

Computational design

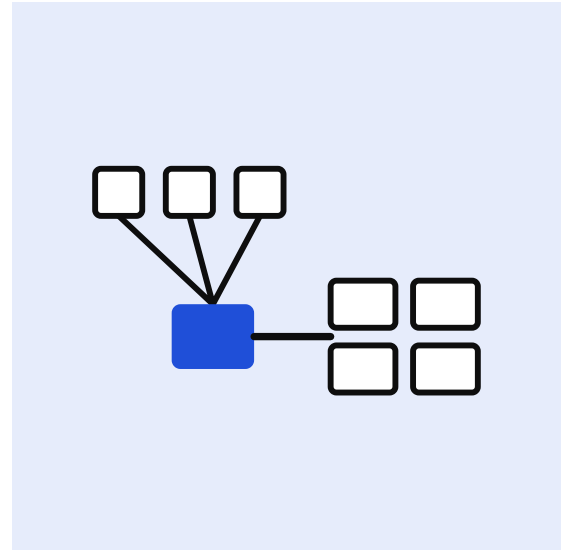
Designs by defining computational processes (rules, parameters, data and simulations) that generate and evaluate solutions, instead of drawing each form by hand.

In Spanish

Diseño computacional

Origin

Spread by Maeda (1999) and Menges and Ahlquist (2011)



What it deals with

Some problems have too many variables to solve by drawing: computation makes it possible to explore and compare many options.

Principles

Design the process

You define rules; the form comes from them.

Simulate

Test the behavior before building.

Explore variants

Generate many options and choose with judgment.

Applications in design

✓ Use it like this

Use it when there are many variables to balance or many variants to produce.

✗ Avoid

Confusing it with using a drawing program.

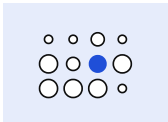
👁 Don't fall for it

The algorithm also has assumptions: check which criteria you gave it.

Especialidades



Specialty
Algorithmic design
Uses algorithms as a design tool to explore forms that are hard to imagine by hand.



Specialty
Generative design
Writes rules that generate many variants of a form, instead of drawing just one.

Connections

Related to

- Industrial design
- AI design

Authors and works

1999	John Maeda	Taught visual designers to program with a simple language made for them.
2011	Achim Menges and Sean Ahlquist	Collected the foundational texts of computational design, from mathematics to biology and systems theory.

Sources

Original sources

- Maeda, J. (1999). Design by numbers. MIT Press.

Academic reviews

- Menges, A., & Ahlquist, S. (Eds.) (2011). Computational design thinking. Wiley.

Last reviewed: October 25, 2026