

LIFEWEAVE: WHEN DNA BECOMES TEXTILE ART. THE INNOVATIVE STARTUP FOUNDED BY EMILIO VAVARELLA TRANSFORMS THE HUMAN GENOME INTO UNIQUE TAPESTRIES

by Susanna Cati

Transforming the most personal data – the genome – into works of art: this is the mission of *Lifeweave*, an innovative company founded and managed by artists, positioned at the intersection of genomics and textile craftsmanship. The company has recently launched a world-unique service: transforming human DNA into Jacquard-woven works of art, creating deeply personal, tangible artifacts designed to last over time.

DNA sequencing is performed at Broad Clinical Labs, affiliated with the Broad Institute of MIT and Harvard, while all collected data is securely stored on Terra.bio, a leading platform for biomedical data management. Completing the process is proprietary software developed by *Lifeweave*, which serves as a bridge between art, science, and technology.

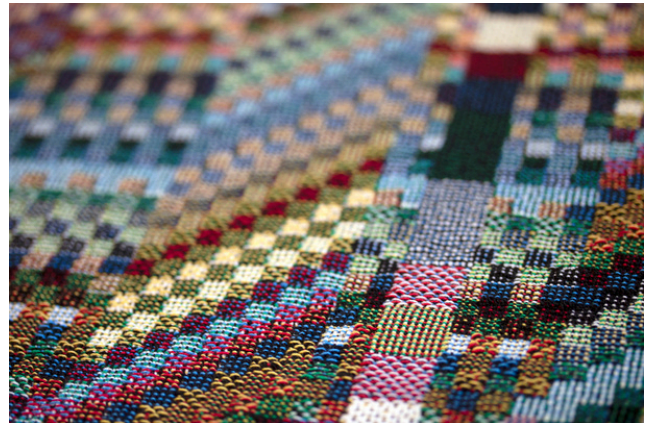
A lasting work of art, designed to be used, displayed, gifted, and passed down. In an era dominated by fleeting images, mass-produced objects, and exclusively digital experiences, a project emerges that refocuses attention on materiality, uniqueness, and memory: *Lifeweave*

Founded by Emilio Vavarella, an Italian-American artist and researcher, the company transforms human DNA into textile works of art by combining advanced genomics, Jacquard craftsmanship, and personalized design.

An artistic and technological endeavor, yet deeply human: *Lifeweave* proposes a new way of understanding identity and personal legacy by translating individual genetic material into unique, tangible tapestries meant to be lived with, displayed, gifted, and handed down through generations.

An artist between science and technology, founder and CEO of *Lifeweave*, Emilio Vavarella holds a Ph.D. from Harvard University and is currently an Assistant Professor of Media and Film Studies at Skidmore College. He was also the eighth Artist in Residence at the Broad Institute of MIT and Harvard, where the inspiration behind *Lifeweave* was born.

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His artistic projects, often situated at the intersection of technology, biology, and visual culture, have been exhibited at prestigious international institutions including the Venice Biennale, the MAXXI Museum in Rome, the Reina Sofia Museum in Madrid, the Hermitage Museum in Saint Petersburg, the Photographers' Gallery in London, KANAL – Centre Pompidou in Brussels, and the Museu de Ciències Naturals in Barcelona. His work has been reviewed and discussed by international publications such as Artforum, Wired, HuffPost, and Mashable.

"I was looking for ways to represent the most intimate and unique aspect of a person," Vavarella explains, "and I began to think of DNA as an artistic medium. In 2020, with the support of the Italian Ministry of Culture, I transformed my own genome into a large tapestry – now part of the collection at the Museum of Modern Art in Bologna. The next step was clear: to enable anyone to transform their own DNA into works of art to live with daily or to gift to someone special."

The *Lifeweave* team, alongside Vavarella, includes David Ganley, co-founder and CFO of *Lifeweave*, a successful entrepreneur with a career driven by curiosity. He brings 28 years of experience in consumer-oriented companies and client consulting. At *Lifeweave*, he contributes a strong commitment to excellence, demonstrated by his attention to detail, communication, and transparency.

Nick Briz is a renowned new media artist, educator, and organizer. At *Lifeweave*, he serves as Creative Technologist. He is an Assistant Instructional Professor in the Media Art and Design program at the University of Chicago. Nick brings years of experience creating privacy-focused online platforms and has a passion for algorithmic creativity. He is also co-founder of *netizen.org*, a non-profit organization dedicated to digital culture and literacy.

Fabio Cunial is a Computational Scientist at the Broad Institute of MIT and Harvard, where he works on advanced DNA sequencing technologies, long reads, and structural variants. He has conducted postdoctoral research at the University of Helsinki and the Max Planck Institute in Dresden. His research focuses on algorithms for genome analysis.

Chloe Thompson is a Web Developer specializing in creating interactive experiences that combine art and technology. She joined *Lifeweave* after studying at the School of the Art Institute of Chicago.

FROM SALIVA TO TAPESTRY: THE PROCESS

Lifeweave's service is available online through the website lifeweave.app. Customers can choose between two design styles: *Mathesis* (geometric) and *Floral* (botanical). After placing an order, they receive a saliva collection kit at home, which must be returned using the prepaid envelope provided.

Proprietary software developed by *Lifeweave* interprets the genetic data, transforming it into unique visual patterns that are then woven on Jacquard looms. In an era where personalization reaches new heights and science meets art with ever-greater originality, an innovation arrives that unites genetic identity, craftsmanship, and design: a unique tapestry woven based on one's own genome. An object that is not only decorative but deeply personal, one-of-a-kind, and imbued with scientific and emotional significance.





Each tapestry is custom-woven, following a visual and abstract representation of the owner's genetic profile. The result is an aesthetic pattern that, while not directly revealing sensitive information, represents a scientifically grounded and symbolically powerful portrait of one's biological uniqueness.

Completing the work is a digitally traceable Certificate of Authenticity, which guarantees the exclusive correspondence of the tapestry to the commissioner's genome. This certificate, registered through advanced security technologies, allows the authenticity of the piece to be verified even after many years, preserving its scientific and collectible value.

For those who desire even deeper control or for personal study purposes, the raw sequencing data download is optionally available. This allows the user direct access to the genetic information used to create the tapestry, offering total transparency and the possibility to explore their biological heritage through dedicated analysis software.

This tapestry is not just an object: it is a statement of identity, a dialogue between biotechnology and craftsmanship, and a new form of personal expression. In a world where individuality is increasingly valued, transforming one's DNA into art becomes not only possible but desirable.

The tapestry's design is generated directly from the genetic sequence, making each piece unique. As proof of this uniqueness, every artwork includes a 32-character hash code signature, represented by a sequence of colored squares woven into the pattern itself, which serves as a unique ID for the genome used. All fabrics are made from ethical yarns, compliant with YESS and OEKO-TEX standards, ensuring sustainability and respect for the environment.

Not a representation, but an incarnation of identity: the conceptual core of Lifeweave lies in a structural affinity between DNA and fabric: both do not serve as neutral supports for external content, but embody information within their very structure. Unlike painting or writing, where information is applied onto a medium, in textiles and genetic code, form and content coincide.

Lifeweave's tapestries do not represent the genome: they materialize it. They transform it into an aesthetic and sensory experience, an artistic object that tells, embraces, and envelops the biological story of its owner. A radically new way to celebrate the uniqueness of the human being in a world increasingly tending toward uniformity.

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