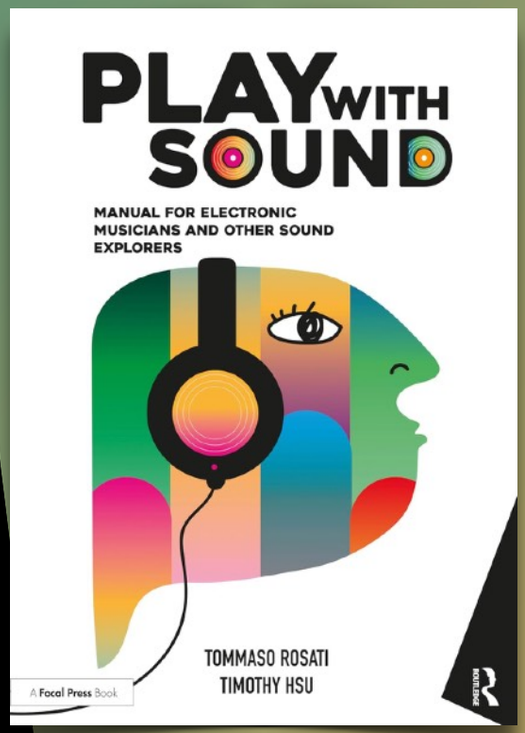
TOMMASO ROSATI
SOUND ART

In which of these songs is the computer used?

THE BOOK IS
NOW
AVAILABLE!



1

Orbital

Tommaso Rosati - Samuele Strufaldi

2

Breathe this air

Jon Hopkins

3

Atmospheres

György Ligeti

4

DJset @ Wire, Saitama Super Arena

Jeff Mills

5

Music from nature

Diego Stocco

6

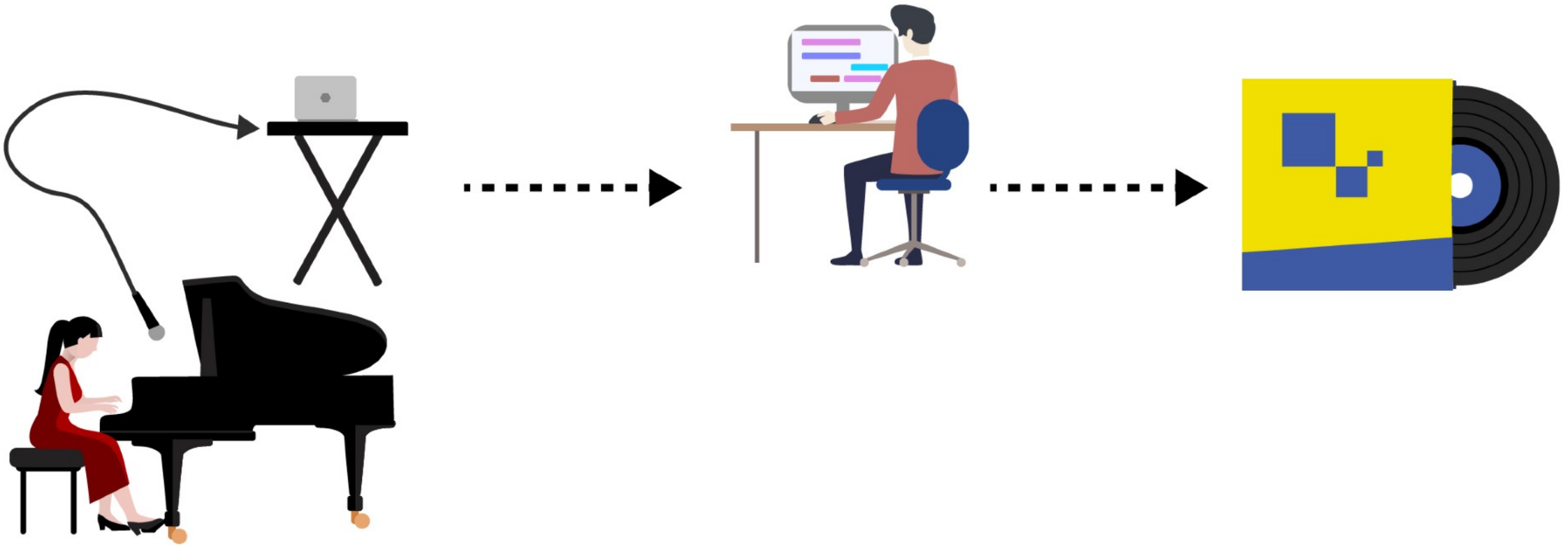
Ash/Black Veil

Apparat

Electronic Music

What is meant?

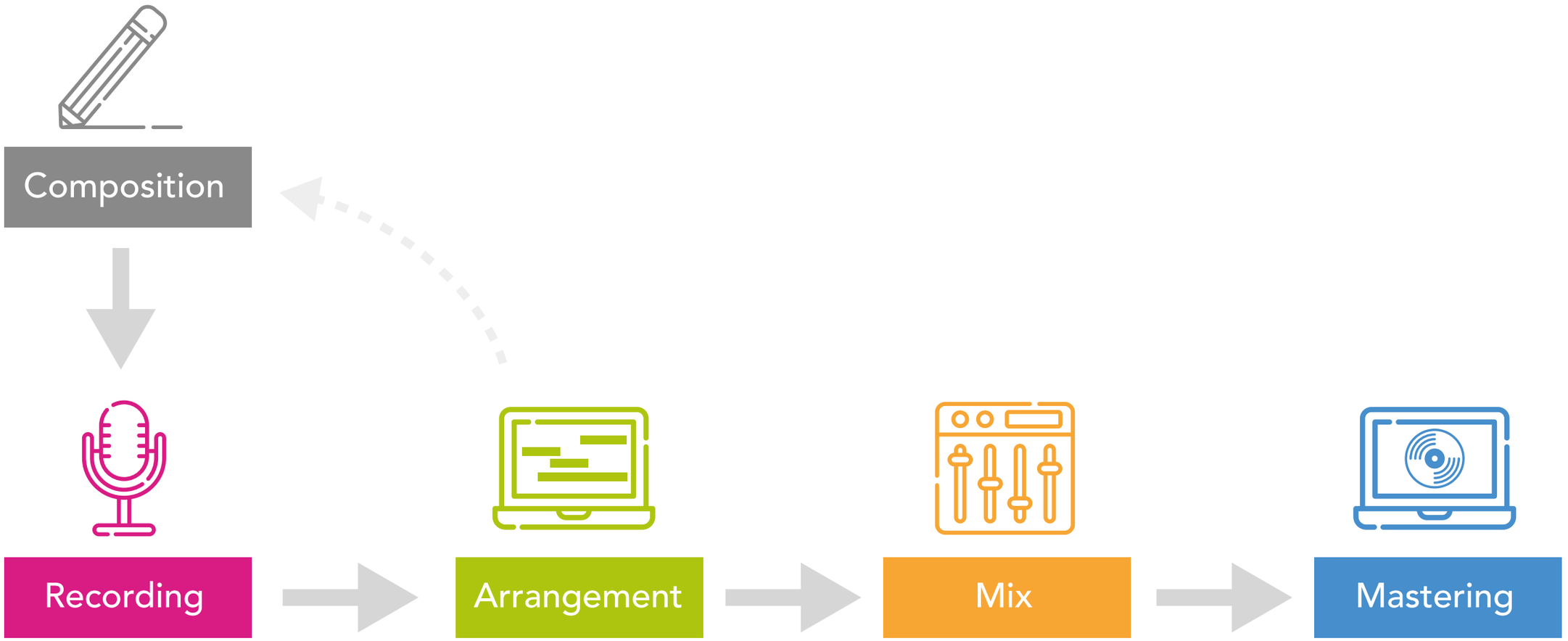
RECORDING



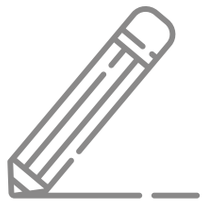
Atmospheres György Ligeti

PRODUCTION

When we talk about music production today, we define it as the complete realization of a composition, from inception to the finalization of the piece's audio waveform. We can divide the process of production into five distinct stages.



PRODUCTION



Composition

The stage where the parts of the piece that are conceived and written

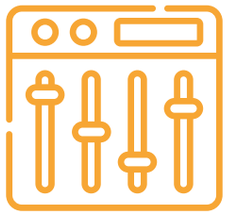
Recording

The stage where the various instruments are recorded, whether acoustic, electric, or electronic (programming or live recording).

Arrangement

The stage where we select the best takes, layer parts, and structure the song by arranging parts in order. Additional electronic parts can be integrated. Decision-making varies by genre; contemporary classical music often define structure and effects before recording, while other genres may make these decisions during or after recording.

PRODUCTION



Mix

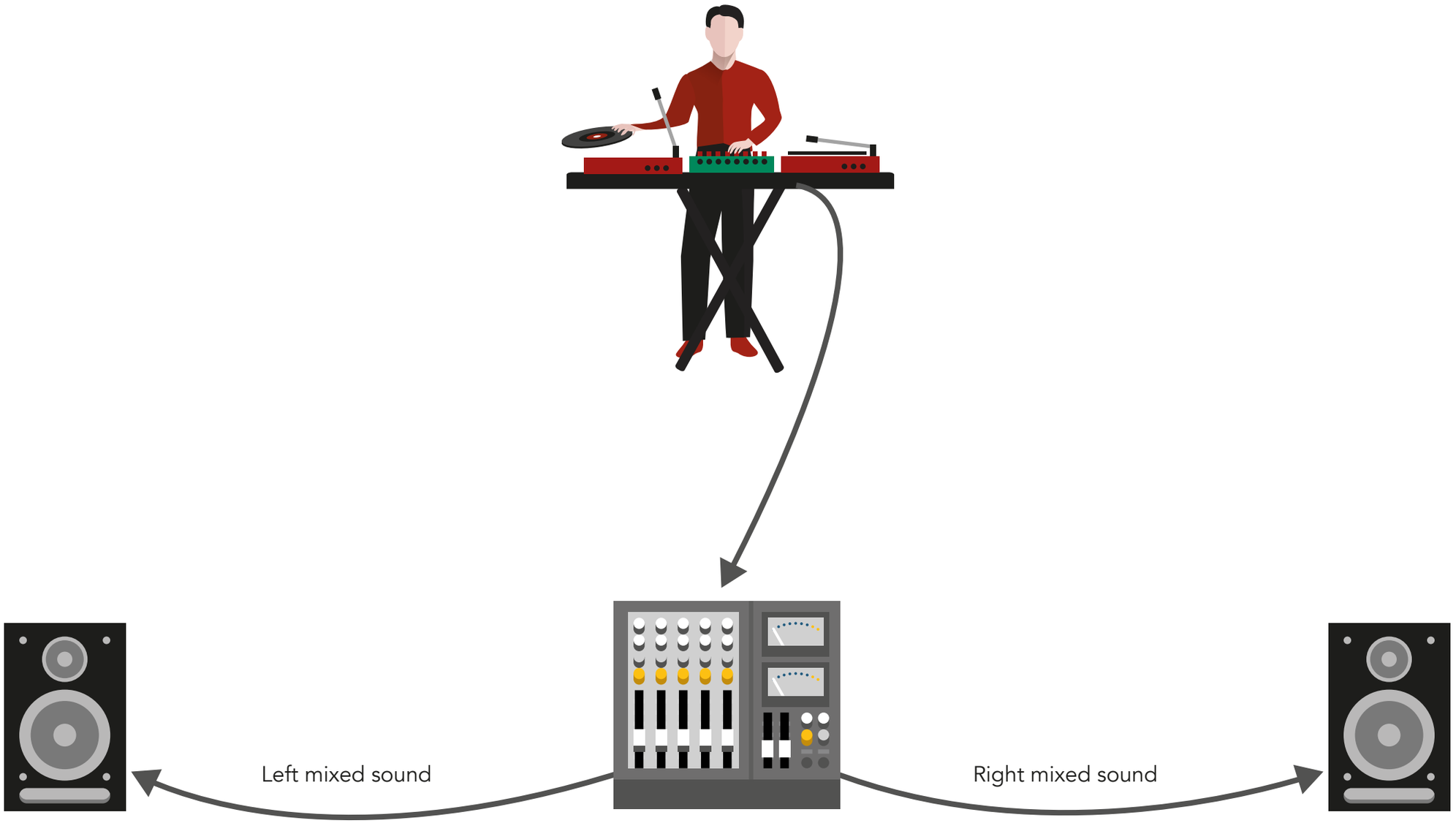
This stage specifies instrument levels and spatial positioning, from simple left-right stereo to complex 3D space. Non-structural audio effects like reverb, compression, and equalization can also be added here to “color” sounds.

Mastering

The final stage is mastering, where the piece’s waveform is optimized for all playback scenarios. Using compressors, equalizers, and limiters, the goal is to optimize the piece so that it sounds good no matter how the music is experienced —whether it is played back on headphones from a vinyl record or played back through studio monitors from an online streaming service.

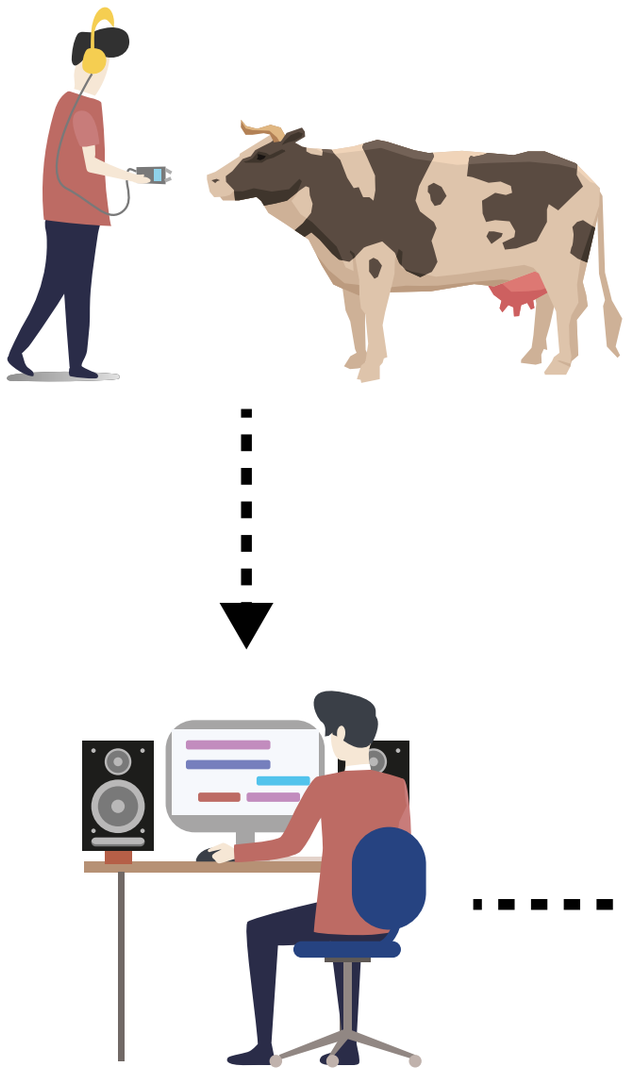
PERFORMANCE

DJ set: A DJ performance involves playing and transitioning between recorded tracks without breaks. Traditionally done with vinyl, it now often uses digital files and controllers.

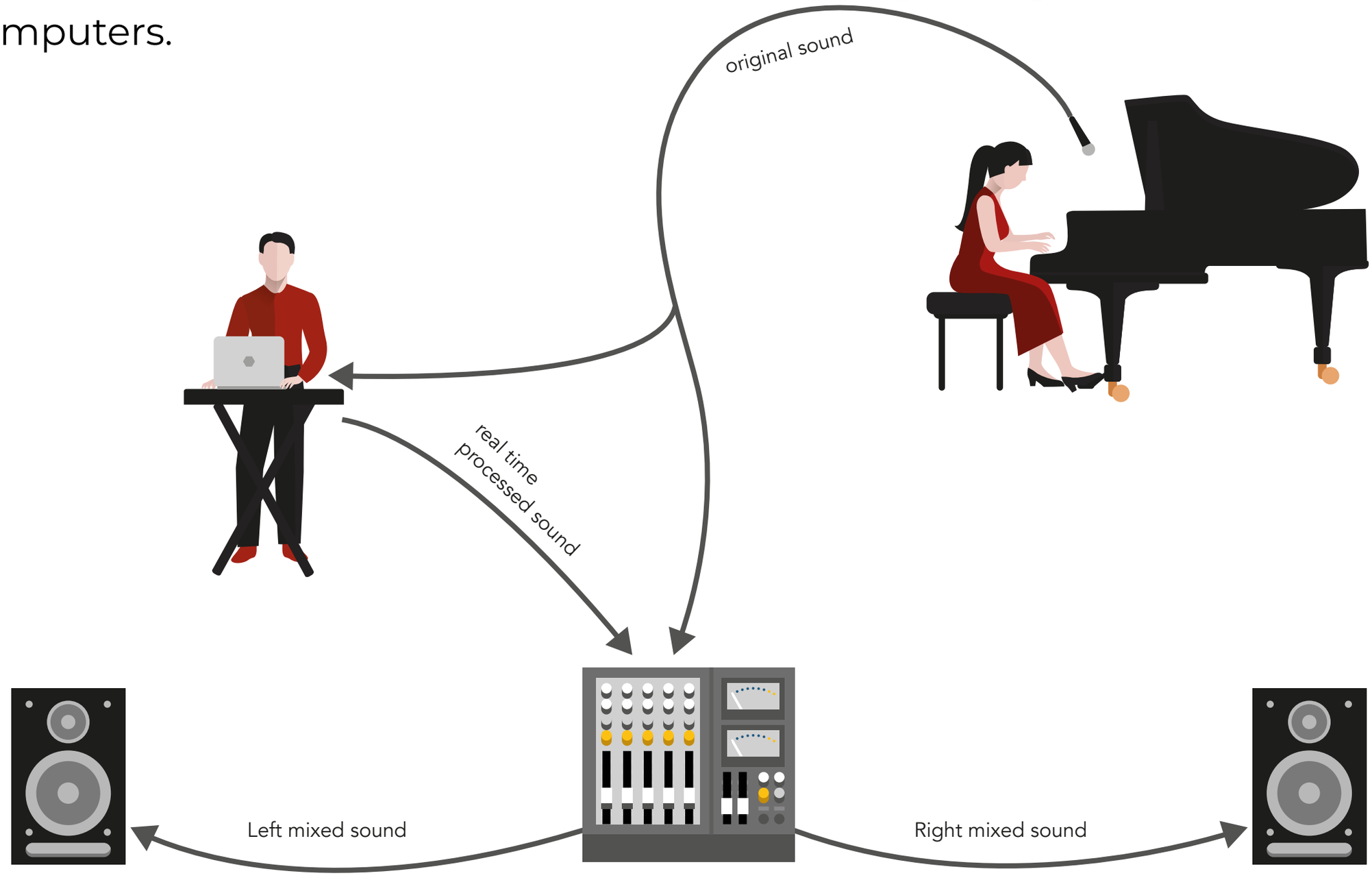


DJset @ Wire, Saitama Super Arena Jeff Mills

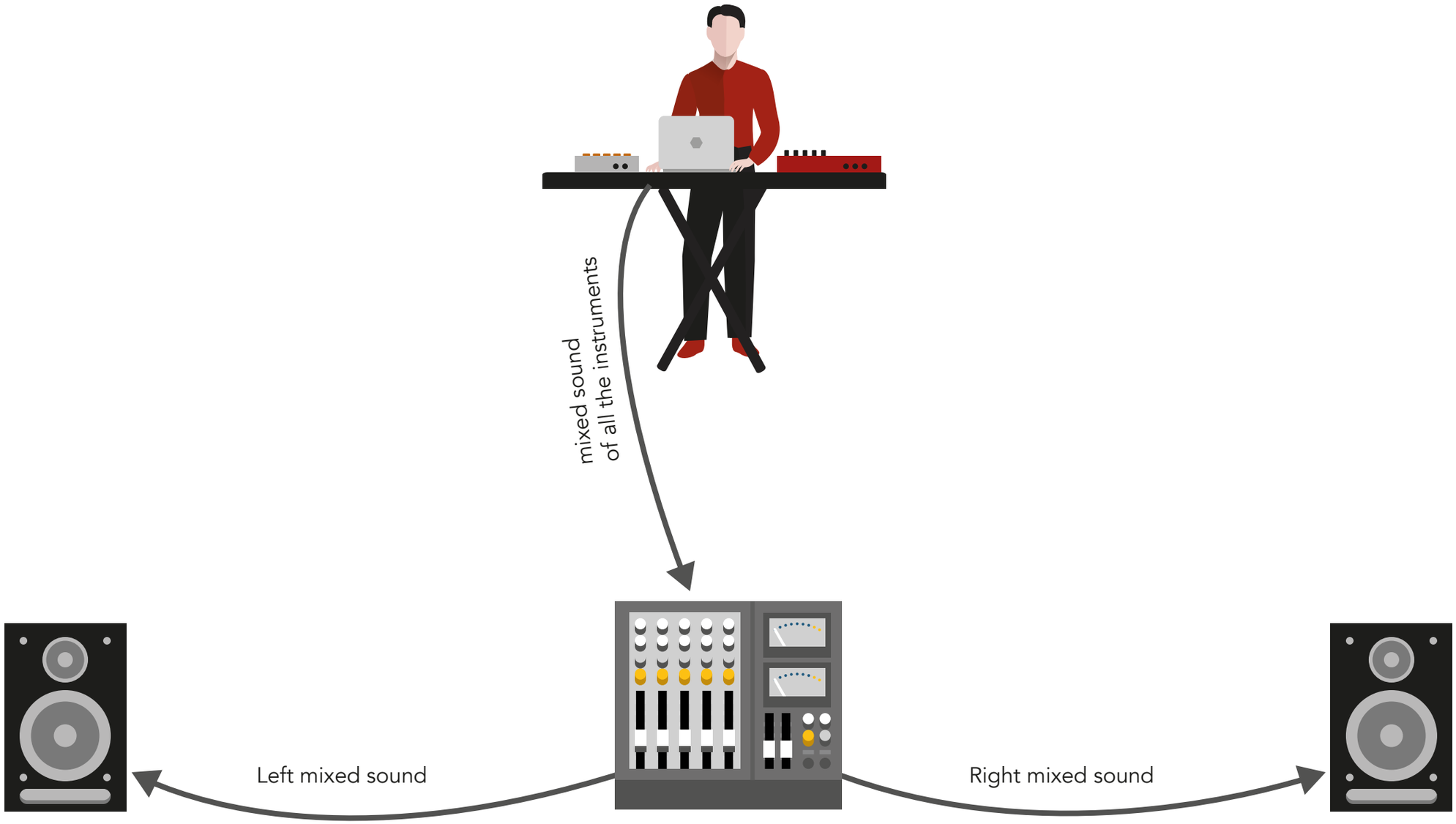
Acousmatic Music: This music style features no live performers and focuses on sound in its most physical nature. Acousmatic concerts often occur in darkness, with sound is played into the room through multiphonic spatialization systems involving more than two speakers and dynamic spatial placement of the various sounds of the composition.



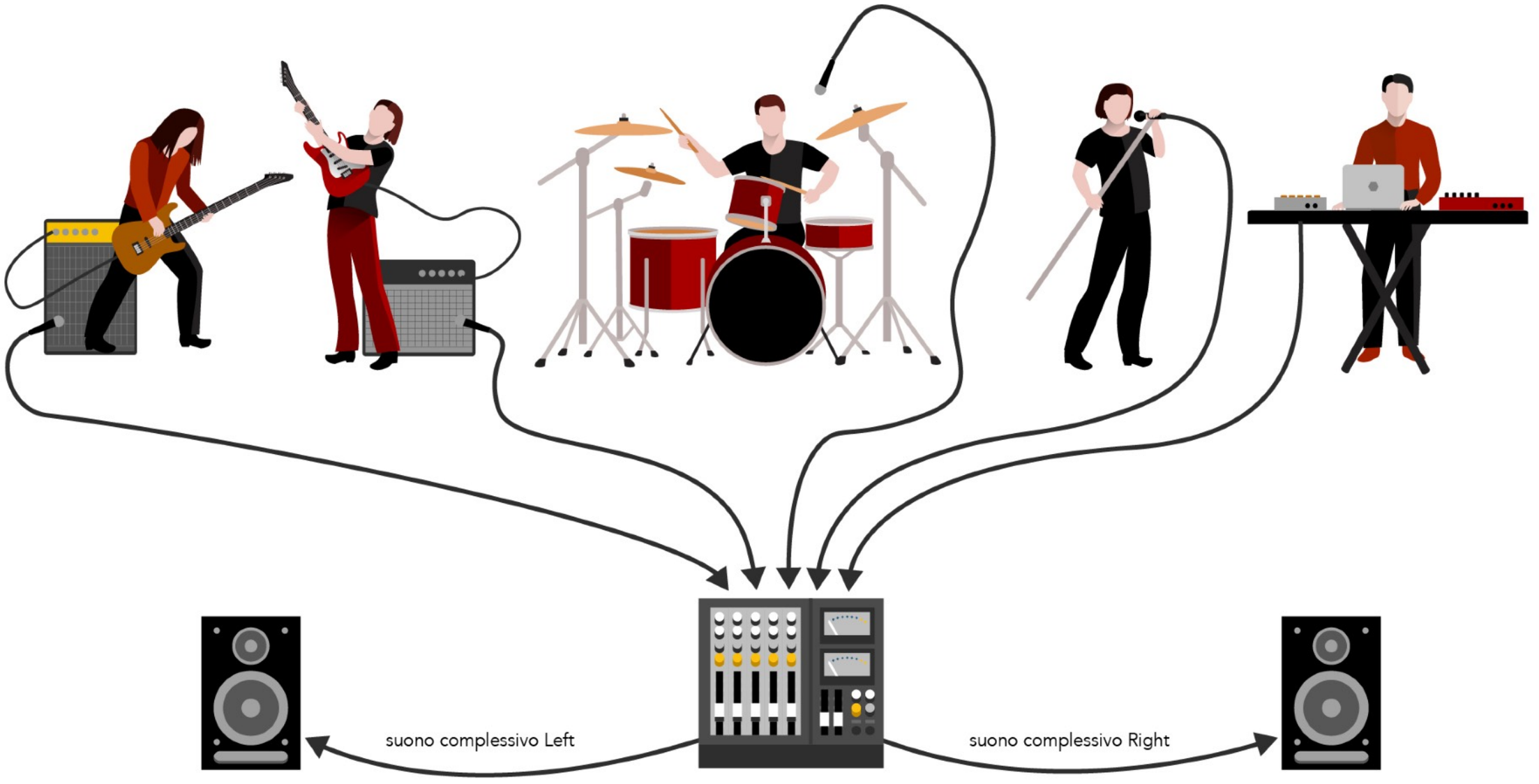
Live electronics: In these performances, sound is processed in real-time, spanning contemporary classical, jazz, and popular music. This kind of musical performance has existed and evolved since the dawn of electronic music. There was a boom in the late 1980s due to the advent of increasingly lightweight, stable, and powerful computers.



Liveset: A liveset integrates acoustic, electric, electronic, mixed instruments, and even live sound synthesis, in any combination. This kind of performance is common in non-classical music genres like pop, dance, hip-hop, trap, and rock.



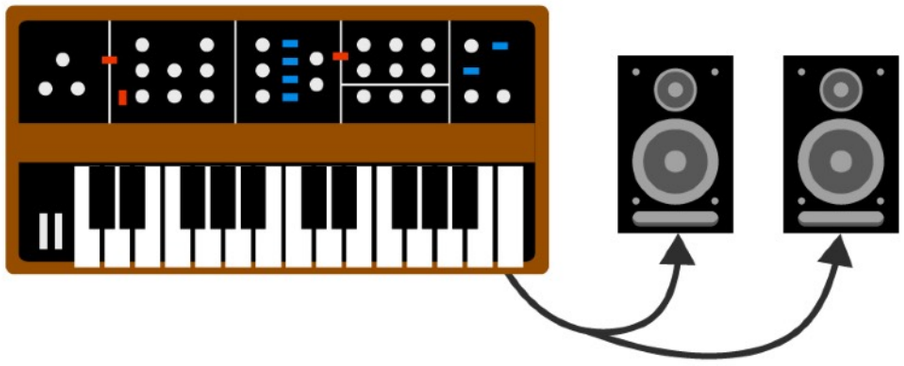
Breathe this air Jon Hopkins


suono complessivo Left
suono complessivo Right

SOUND SYNTHESIS

Sound synthesis creates sounds from scratch, with a timbre of certain qualities based on the creative wishes of the musician.

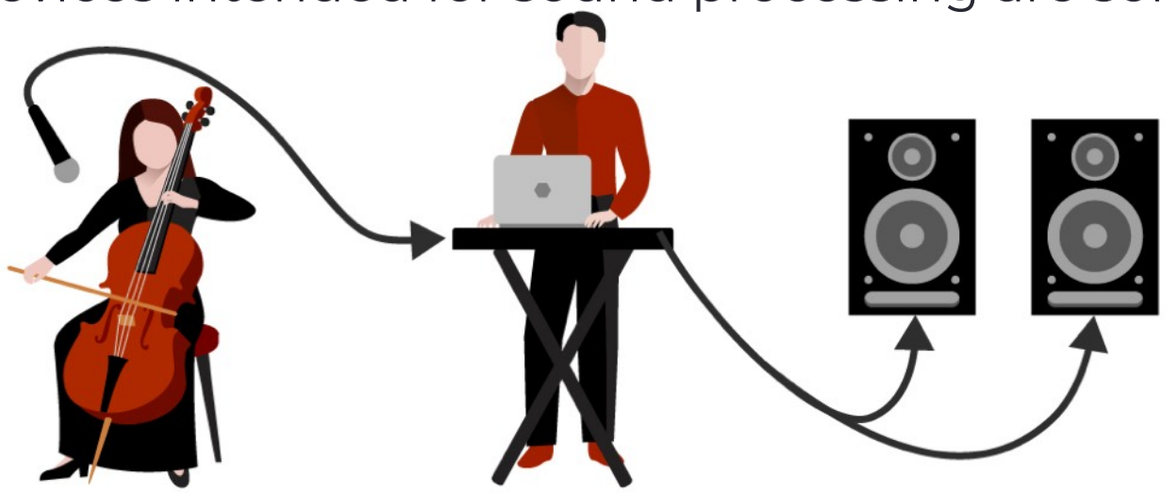
It is based on a series of sound synthesis techniques or **algorithms**.



SOUND PROCESSING

Sound processing is a set of real time or non-real time processes used to modify a captured sound or pre-existing audio.

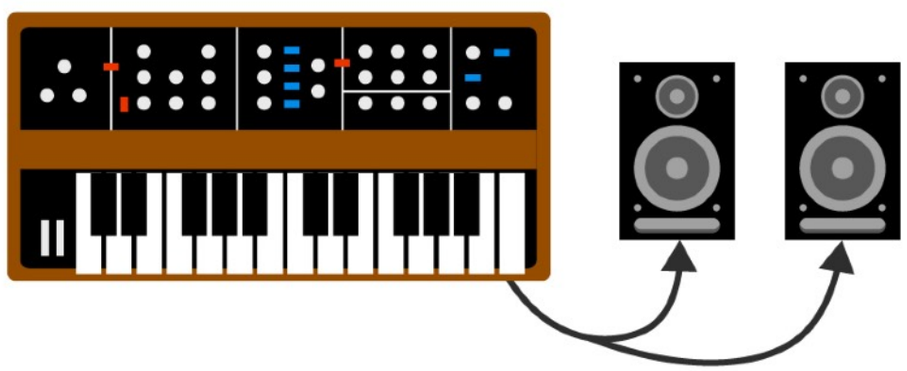
Devices intended for sound processing are sometimes called **effects**.



SOUND SYNTHESIS

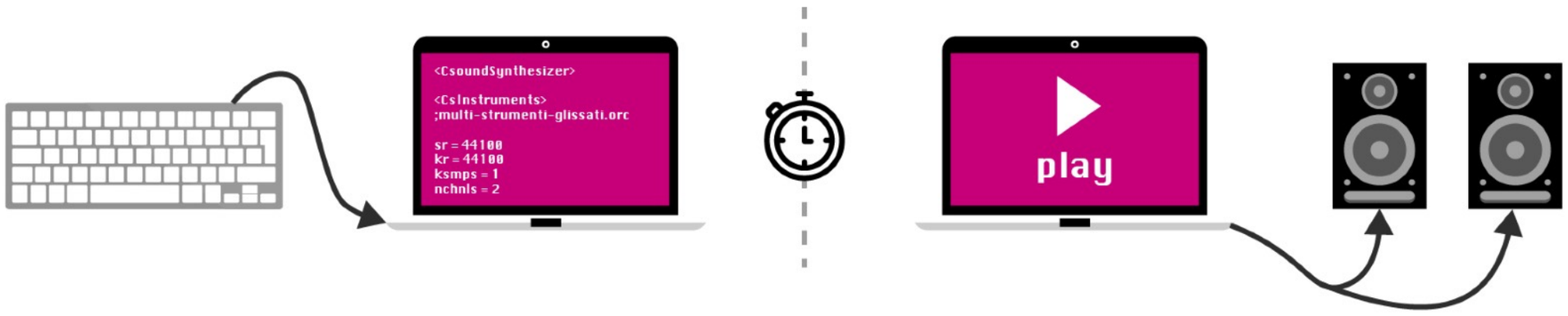
1 Real time

the system plays the sound as it is generated.



2 Non-real time

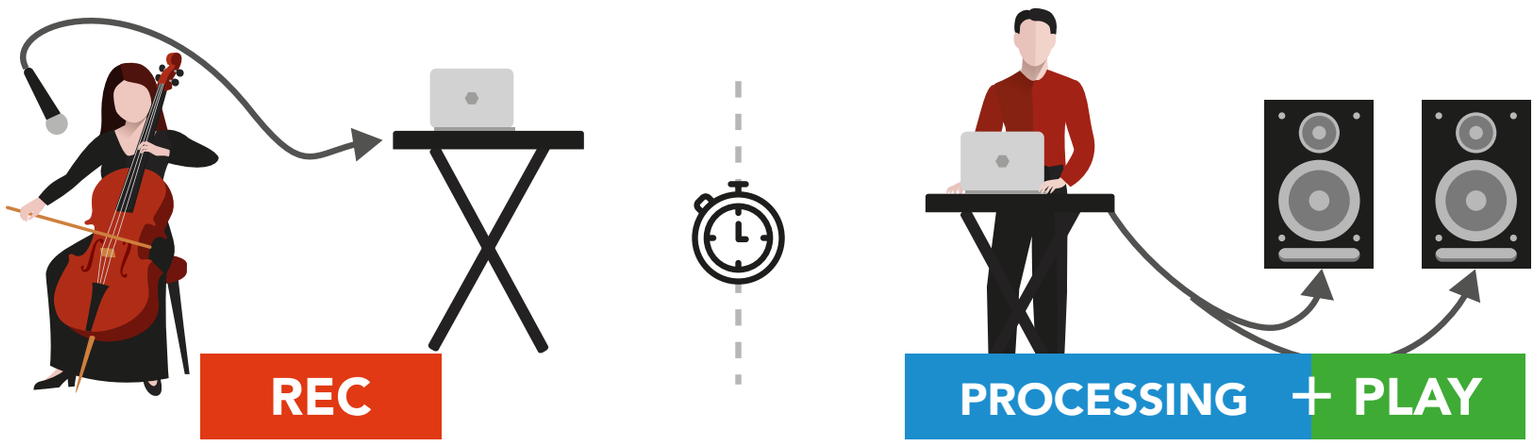
the system creates the sound and the sound is recorded or saved as a file.
Later, the recorded sound is played back with the possibility of processing.



SOUND PROCESSING

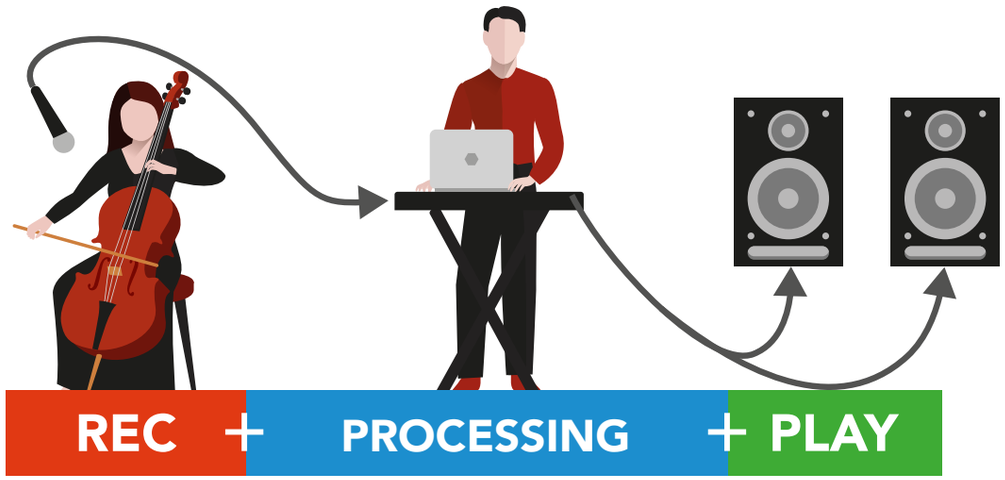
1 Pre-existing sound with processing and playback occurring at different times

2 Pre-existing sound at an earlier time with real time processing during playback



SOUND PROCESSING

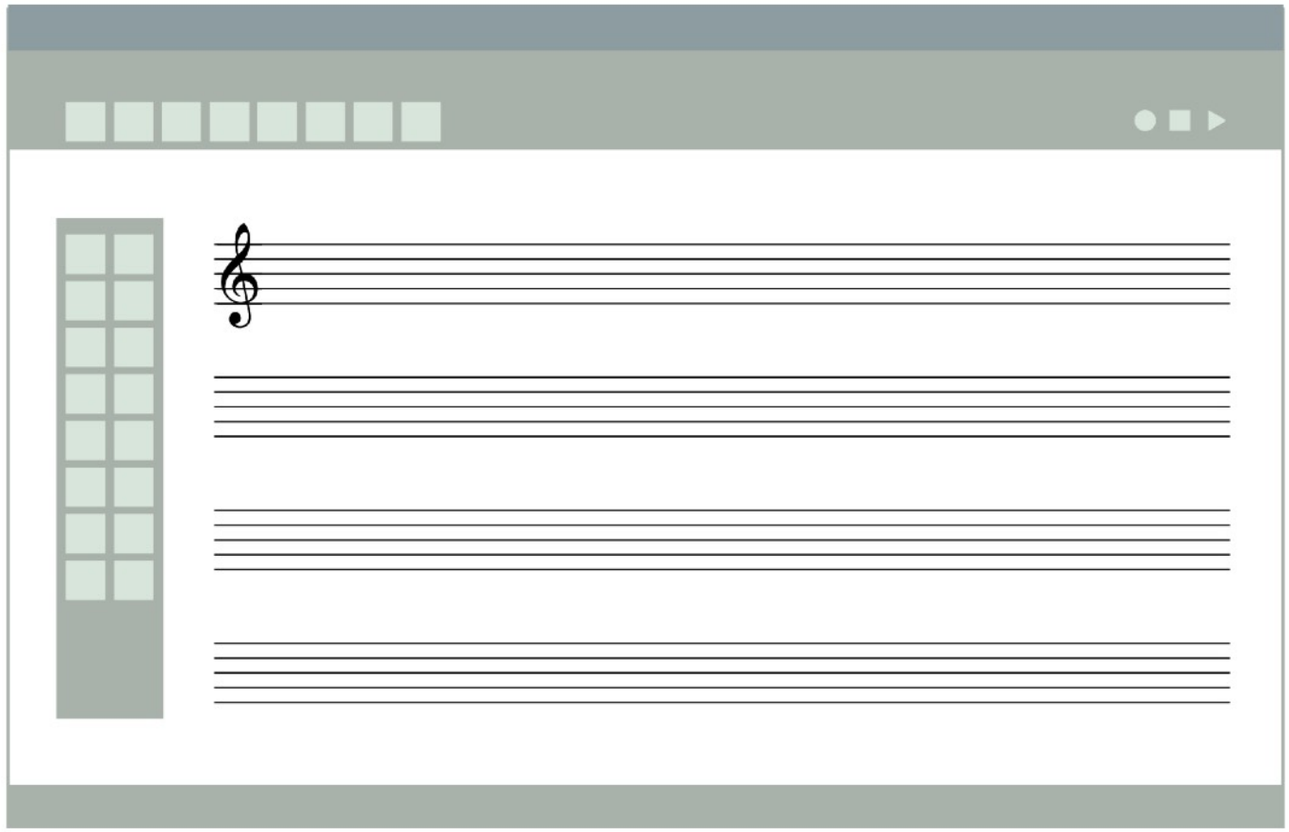
3 Real time recording, processing, and playback



TYPES OF AUDIO SOFTWARE

1 Music notation software

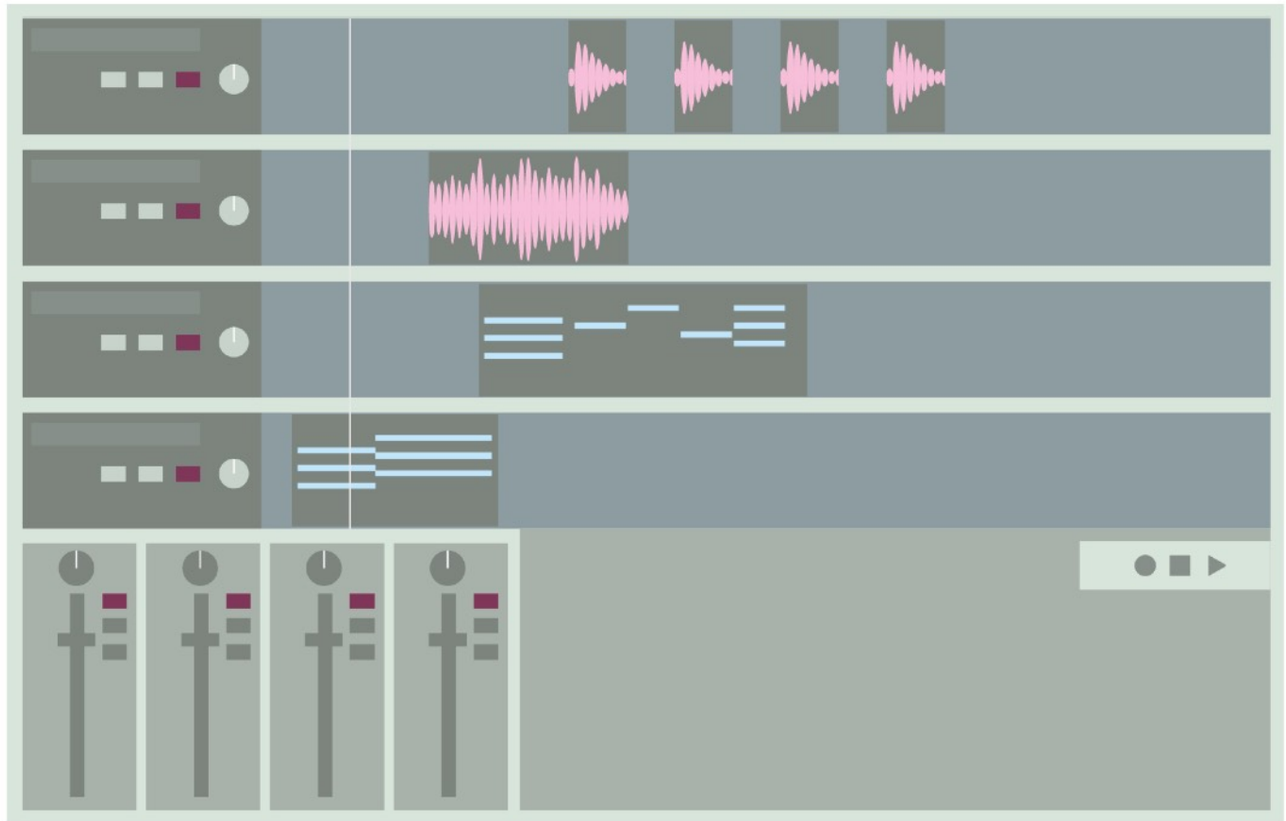
These are the software programs that allow us to write in musical notation.



TYPES OF AUDIO SOFTWARE

2 DAW

DAW (Digital Audio Workstation) software programs are environments in which sounds of all kinds can be recorded, manipulated, and combined.

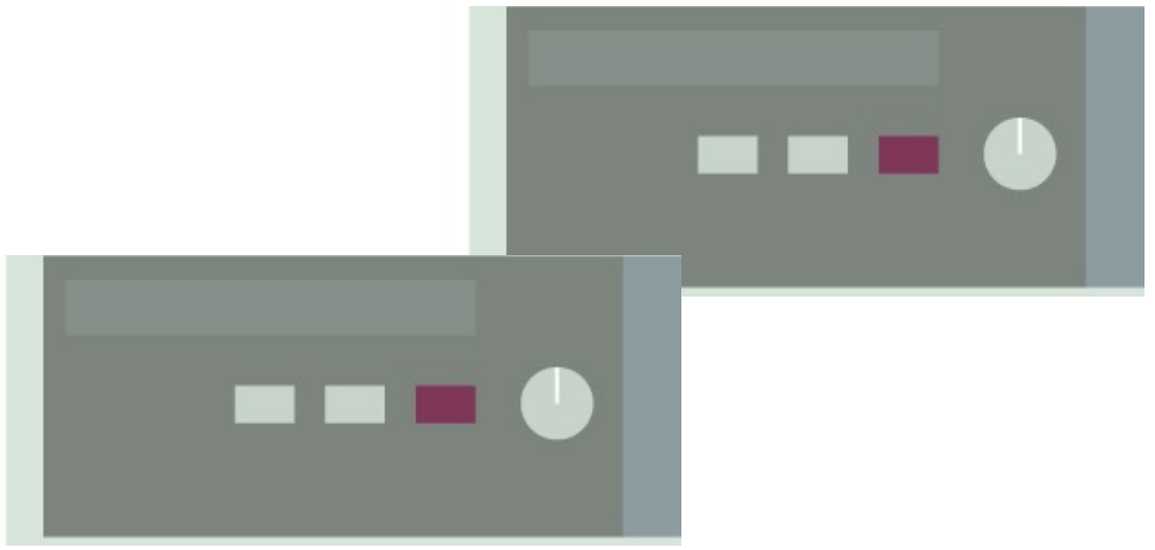


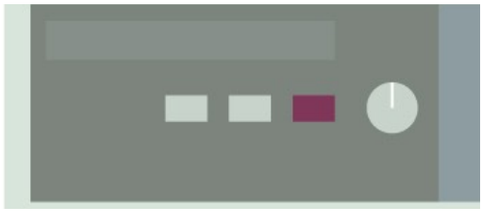
They are used for all stages of the production of a song, especially recording, mixing, and mastering.

TYPES OF AUDIO SOFTWARE

3 VST / AU

VSTs (Virtual Studio Technology) and AUs (Audio Unit) are plugins, meaning they are additional components that integrate into our DAW software.

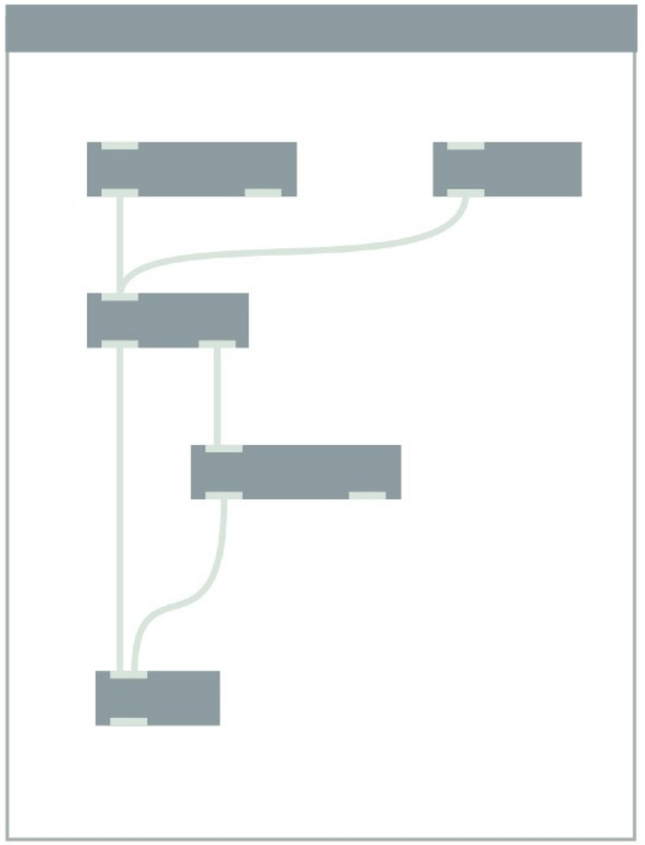




TYPES OF AUDIO SOFTWARE

4 Music programming languages

These are programming environments where it is possible to create, from scratch or almost from scratch, any effect or instrument that we can think of.

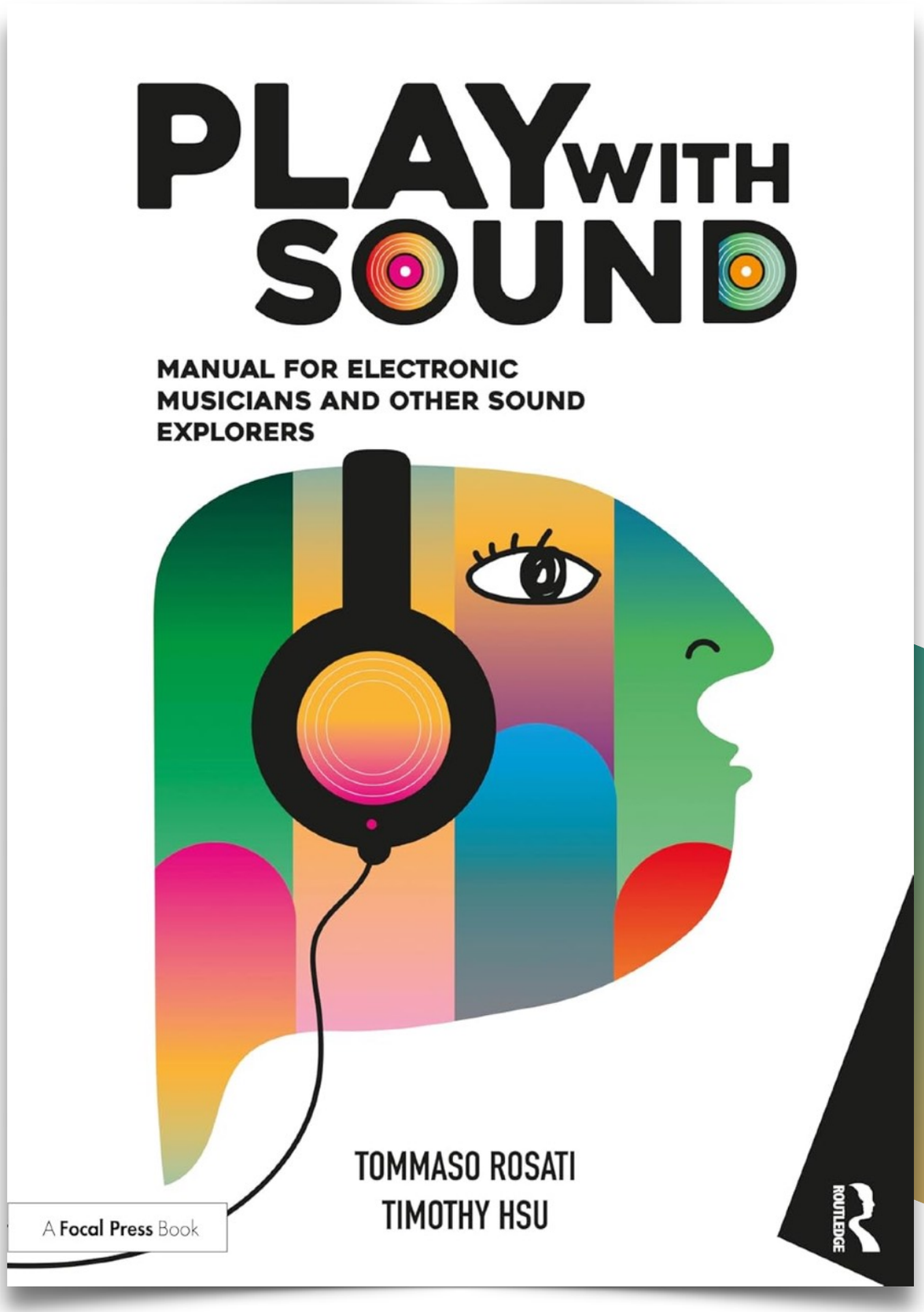


```
instr 1       ;strumento per sintesi additiva
;p4 = ampiezza
;p5 = frequenza
;p6 = tabella funzione
;p7 = fase
;p8 = posizione stereofonica
;p9 = attacco
;ipt = 10 ;profondit tremolo
;kfreq        randi ipt, 4
;kcps = kfreq +ipt+2
;atremolo  oscili 1000, kcps, p6

ipt = 2000
atremolo   oscili ipt,5,2      ;generazione
segnale di controllo d'ampiezza per effetto
tremolo
;kinviluppoexpseg
.001,p3/2*p9+.01,1,.04,.3,p3 -.05-p3/2*p9,.001
;generazione inviluppo d'ampiezza

kinviluppo expseg
.001,p3/3*p9+.01,1,.04,.7,p3/3,.7,p3-.05-p3/3-
p3/3*p9,.001

asuono     oscili (p4+atremolo)*kinvilup-
po,p5,p6,p7 ;generazione suono
           outs         asuono*(1-p8), asuo-
no*p8
           endin
```



THE BOOK IS NOW AVAILABLE!