

## 3D PRINTING AND DESIGN REFERENCE DOCUMENT

<b>Document Title:</b>	Document Title
<b>Document No.:</b>	1716486150
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### REVISION HISTORY

Revision	Details of Modification(s)	Reason for modification	Date	By
0	Draft release	Document description here	2024/05/23 17:42	jattie

# History of 3D printing

The fascinating history of 3D printing, from its inception to the remarkable developments we've witnessed over the years.

## Inception & Early Innovations (1980-1995)

The journey begins in 1981, when Dr. Hideo Kodama at the Nagoya Municipal Industrial Research Institute published groundbreaking research on a technique he called "rapid prototyping." His work described a layer-by-layer approach intrinsic to 3D printing. Although Dr. Kodama missed the patent deadline, his research laid the foundation for what was to come<sup>1</sup>.

Before this, hints of stereolithography-like processes appeared in earlier research papers from the 1960s and 1970s. In a satirical 1974 New Scientist column, David Jones (writing under the name Daedalus) humorously described the SLA process, unknowingly foreshadowing its future impact<sup>1</sup>.

## The Journey to Democratization (1996-2009)

During this period, 3D printing evolved from an industrial process to a tool accessible to a broader audience. Key milestones include:

- **1984:** Chuck Hull invented Stereolithography (SLA), founding 3D Systems and releasing the first 3D printer, the SLA-1, in 1987.
- **Late 1980s and early 1990s:** Other 3D printing technologies emerged, including Fused Deposition Modeling (FDM), Selective Laser Sintering (SLS), and PolyJet. These methods used different materials and techniques to create 3D objects layer by layer.
- **Democratization:** The expiration of critical patents in the 2000s and 2010s led to the rise of low-cost and open-source 3D printers like RepRap and MakerBot. These affordable machines made 3D printing accessible to hobbyists, educators, and small businesses.

## FDM & SLA Patents Expire (2009-2014)

- **2009:** The expiration of key patents, particularly those related to FDM and SLA, triggered a worldwide

democratization of 3D printing. Suddenly, enthusiasts and professionals alike could explore this technology without barriers.

- **2015-Present:** The journey continues with exciting developments in metal 3D printing, bioprinting, and even construction. We've witnessed mind-bending advancements that push the boundaries of what's possible.

From rapid prototyping to organ printing, 3D printing has transformed industries and sparked creativity worldwide. It's a testament to human ingenuity and the power of layer-by-layer innovation.

## References

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Last update: **2024/07/17 17:00**

