

# Liquid metal 'Terminator' robot inspires 3D printer

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A terrifying killer liquid metal robot from a blockbuster "Terminator" science fiction film has inspired what was heralded here as a revolution in 3D printing.

Chemist Joseph DeSimone was at the prestigious TED Conference on

Tuesday with a [new-kind of 3D printer](#) that let creations rise from pools of molten liquid in much the way the dreaded T-1000 robot from the second "Terminator" film rose from a silvery puddle.

"We were inspired by the Terminator 2 scene for the T-1000," DeSimone said.

"Why couldn't you have an object rise out of a puddle in real time with essentially no waste?"

DeSimone and co-inventors developed a technology they call Continuous Liquid Interface Production (CLIP) that harnesses powers of light and oxygen in a printer that brings designed objects quickly into existence from small reservoirs of elastic material with sophisticated properties.

"We have a reservoir that holds the puddle like the T-1000," DeSimone said as he demonstrated CLIP on stage at TED.

Printing finished parts at speeds competitive with current manufacturing processes is "a game changer," he told AFP.

Current 3D printers rely on spraying layer upon layer of material, slowly building objects over the course of many hours. The time taken by such printers means it is not feasible to use resins that change chemically before the printing is finished.

"3D printing is actually a misnomer; it is actually 2D printing over and over again," DeSimone said.

"There are mushrooms that grow faster than 3D printed parts."

CLIP is 25 to 100 times faster than traditional 3D printers, and uses synthetic resins with mechanical properties strong enough to make them

finished parts, according to DeSimone.

He saw the technology transforming manufacturing from cars, planes, and turbines to dental or surgical implants customized to patients during procedures in medical clinics.

CLIP is aimed at commercial manufacturing operations. Prototypes are being tested by an auto company; an athletic apparel maker, a Hollywood design studio and an academic research lab, according to DeSimone.

"We can now use chemistries that no one else has been able to tackle, and that gives rise to great properties," DeSimone said.

"I don't know if we will have the T-1000. We are not there yet."

DeSimone and his co-inventors have set up shop in Silicon Valley and will be ramping up for production within a year, but had yet to determine a price for CLIP printers.

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