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Corey has a keen interest in 3D printing and all tech-related news, as well as the wider impact of additive manufacturing.

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2016 review: Divergent Blade, ULTEM drone, Laika Studios and Bloodhound SSC

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As we say goodbye to 2016, here's a round-up of its 3D printed best bits and a look at what I would like to see in 2017 as well as what I'd really like not to see (3D printed meat).

ULTEM used to 3D print a drone with embedded electronics.

Perhaps my favourite story of 2016; University researchers in Singapore managed to 3D print a drone with embedded electronics. The researchers at Nanyang Technological University (NTU) used Stratasy's 3D printers and the advanced ULTEM 9085 material in order to print the quadcopter. Phillip Keane was the man who produced the device as part of the Singapore Center for 3D Printing (SC3DP) at NTU.

ULTEM is a material used in the aerospace industry due to its strength and lightweight nature and means the drone can support up to 60kg of weight. In order to create the drone

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electronics were modified to withstand high temperatures.

Electronics were modified in order to withstand high temperatures and then placed inside the print at different stages of the fabrication process. Temperatures during the print needed to be a minimum of 160°C for the advanced resin. Only the motor and propellers needed to be fitted following the 14 hour print with just three pauses required to embed electronics.



Philip Keane holding his 3D printed creation. Photo via NTU.

Laika and stop motion

Another interesting story involved Laika studios releasing their stop-motion masterpiece *Kubo and the Two Strings* this year and it was revealed that they used 3D printing in order to create millions of possibilities. The figure of Kubo used in the film had 11,007 unique mouth positions, 4,429 brow motions and a total of 23,187 different faces. This combined to make 48 million different possible expressions.

This was a really good use of 3D printing, and one that other studios are looking into as well such as the [Sainsbury's Christmas advert](#) that also used stop-motion. This kind of creativity is something I hope to see more of in 2017.



The character of Kubo in his many 3D printed forms. Photo by Ryan Waniata for Digital Trends.

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A photograph of a modern, well-furnished living room. It features a light-colored sofa with patterned cushions, a coffee table with fruit, and a lamp. The room is bright and clean.

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3D printing at the LA Auto show - Divergent 3D

In November, LA hosted its annual auto show which showcased latest innovations in car automotive technology. The latest leap forward with 3D printing involved an updated version of [the Divergent Blade](#), the 3D printed super car. The show also featured Jaguar, who have themselves introduced 3D technology into their manufacturing process. In order to recreate the classic Jaguar XKSS model they used 3D scanning to create 3D models.

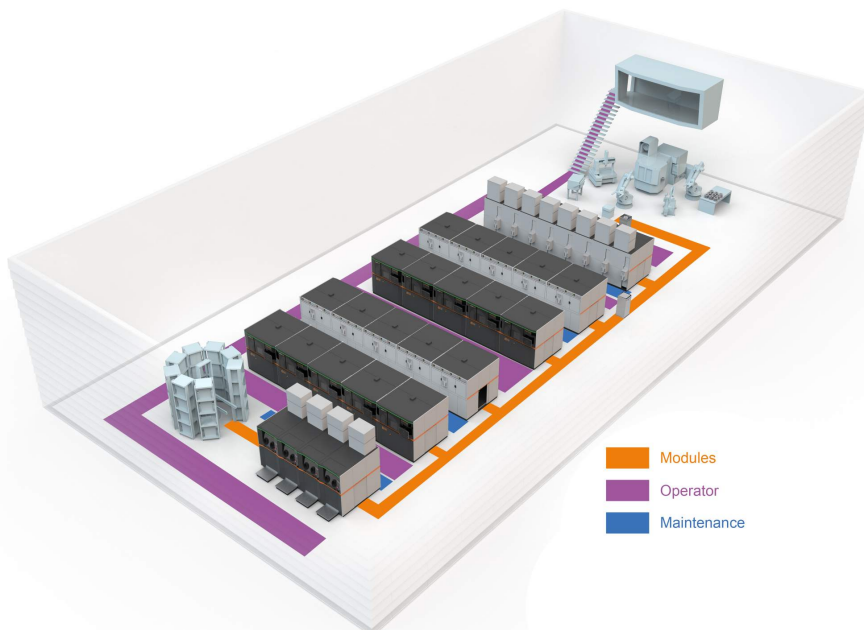
The fully functioning Divergent 3D can be considered a super car in more ways than one, it can reach 60 miles per hour in just 2.2 seconds and has 700 horsepower contained in it's 3.0 liter V8 engine. So, moving into 2017, perhaps more 3D printed supercars.



The Divergent Blade at LA Auto Show 2016. Image credit: C.C. Weiss/New Atlas

What I'm looking forward to seeing in 2017

In 2017, I am looking forward to the [progress of the Bloodhound SSC](#) as it is a crucial year for the project with initial testing being made in July before they head to test on the South African location at the end of the year. Also, the ['Factory of the Future'](#) being lauded by Concept Laser is something I am also looking forward to see progress with efforts to include automation into factories.



Graphic showing production method in the 'AM Factory of tomorrow'. Image via Concept Laser

What I don't want to see in 2017

It was reported this year that Australia's Meat and Livestock Australia (MLA) have picked up on the idea of 3D printing food and are planning to 3D print red meat in an effort to: reduce waste, increase value of off-cuts, and reduce processing costs. Involving the off-cuts of beef, this is something I'd rather not see in 2017. (Ed's note: well that limits where I can take you out for lunch next year!)



A 2D printer printing a steak, an unlikely vision of the future. Image via Freerepublic.

These were my favourite stories of 2016, vote for your favorites in the Annual [3D Printing Industry Awards](#) here.

Featured image of *Divergent Blade's* 3D printed chassis. Image credit: C.C. Weiss/*New Atlas*

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