

HOMO EX DATA

Design in the Age of Big Data

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reddot edition

Dirk Schumann

Inspiration from the digital world

The use of digital tools and planning methods not only changes the possibilities for the producibility of things, it also has an inspiring effect on the design of our world. The influence of these new tools significantly changes the appearance of our cities and of the products around us.

The aesthetic of mathematics

The way we handle digital tools influences the basic design process. The mathematical operations within a software, such as Boolean operations or free curves in space, further promoted inspiration in the design process and changed the appearance of things accordingly. All of these changes are ultimately based on mathematical foundations and mathematical rules. There has always been a direct relationship between mathematics and aesthetics, as can be seen in the Fibonacci sequence, the golden ratio or the Platonic solids. But these aesthetic objects stem from more analogue research methods.

Inspiration from the mathematic world

In the 1970s, mathematician Benoît Mandelbrot discovered the famous Mandelbrot set. In its graphic expression, it presents as a highly aesthetic and inspiring object showing self-repeating structures, variations of which also appear in

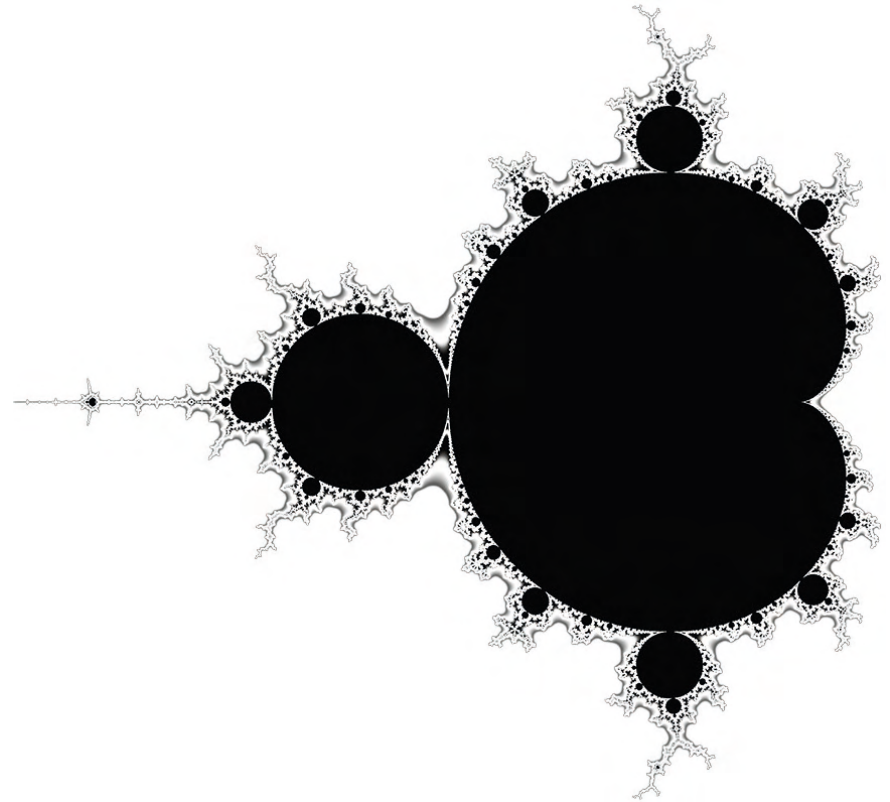
natural structures. Due to the computer capacities at that time, the set – or the related Julia sets – could only be looked at in two dimensions.

In 2009, due to a massive expansion of computer capacities, Daniel White and Paul Nylander developed a formula that could also describe the spatial characteristics of such mathematical objects. Objects of this type are called Mandelbulb. An immeasurable number of forms have become possible, which can influence – and indeed do – all areas of design.

I'd like to concentrate on the inspiring influence of such mathematical structures rather than their immediate physical, geometric usability. Analogies between these Mandelbulb structures and current design concepts might show in the architecture of the Louvre Abu Dhabi by Jean Nouvel. It's also quite tempting to think of jewellery design in this context. The generating processes do not exclusively relate to the geometric appearance of the objects. They also assign colour subdivisions to the subareas of these sets, which in turn can have an impact on colour concepts in fashion, graphics, or material and surface design.

Dirk Schumann, born in 1960 in Soest, studied product design at Münster University of Applied Sciences. In 1992, he founded his own design studio "Schumannndesign" in Münster, developing design concepts for companies in Germany, Italy, India, Thailand and China.

Dirk Schumann has taken part in exhibitions both in Germany and abroad with works that have garnered several awards, including the Gold Prize (Minister of Economy, Trade and Industry Prize) and international design competitions like the Red Dot Design Award and the Good Design Award in Chicago and Tokyo. In 2015, he founded Schumann&Wang in Xiamen City, the Chinese subsidiary of Schumannndesign.



Mandelbrot Set