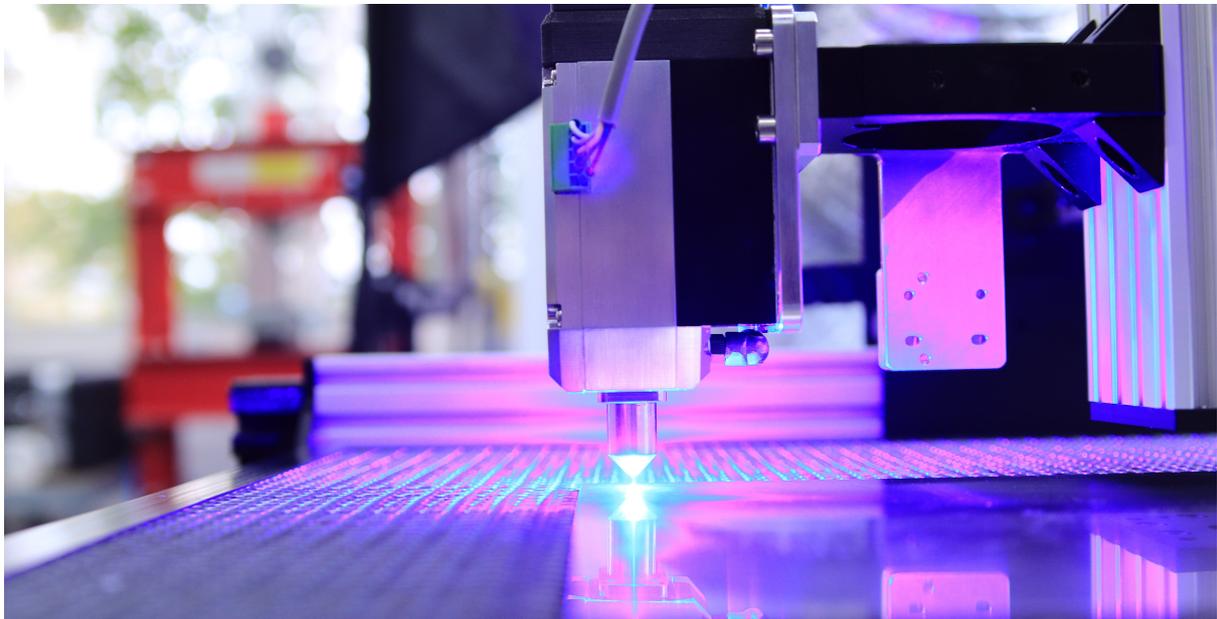


# Generative Design

# An Untamed Revolution

**D**o you remember the Iron man aka Tony stark and the Avengers gang, on a time heist to undo the deadliest act of Thanos. And that wouldn't have been possible without a TRAVEL GADGET....

Artificial Intelligence, Friday, made it possible for them



*Photo by [Opt Lasers](#) on [Unsplash](#)*

## **Confused?**

Digitisation has touched almost every industry. To cope up with its fast-moving pace, you need a foundation that would be quick, easy, and bring fruitful results. Alike other industries, design engineers needed a tool that would make their life easy and is as effective as it has to be.

The question is, *“Is there, a tool or technology that could achieve this?”*

You could say, yes, we have computer-aided designs [CAD]. Let me ask you, was CAD sufficient? Hmm! CAD has its own limitations, and in order to have a tool that could learn and generate effective results, design engineers needed

more. And that's when a new design paradigm was born, popularly known as Generative Design [GD].

Let us go back to the movie scene and see what Iron Man and Friday did? Friday used the power of GD to build the gadget. What is it that GD brings to the table? GD streamlines the iterative process of creating numerous designs, selecting and fine-tuning them. The modern design methods are using GD to create new designs or redesign the existing ones.

## A stepping stone in design modelling

In the era of traditional engineering, designs were created by humans. The process used human knowledge, resource availability, and the facts that worked in the past. It was prone to errors, took a lot of time, and strenuous.

Over a period, the manual process became obsolete and the design industry moved towards automation.

Then came the era of CAD, which brought effective, accurate, and faster deliveries. Right from the 1980s, CAD ruled the design vertical and dominated in electrical engineering, mechanical engineering, and construction space. Having said that, CAD had a limitation to learn. The need for the time was a technology that could be human-like.

The ability to learn played a pivotal role in human evolution. A similar wave was seen in the design space when advancement was made in the field of Artificial Intelligence [AI]. AI helps in building machines that are intelligent.

### ***How can machines be intelligent?***

AI helps the machine to think and act like humans. In simple words, it gives the ability to process the ideas, evaluate them and then act accordingly. The ability to perform human-like functions by using AI induces analytical and research capabilities in a machine. Using these capabilities a tool can study data related to decision making, selection and produce fruitful results.

It would sound like a lot of work, but using modern design tools is a lot easier. You provide a set of instructions to the computer for example the goals, parameters on which the design should be based like dimensions, material, and constraints. That's it, the computer takes care of the rest.

Yes, Its that simple...

Generative Design with AI as foundation, gave birth to the era of innovation. It brought techniques like Additive Manufacturing and 3D Printing to the table. With the help of these techniques, you can design your wildest imagination.