# Portfolio

Diego Javier Alberti

## Aguayo

Leds, MCU (10 × 0.5 m)
2024

An aguayo is a rectangular transport cloth traditionally used by communities in the Andean region of Argentina and neighbouring countries.
The visual result—the patterns displayed within this digital fabric—is not created, but rather born from a very specific algorithm.
What is fascinating is that the complexity of the patterns, rendered as luminous dots switching on and off across a digital canvas, actually comes from a very simple, brief, and concise formula.
"Aguayo" seeks to unfold, through a digital visual fabric, the inherent beauty embedded in a computer program.

## Playfields

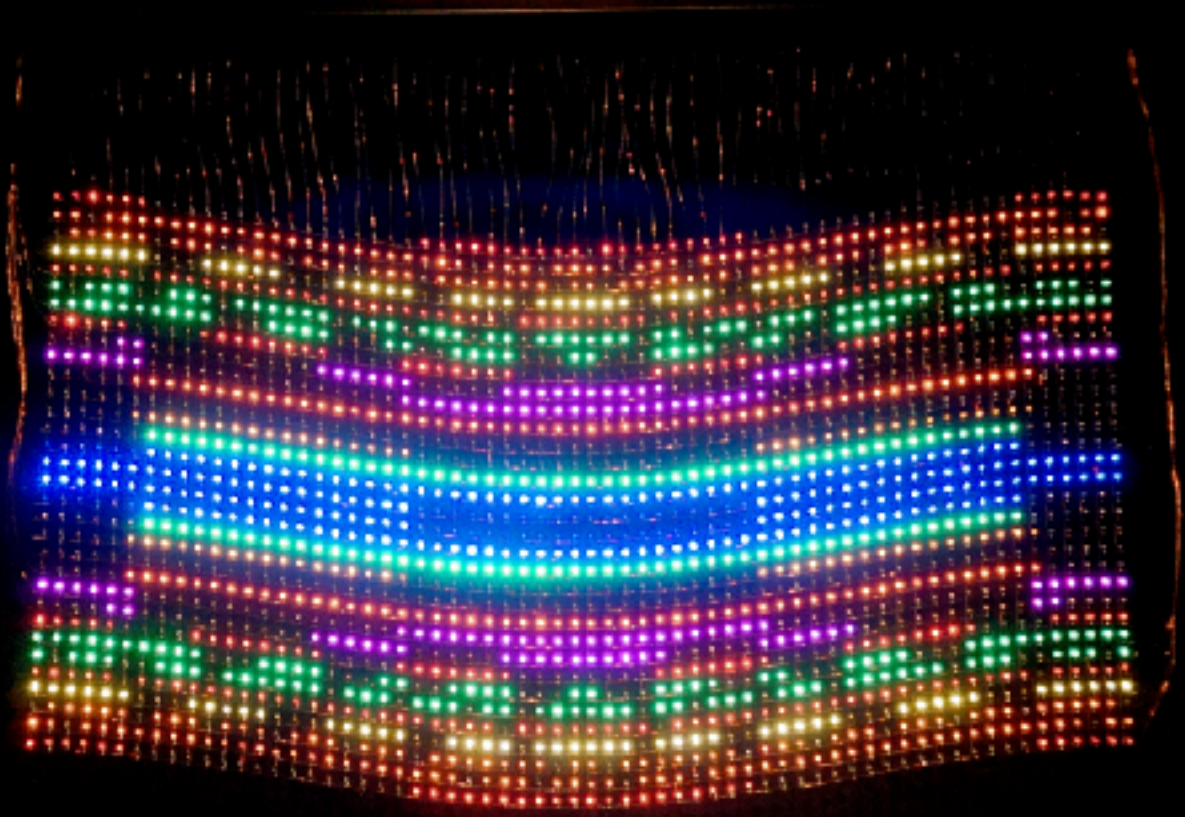
**ATARI 2600, CARTRIDGE, JOYSTICK, COLOR TV (VARIABLE DIMENSIONS)**
**2024**

"*Playfields*" refers to a technology specific to the Atari VCS 2600 that enabled the generation of video game backgrounds. My reinterpretation of this technology allows me to create visual works that evoke a specific era of technology while remaining completely unique in both their conception and aesthetic. These images not only pay homage to the early days of home gaming consoles, but also challenge conventional boundaries between art and programming—mixing the old with the new, the traditional with the disruptive.

## Self Computing Spaces I

**LEDS, MCU, FRAME (50 × 50 CM)**
**2024**

‘Self-computing spaces’ is a concept developed by Mateo Pasquinelli in his text ‘3000 years of algorithmic rituals: the emergence of AI from the computability of space’. In this text, Pasquinelli states that the algorithm is not a “technological a priori” but an emergent form of thought that has existed more or less as long as culture has existed. From this it could be thought that the algorithm is also what is at the basis of all cultural development. Self Computing Spaces attempts to account for this phenomenon.



## Lliklla

**LEDS, COPPER WIRE, MCU (100 × 70 CM)**
**2023**

A *lliklla* is a hand-woven rectangular shoulder cloth traditionally worn by Quechua women in the Andean regions of Bolivia and Peru. It is typically fastened at the front with a decorated brooch known as a *tupu*.
In this case, 'Lliklla' is also a work of digital art in constant creation—a mantle of hand-soldered LEDs that generates patterns from a very simple algorithm. It forms an electronic fabric where technique and aesthetics merge to express meanings rooted in a particular vision of the world and its technology.
This piece draws inspiration from the shape, color, and patterns of the traditional *llikllas* woven by indigenous peoples of the Andes and Altiplano regions.

## Weaver

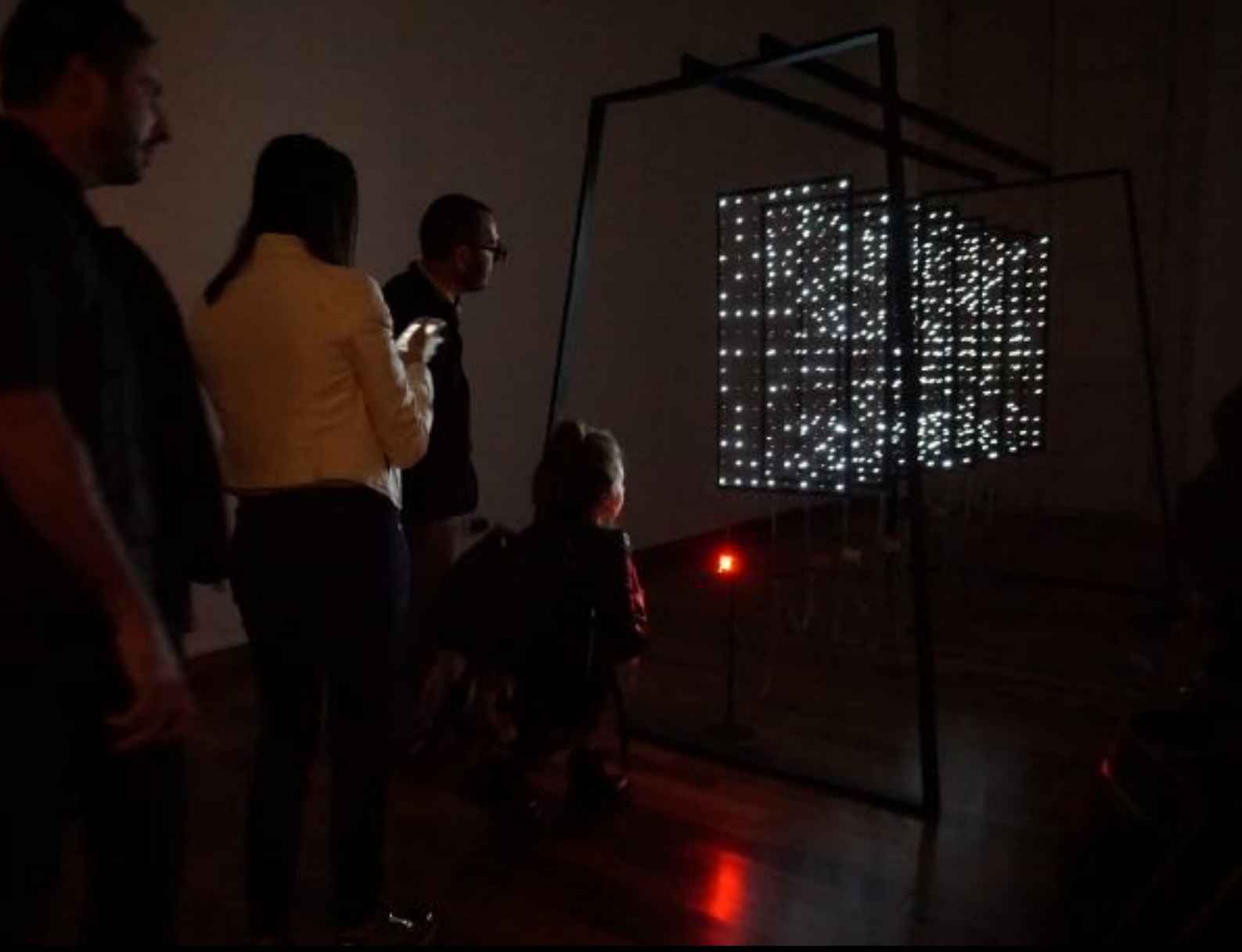
**LEDS, COPPER WIRE, MCU, STEEL FRAME (200 × 100 × 150 CM)**
**2020**

*'Weaver'* is a loom—a matrix with thousands of interlocking LEDs, hand-soldered one by one. Its weft is controlled by a digital machine designed to run a program. As the program executes, patterns emerge. Digital matrices and ancestral weaving traditions find a shared existential purpose: the search for meaning, and ultimately, for the origin of the universe. In this work, the machine weaves a pattern born from its own circuits, hoping that, at some point, a failure—a glitch—will appear as evidence of divinity.

## The Answer of Gods

***LEDS*, COPPER WIRE, MCU (200 × 100 M)**
**2018**

A microcontroller executes simple mathematical operations encoded in the C programming language—an international standard in the computing industry. These operations, concatenated in an iterative algorithm, give rise to patterns that form an animated digital tapestry. The numerical output of each execution is then transmitted to a handmade dot matrix display built from copper wire and LEDs. The visual result may resemble ancient hieroglyphs, pre-Columbian patterns, or an undeciphered code—each one determined by the constraints of binary digital representation.



# Billions and Billions

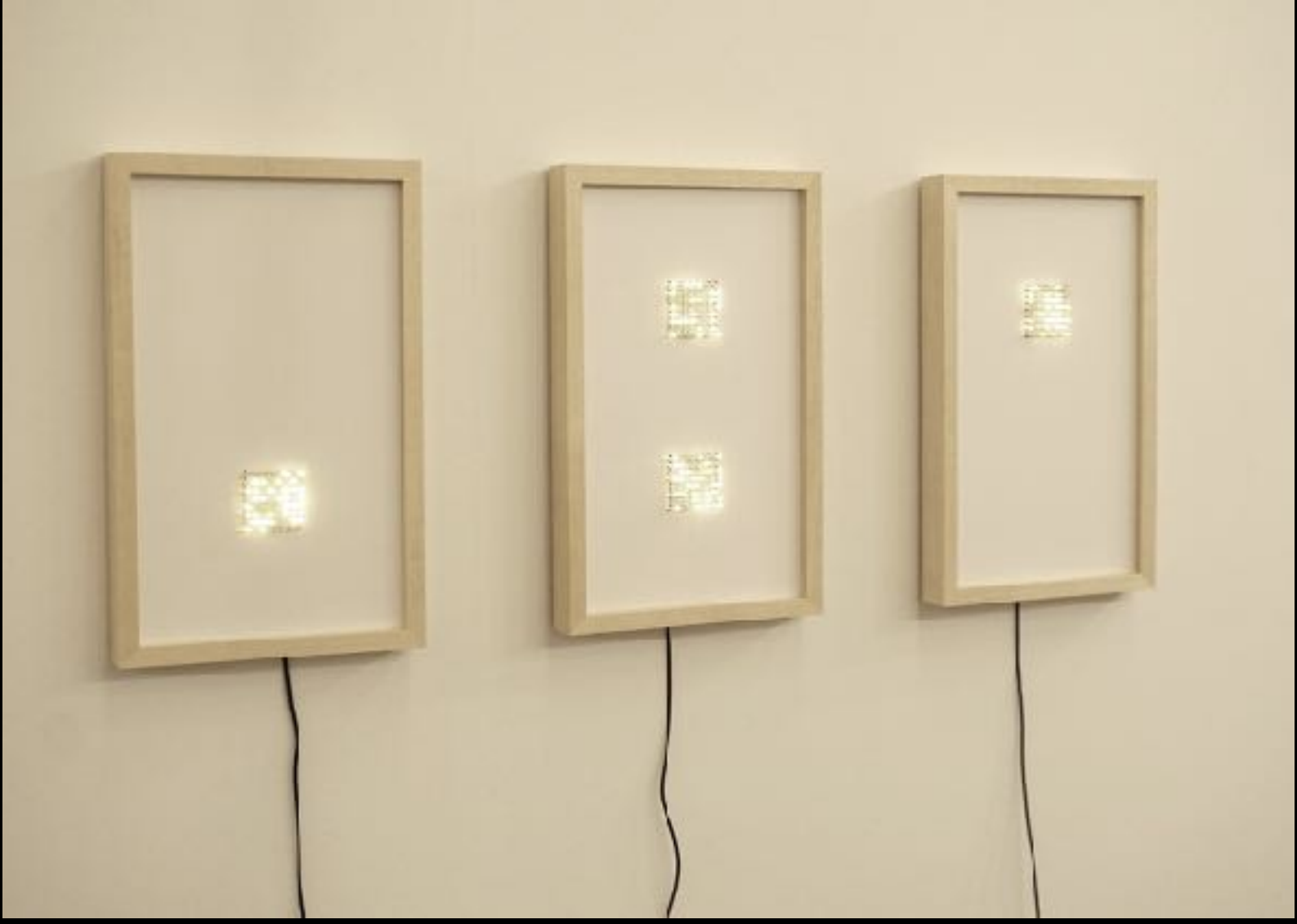
***LEDS*, COPPER WIRE, MCU (200 × 100 M)**
**2018**

*Billions and Billions* emerges from the encryption processes and protocols designed to ensure data privacy in the digital ecosystem. This system engages in a futile task: attempting to decrypt an information packet whose key consists of a 128-bit combination. In attempting to transpose these complex and empty cryptograms—so typical of our contemporary condition, their aesthetic and poetic potential manifests itself as hieroglyphs of an era marked by quantification and astronomical scales of time as a paradigm of security.
It is a system that generates cryptographic guesses within an absurdly vast field of possibilities. As in the history of Persian chess, immensity lies hidden behind the synthetic surface of exponential combinatorics.

## From Transcription to Translation

**PHOTOGRAPH, BACKLIT. (100 × 70 CM)**
**2022**

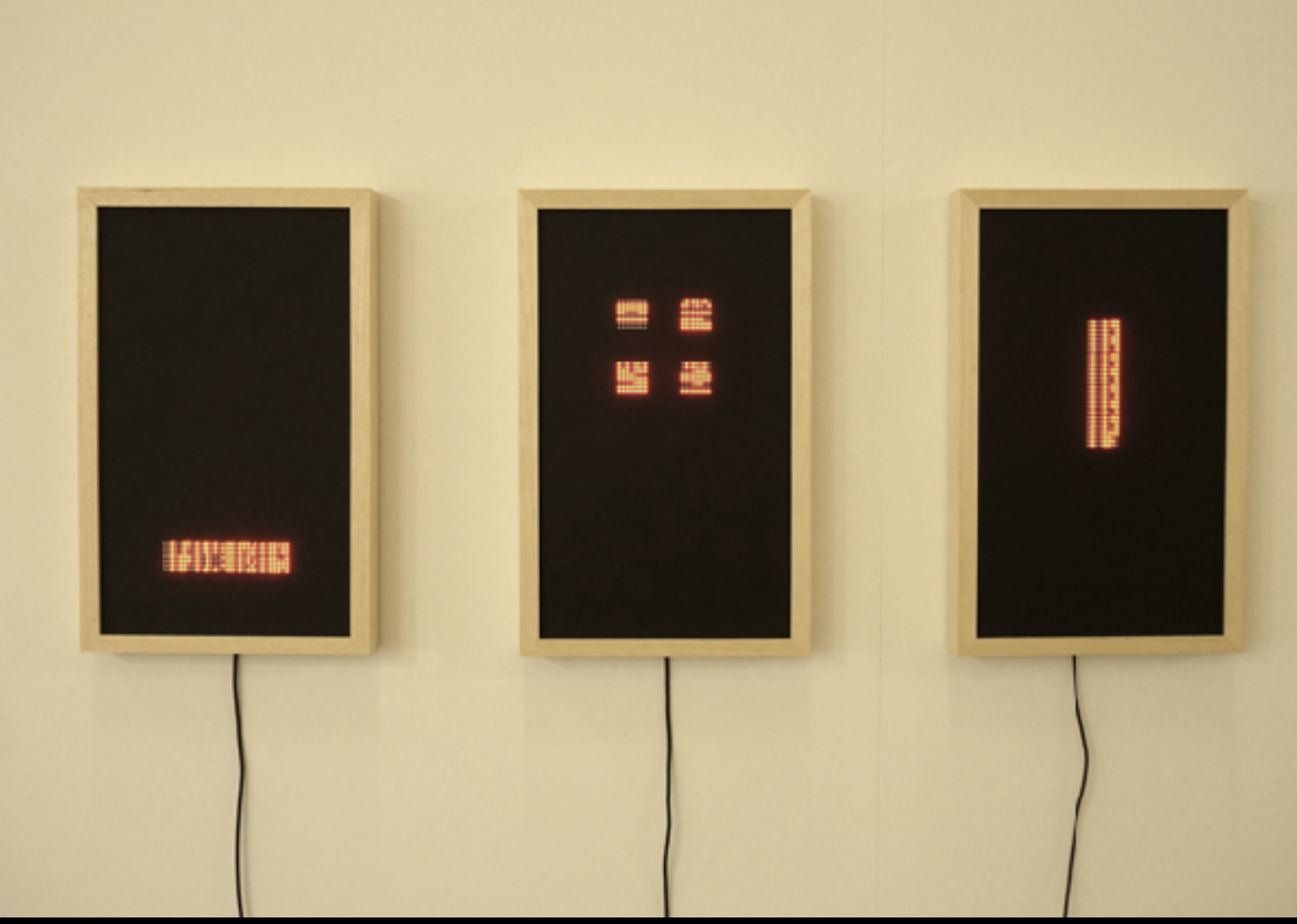
In a programmable device, I loaded the genetic data of a protein molecule. The sequence of this molecule is reproduced through a strip of LEDs that turn on and off. The way these LEDs switch on and off—arbitrarily, yet digitally encoded. As one moves through the the visual landscape, the DNA sequence gradually unfolds, revealing itself as part of nature.
The information contained in DNA is expressed in proteins by way of two processes: transcription, in which the information is transferred to a messenger RNA (mRNA) molecule, and translation, where that message is carried by the mRNA to produce a protein. This artwork reflects on processes, and on the quasi-digital nature of the genetic code itself.



## Algorithm 1 (Triptych)

**PASSE-PARTOUT, LEDS, MCU (30 × 40 CM)**
**2018**

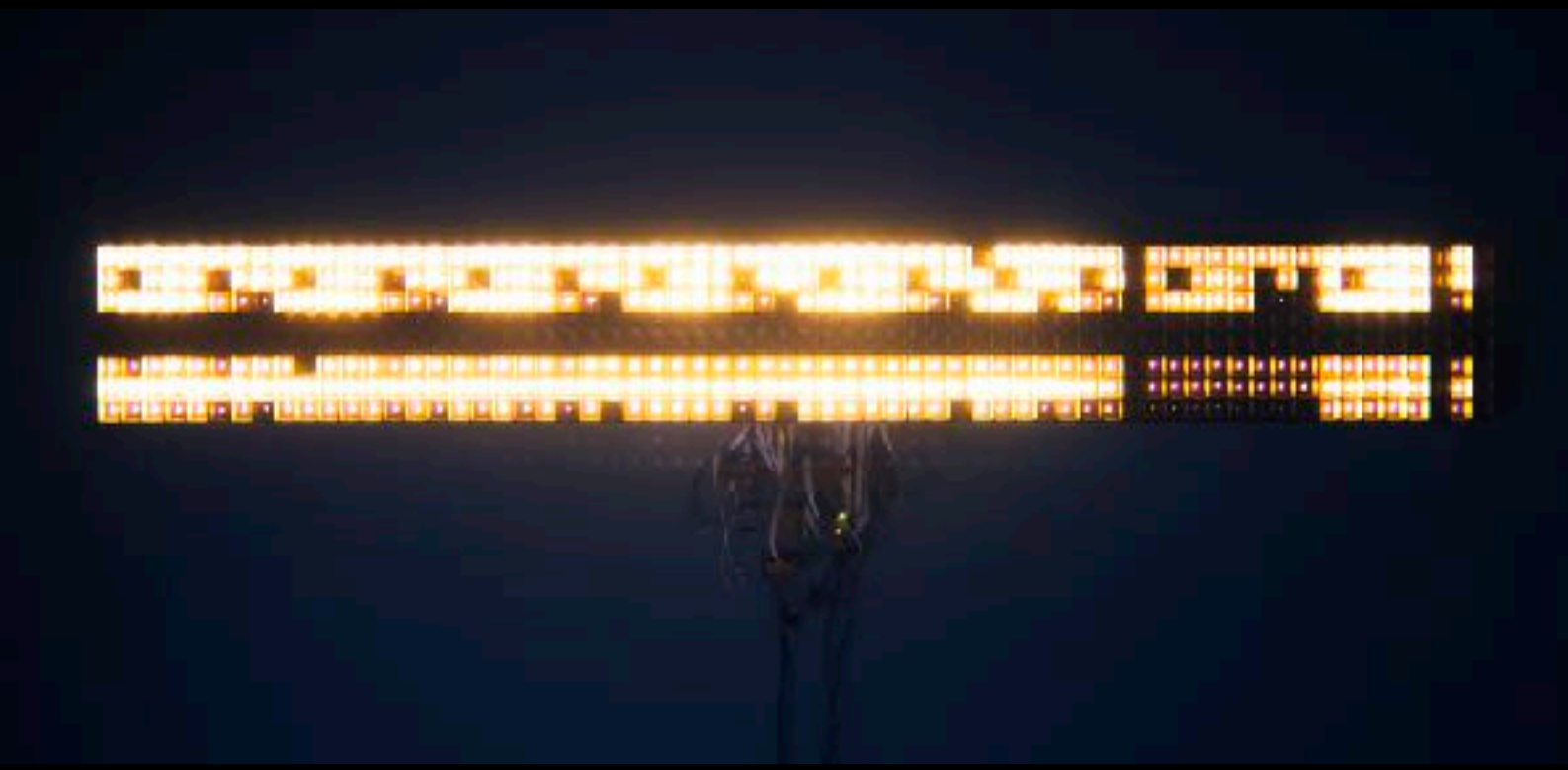
A microcontroller runs a simple algorithm: an entity moves randomly within an array of LEDs to a nearby point. As it crosses into that point, the state of the destination is reversed—if it is on, it turns off, and vice versa. This process continues indefinitely, generating ever-changing visual combinations that are part of an astronomical range of possibilities. The chance that all LEDs will be off t any given moment is 1 in 2E64 (approximately 18,400,000,000,000,000,000,000,000 possible combinations).



## Bytebeat III (Triptych)

**LEDS, MCU, PASSE-PARTOUT. (30 X 40 CM)**
**2018**

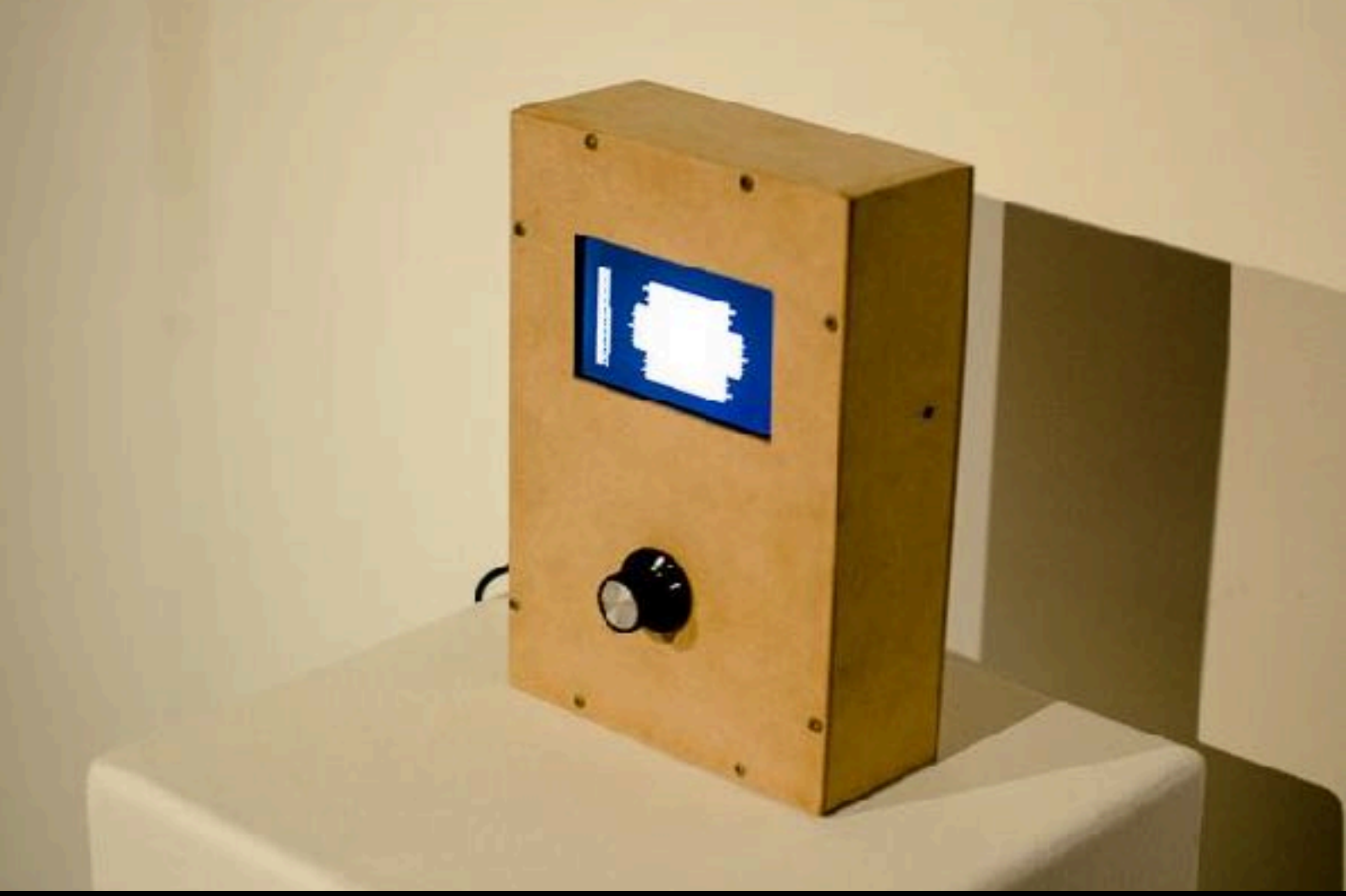
Three pieces execute *'Bytebeat'*-type algorithms, with the numerical output displayed across different arrays of red LEDs. Each piece includes a programmed microcontroller.
This digital triptych produces abstract, geometric compositions—entirely free of figuration or representation—based on computer processes. By using microcontrollers detached from any utilitarian function, the work revisits the pictorial assumptions Malevich proposed over a century ago. Here, the notion of "absolute supremacy" is reinterpreted as a kind of computational freedom: the use of computers for purely aesthetic ends.



## Bytebeat II

**LEDS, MCU, MDF. (200 X 40 CM)**
**2012**

A microcomputer iteratively executes a Bytebeat algorithm, incrementing the value of a variable with each execution. The resulting numerical output is represented in binary form on a LEDs matrix, where lights are switched on and off.
The execution of the algorithm produces patterns that are not pre-designed, but rather “generated” ad hoc—a result of purely computational logic. However, the visual outcome evokes a kind of beauty reminiscent of symbolic forms found in the visual languages of early civilisations.



## Bytebeat I

**LCD, MCU, MDF (20 X 15 CM)**
**2012**

This device converts formulas written in the C programming language into both images and sound. It has the ability to audio-visually interpret musical formulas in the bytebeat format. Bytebeat emerged from the online publication of videos and texts demonstrating how music could be generated using very simple equations written in C. What's intriguing is that from these very brief expressions, a sound event can be produced—something the human ear recognizes as music. After all, music is nothing more than the coherent arrangement of sounds and silences over time. In the case of Bytebeat, that organization relies solely on the intrinsic characteristics of computing machines—specifically, their functional logic.