MARCHING CUBES

Interactive performances and installations. Created by assembling modular units derived from a historic graphics algorithm. 3D printed polylactic acid (PLA), neodymium magnets, cold-rolled steel plate.

In 1987, researchers at General Electric pioneered a method for generating computer graphics from medical scan data that featured an underlying language of faceted cubes. Widely adopted, “Marching Cubes: A High Resolution 3D Surface Construction Algorithm” has become a seminal visual language for virtual environments.

I wanted to make this computational procedure tangible, into something we could build with. I translated the algorithm into 3D printed construction units that allow us to act out its logic. I also created a user’s guide: input any object—a 3D scan or model—and a custom computer script outputs assembly instructions. Every Marching Cubes interactive performance and installation is unique; the units can make anything.

I build the assemblies in collaboration with my audience. Together, we perform the computer’s process. To date, we’ve created assemblies that explore architectural, anthropomorphic, and ecological themes. Sometimes, we simply play: with humans doing the work, the algorithm’s strict logic is optional. By enacting a ubiquitous algorithm in the real world, this project generates dialogue about how information technologies create the building blocks of contemporary culture.

The pages that follow document the expressive possibilities of Marching Cubes.

jessecolinjackson.com/portfolio/marching-cubes
Marching Cubes
Marching Cubes
Marching Cubes Assembly #18 (After Bunshaft)
Marching Cubes: Boris
Marching Cubes Assembly #28 (Gravity-Inflected Spherical Void)
Marching Cubes: Son of Boris
Marching Cubes: Daughter of Boris
Marching Cubes: 1987
Marching Cubes 1728
Marching Cubes Watershed #1: Laguna Beach, After Haliburton, 1936  (If I Had a Million Dollars, I Wouldn’t Change One Inch of It)