sections in countries like Mexico, Russia, The Netherlands, Chile, India, Japan.

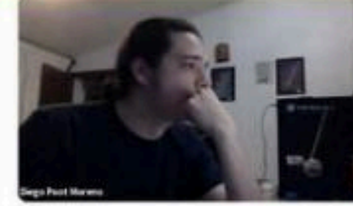
Besides the education activity, the school is developing series of synthesis tools, educational DIY kits and a game, in collaboration with artists and developers from all over the world.

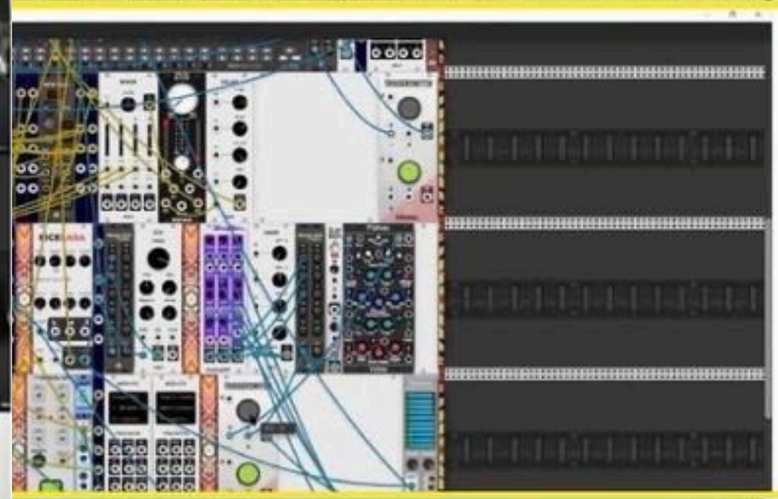
Modular Moon Amsterdam

Modular Moon Amsterdam

Modular Moon Mexico

Modular Moon Mexico





Chat Messages

Juan Ramón Santillana Arbesú 01:34:4
Está buenísimo el trip!

Antonio Alberto Little Bachmann 02:04:2
wauuuu ravee

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Chat Messages

Modular Moon Mexico

Modular Moon Santiago

Modular Moon Santiago

Modular Moon Santiago

Goa Modular Moon

TULPA DUSHA

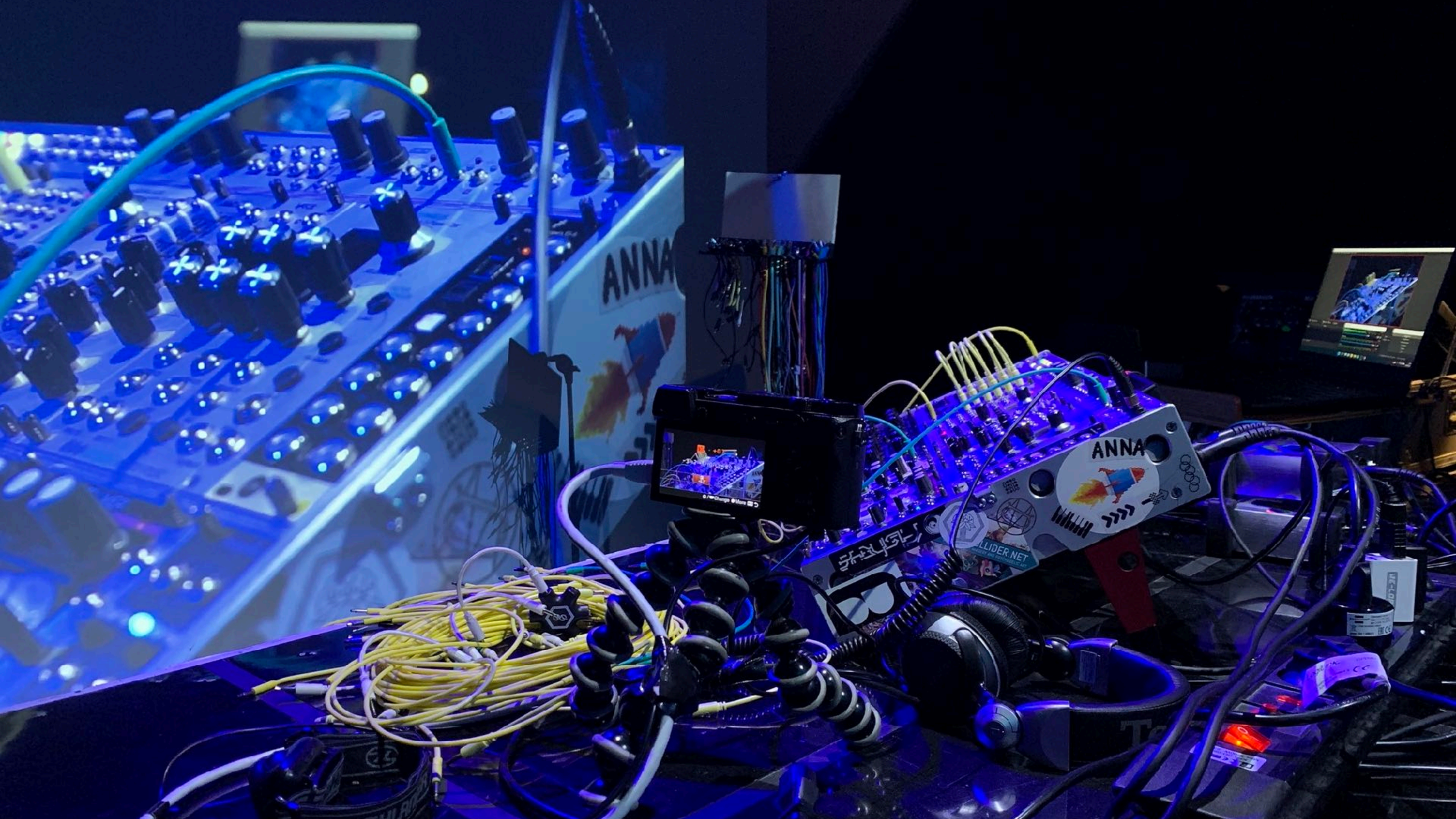
From DJ to LIVE composing

Pioneer DJ

Tulpa Dusha are 2 projects, created by Anna Martinova, a DJ, electronic music producer and educator. Tulpa audio stories are night dance oriented psychedelic techno improvisations. Tulpa DJ sets in dark psychedelic and dark progressive trance are played all over the world. Dusha is music, composer and sung by the artist.

STRUCTURE OF MASTERCLASS

Educational Map


ANNA
ANNA

Original program of the school is 5 months long, that we will have in express form over the next 3 hours. We will go through few major topics that will introduce you to the main aspects of sound synthesis.

THE PROGRAM

	Class	Curator	Chapter of the Book
1	**Physics of Sound + Eurorack**	Tulpa Dusha	2,3
2	**Given System + VCO, LFO**	Tulpa Dusha	4,5
3	**VCF. EG, VCA**	Tulpa Dusha	6,7,8
4	**Clocks, CV, Trig, Seq, Arp**	Tulpa Dusha	9
5	**Patching the Bigger System + Complex Patching**	Tulpa Dusha	11,12
6	Other Modules and their Function	Tulpa Dusha	13
7	**Synthesis Methods**	Tulpa Dusha	14
8	Practice of Synthesis Methods	Tulpa Dusha	15
9	Multilayering + Interfacing Systems	Tulpa Dusha	16,17
10	Music Recording and Post Processing	Tulpa Dusha	18
11	**Live Performance Mode**	Tulpa Dusha	19
12	Theory + Practice Exam + Graduation	Tulpa Dusha	23
+	***DIY***	TBA	20

START -

Physics of sound -

Basic Building Blocks -

VCO, LFO -

VCF -

VCA, EG -

CV, Trig, Seq, Arp, Tracker -

DSP -

Patching -

Simple -

Complex -

Synthesis Methods -

Subtractive -

Additive -

FM -

Wave-fold -

Physical -

Sampling -

Wavetable -

Granular -

Kinetic -

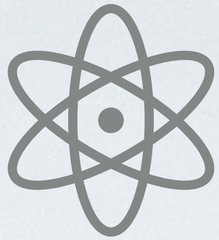
Performance Logic -

Solo -

Collaboration -

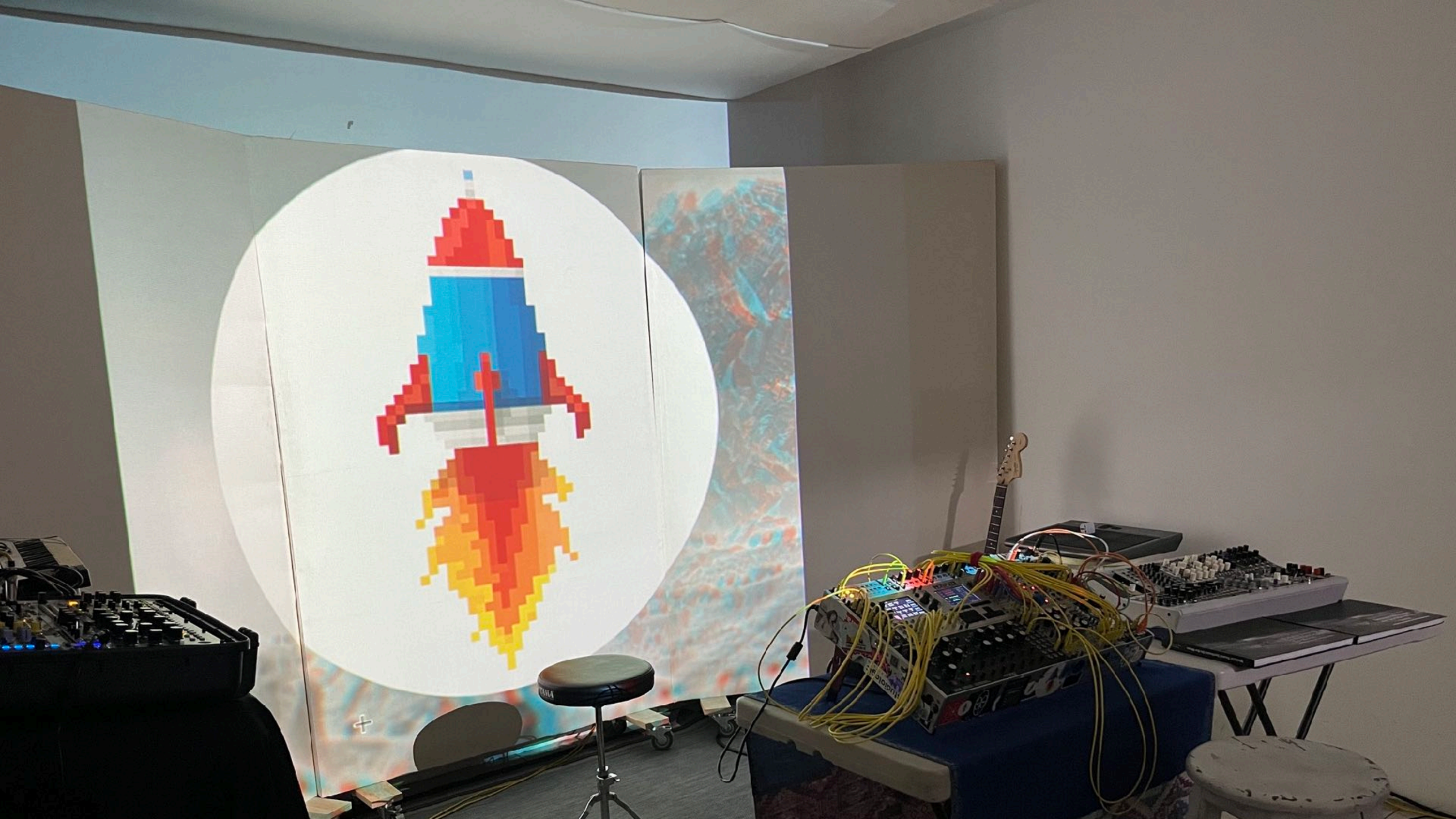
DIY -

ТОН·TONE
СРЕЗ·CUT
ГРОМК·VOL
BASS
ЧАСТОТА



PHYSICS OF SOUND

+ EURORACK



PHYSICS OF SOUND

Sound travels through air in the form of pressure waves. All sounds are waveforms. Waveforms have following main attributes: pitch, timbre, dynamics, changes over time.

Pitch = Hz (cycles per second) | Frequency, Tune, Pitch

Timbre = character (piano or clarinet) | Tone

Dynamics = Loudness (dB) | Level, Loudness

Changes over time.

Waveforms contain overtones (harmonics).

Harmonics (overtones) define the shape of the waveform, thus the timbre. → 20 Hz - 20 kHz

0 dB is not silence

EURORACK

Eurorack is a format of machinery, that was born from Eurocard type systems.

- 1 U / 3 U
- Hp
- 3.5 mm mono jacks
- -/+ 12 V peak to peak
- Audio signals +/- 10 V, typically +/- 5 V (-6 dB)
- CV : unipolar / bipolar, 0 - 10 V for unipolar, +/- 5 V for bipolar
- 1 V / Oct scale is a pitch information
- Trig, gate or Clock are digital 0V - 5 V pulses

BASIC BUILDING BLOCKS

VCO, LFO

- 3 basic waveforms : triangle, saw, pulse (square)
- Pitch (Frequency), Oct Switch
- 1 V / oct
- FM Lin / Exp
- PW
- PWM
- Soft / Hard Sync
- LFO = VCO

VCF

- Audio In
- LP, BP, HP
- Cut Off (Q)
- Resonance
- Cut Off CV input
- Resonance CV input
- 1 v / Oct on VCF
- Stereo Filters

VCA, EG

- Audio In
- VCA: mixer
- VCA: attenuator
- VCA: amplifier
- EG: Envelope Generator
- Gate In
- A D S R
- Outputs, Inverted output

CV, Trig, Seq, Arp, Tracker

- Control Voltage
- Trigger Sequencer
- Pitch Per Step + Gate
- Arp
- Tracker

DSP

- Digital Signal Processor
- Delay
- Reverb
- FX

PATCHING

SIMPLE

- Source to Destination patch

COMPLEX

- Multilayered performance patch

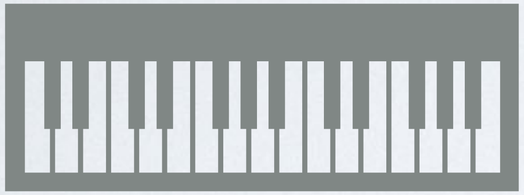
SYNTHESIS METHODS

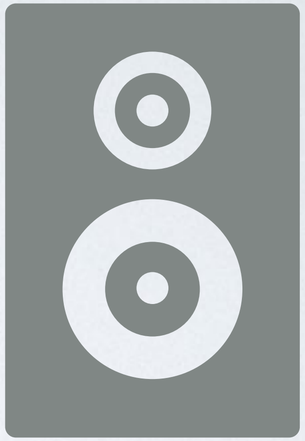
SYNTHESIS METHODS

- Substrative
- Additive
- FM
- Wave-fold
- Physical
- Sampling
- Wavetable
- Granular
- Kinetic

PERFORMANCE LOGIC

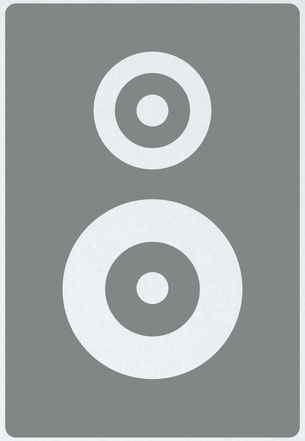
SOLO





COLLABORATION

+



CONWAY
Fullaudio

LINKS

Extra sources for inspiration

www.tulpadusha.org

www.modularmoon.com

www.sound-objects.com

www.modulargrid.net

https://vcvrack.com

https://kyma.symbolicsound.com

www.gric.at

Thank You