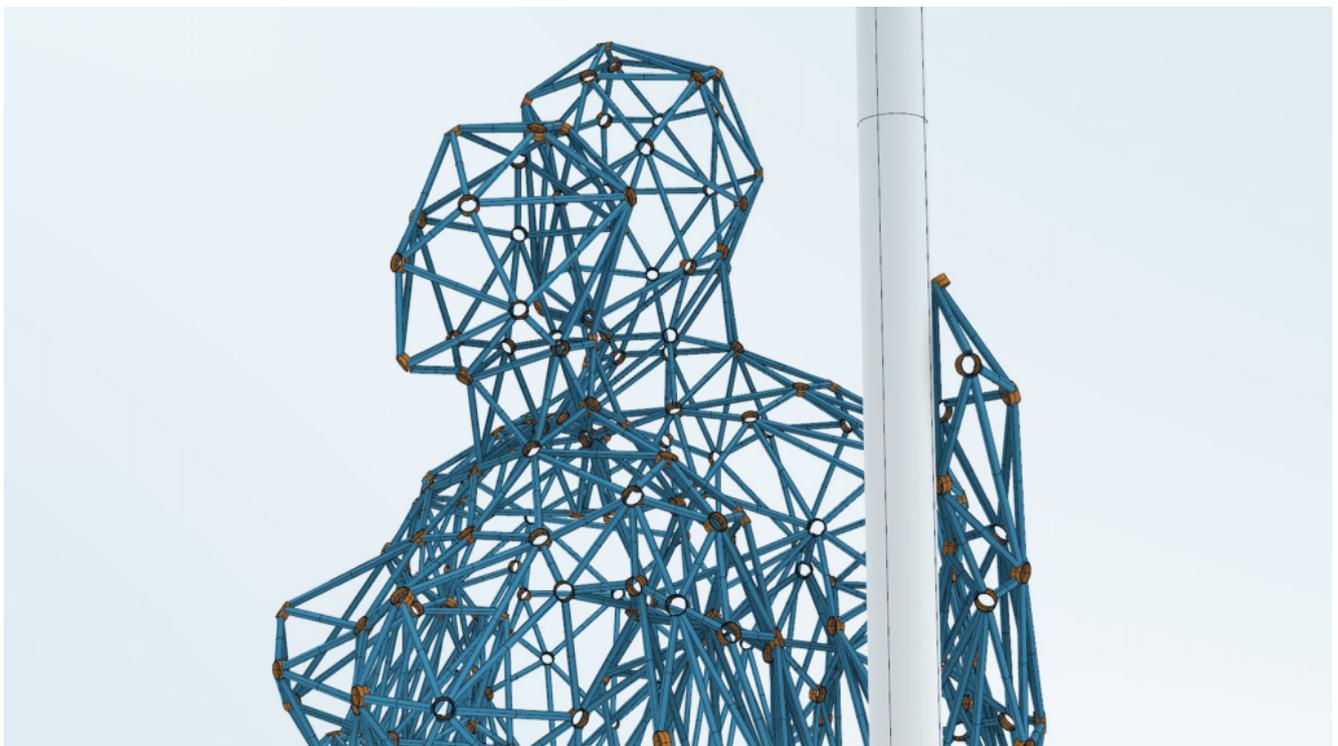


Monumento Pijao Ancestral: A Father–Son Fusion of Art, Technology, and Heritage

Standing at the entrance of Parque Caiké in Tolima, Colombia, the *Monumento Pijao Ancestral* greets visitors with the towering presence of two figures from the Pijao people, a tribute to indigenous heritage and resilience. Rising 13.6 meters high, with a 15-meter spear held aloft by the male figure, the monument weighs approximately nine tons in total (5.4 tons for the male character and 3.6 tons for the female).



3D model of the structure

The project was born from a unique collaboration between artist Edgar Varón Oviedo and his son, architect Edgar Daniel Varón Villarreal. The father shaped the aesthetic and sculptural vision, while the son developed the 3D model, parametric system, and technical direction for construction. Drawing inspiration from ancestral geometric patterns, they translated symbolic forms into a low-poly structural system by fully triangulating the surfaces.



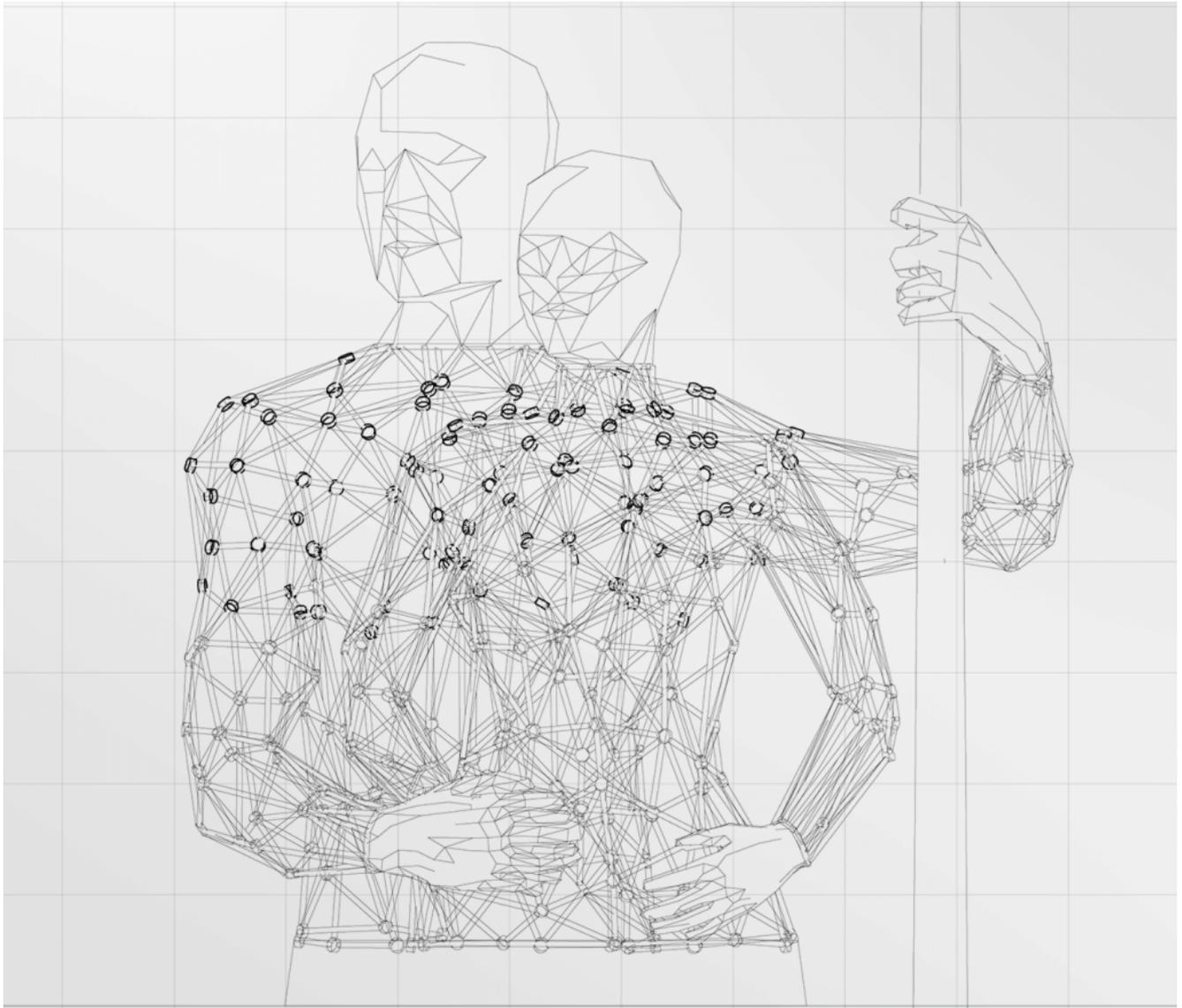
Segmented bodies of the sculpture

From the original sketches, Villarreal used [Rhinceros](#) and [Grasshopper](#) to create a clean 3D model, which served as the foundation for the entire build. Using native Grasshopper components and the [Sandbox](#) plugin, Daniel designed an algorithm to generate metallic edges and joints, controlling profile thickness and diameters. A structural engineering team reviewed this parametric model, and their feedback was incorporated before fabrication began.



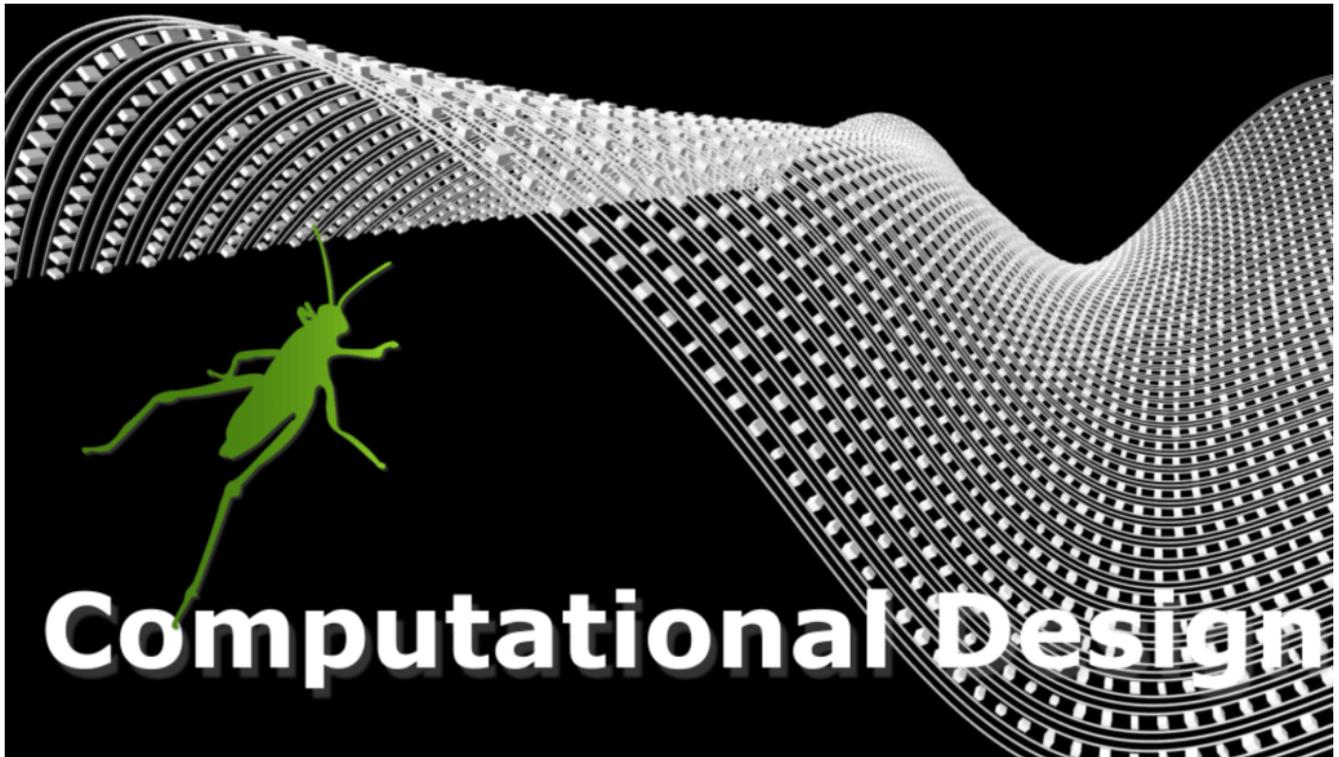
Construction phase

Construction involved both precision and ingenuity. Lacking access to advanced tools like augmented reality for assembly guidance, the team relied on meticulously prepared full-scale drawings. Grasshopper was used to project the exact positions of each component onto horizontal “Z” planes, which were printed at 1:1 scale and laid directly on-site.



Technical drawing of the sculpture

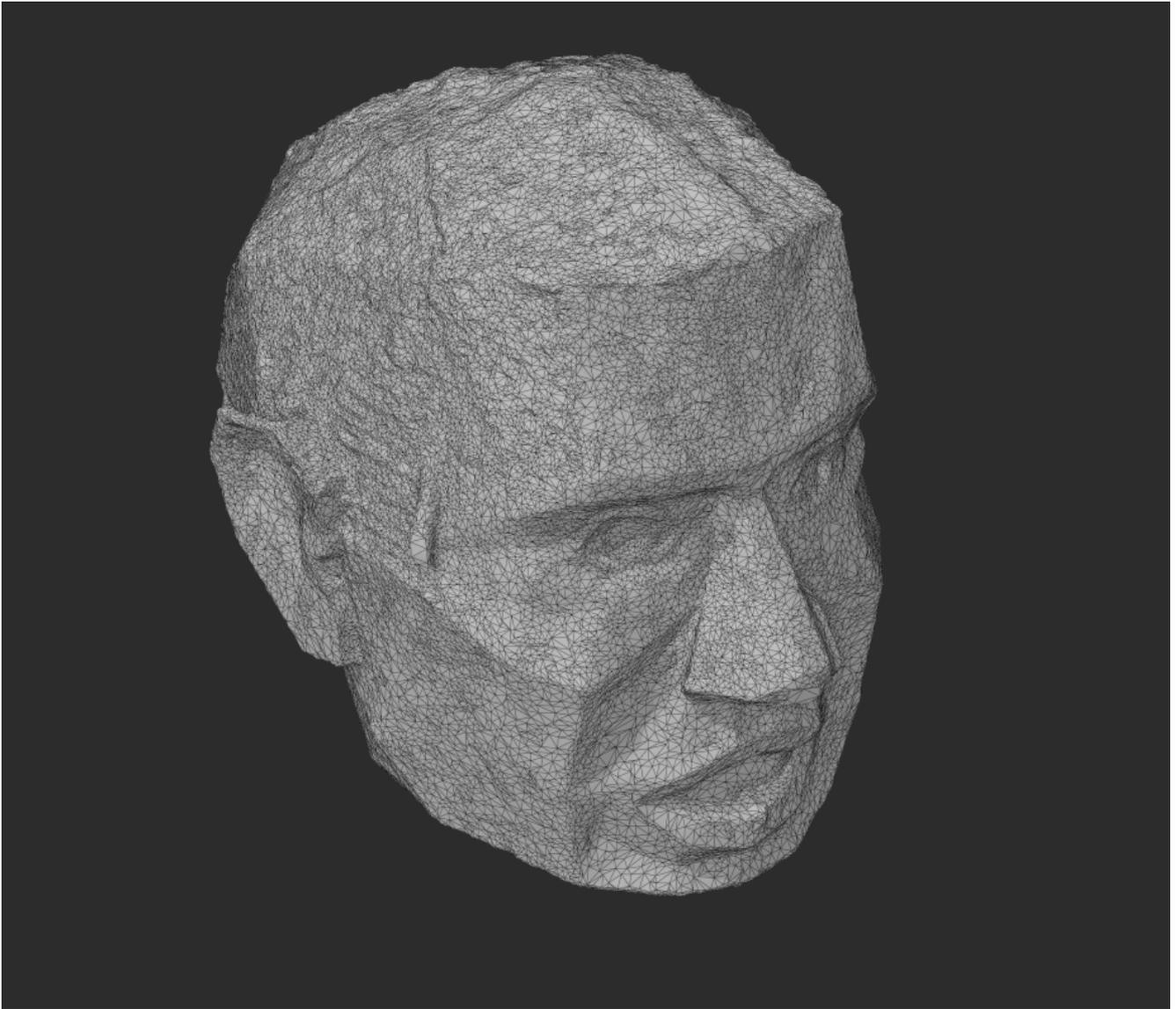
This method ensured accurate module placement for the characters' segmented bodies (hips, torso, arms, and head) while minimizing adjustments during assembly.



[See Also](#)

[COMPUTATIONAL DESIGN WITH GRASSHOPPER](#)

The internal framework consisted of CNC-cut plywood rings placed every 70 cm, following the contours of the figures. These acted as guides for welding steel tubes that formed the triangular edges of the structure. The “skin” was built from flat steel plates, one per triangle, with their layout automatically assigned in Grasshopper according to position. Areas requiring more detail, such as the hands, received finer triangulation.



3D scan result

For the hair, the process reversed: the sculpted heads, crafted directly by Edgar Varón Oviedo using wire, paper, and steel as guides, were 3D scanned via photogrammetry with [RealityCapture](#). After cleaning the meshes, the hair volumes were modeled in Rhino, then algorithmically sliced in Grasshopper into vertical sections for CNC cutting and assembly. Decorative elements, such as headdresses, were cut from thin steel sheets for easier shaping and manipulation.



Construction phase

The most significant challenge was the on-site installation. Achieving precise connections between modules required exact alignment, and while most fit perfectly thanks to the digital model, a few mismatches

were resolved manually. Welding followed structural standards, and tools ranged from CNC machines to conventional grinders and hand tools, reflecting both high-tech planning and hands-on craftsmanship.



Construction phase

Commissioned by Comfenalco for a theme park dedicated to myths and legends, the monument took a year and a half to complete. Beyond its impressive scale and engineering, it stands as a personal milestone: a monumental creation born from the combined artistry of a father and the technical expertise of his son, uniting cultural memory with contemporary design methods.



The Monumento Pijao Ancestral is a 13.6-meter steel sculpture created by artist Edgar Varón Oviedo and Edgar Daniel Varón Villarreal

“For us, it was a great honor to be part of this,” says Daniel. “Even more so for my father, whose dream was to create something of this scale. Today, with more tools and knowledge, we could approach it differently, but the fact that we built it with our own resourcefulness gives it a special meaning.”

CREDITS

Edgar Varón Oviedo – Artist

Edgar Daniel Varón Villarreal – Architect

Photos courtesy of Carlos Pinilla