



Weaving, Chromosomes and 3D Printing

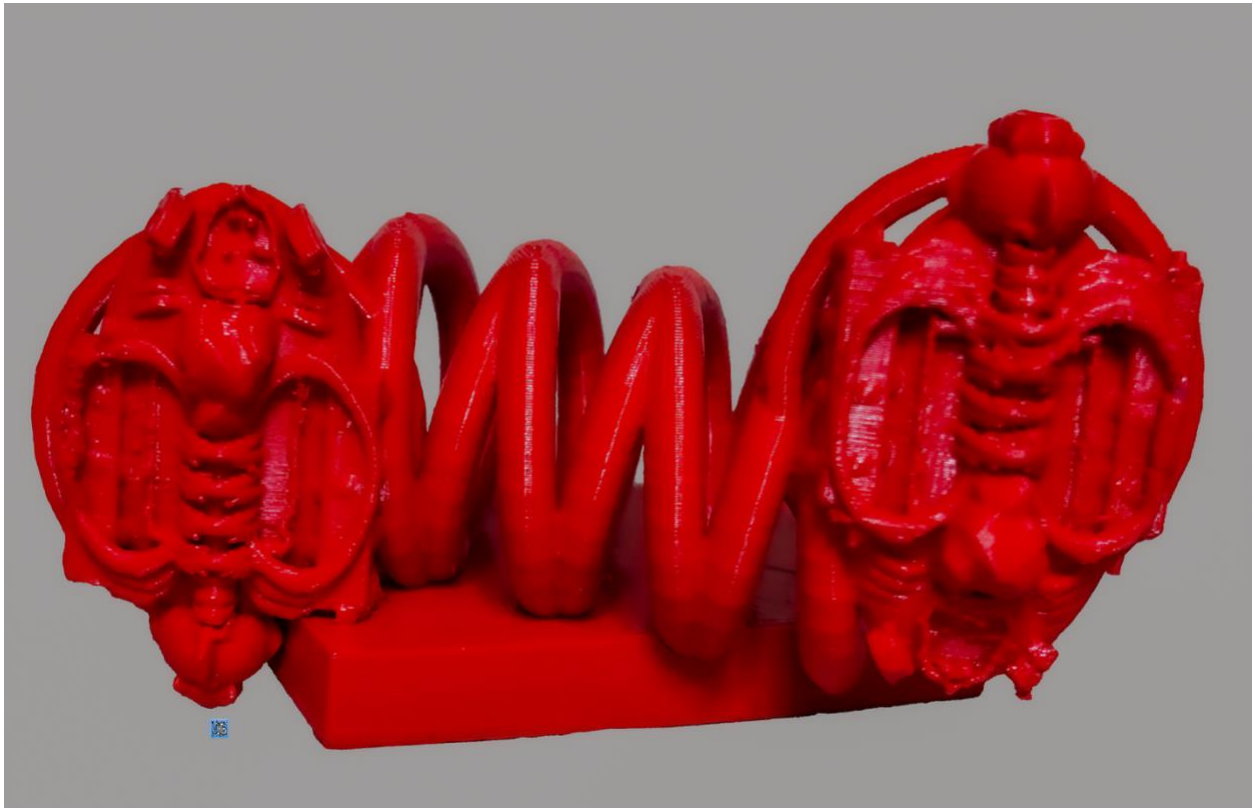
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The Jacquard Machine, patented by Joseph Marie Jacquard in 1804, is a punch-card device fitted to a loom to industrialize weaving. Charles Babbage, owned a portrait of Jacquard woven in silk on a Jacquard machine-fitted loom. Inspired Babbage used the punch cards idea to feed his own Analytical Engine (1837) data. This was the initial step in the computer revolution we know today.



This is a photo of my thermoplastic-micro sculpture **Red Chromosome**. It represents the 2 coils of a human chromosome. I personified each strand with heads based very loosely on the Mayan Sun God, Kinich Ahau.

A thermoplastic-micro sculpture is a 3-dimensional print of a 3D drawing made in software on a home computer. I used Blender. These

sculptures are necessarily small, and though small, take a lot of time to print. Here are the pertinent stats:

Size: 5.3" x 5.09" x 4.18"

Easy Red PLA filament (a thermoplastic used in 3D Printing)

Time to print: 6 hours 46 minutes

Printer: Ender 3 SI Pro

Below is a photo showing how the Red Chromosome is constructed from a 3D Blender image by the printer. Turning the sculpture over, you can see the pattern of the weaving clearly.



This thermoplastic-micro sculpture embodies the connection between the loom and the tightly wound double helix strands of DNA. “Both involve **paired and repeated structures** forming a continuous, stable pattern.”—Chat GPT.

Despite the apparent differences, the combination of biology and the mechanical loom can result in amazing new forms. Usually, sculpture is conceived of as an art of subtraction, removing material to reveal the hidden form in a block of wood, stone or metal. Thermoplastic-micro sculpture sets off in a different direction, adding filament to construct a new object.

An exciting new future beckons.