Joris Laarman at High Museum of Art in Atlanta

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As part of Modern by Design, a group exhibition opening in June at the High Museum in Atlanta, the Dutch designer shows visitors how things might be made in the future.

Some designers push the frontier of new materials and manufacturing techniques more than others, but at the very front of the pack you’ll find Joris Laarman Lab. The Amsterdam studio has created Digital Matter, an installation that will be exhibited alongside Nendo’s Visible Structures as part of Modern By Design, opening June 4 at the High Museum of Art in Atlanta. Following the developments in digital materials being pursued at Cornell University and MIT, under the auspices of DARPA (the Defense Advanced Research Projects Agency), Laarman has created a series of Rococo-inspired tables made from tiny particles assembled by robots. For the exhibition, one-centimetre-square cubes, called voxels (for volumetric pixels), will be used to create on-site what Laarman calls his “low res” table, giving visitors a glimpse into the digital assembly process. Two tables on display that use even tinier cubes will also be shown. Like higher-res images, the smaller the particles used, the greater detail the pieces show.

“Some of my works are sketches into the future, and others are more practical solutions or products,” says Laarman about the work. “This project would fit in the first category. You could say it’s a sort of science fiction, but it’s also real.”

As with Laarman’s other creations that emerge from sketches of the future, the depth of his ideas are not necessarily immediately apparent. Although the process is similar to building with Legos, the possibilities for digital manufacturing are so far over the horizon, they’re difficult even to imagine. A human could never create by hand what this sort of manufacturing can make.

One aspect of this process Laarman hopes to explore is the ability to send instructions via the Internet; essentially, a small digital manufacturing centre anywhere could produce the latest designs from basic local materials instantly. “Most design still aims at reaching the lucky 10 per cent of the world,” he says. “But now we want to develop these fabrication systems all over the world and contribute to the open design movement. In the end we hope in a few years everyone can afford good design that’s locally fabricated for local prices.”

But what really sets digital manufacturing apart is the nature of the resulting materials. Voxels that have different qualities – such as electrically conductive or insulating, rigid or flexible – can be combined like cells in a living tissue, creating new materials with customizable properties. Like Laarman’s tables, these objects could be repaired, adapted, or broken down and reassembled without waste. On a nano-scale, digital matter could be used to create objects with science-fiction properties. As Laarman explains, “Recent developments in the field of nanotechnology show a future where materials are not static anymore, but can be re-modelled over and over again .... Also shown with our installation is the development of non-static self-assembling materials. One could upload a design to a certain amount of basic material and it would organize itself into that design.”

While consumer applications for this technology have not yet made the leap to production, the possibilities set the imagination racing. In Laarman’s words, “We are telling a story, giving people a peek into the future.”

In addition to Digital Matter, Laarman will also showcase Bone Chair and Leaf Table; also on display are Nendo’s Visible Structures and Cabbage Chairs. This exhibit also showcases 148 objects by 121 designers drawn from the MoMA’s collection, including pieces from Charles Eames and Eero Saarinen. The exhibit runs June 4 through August 21. high.org