EDU463551

Hello from the Other Side: What It's Really Like Living with Fusion 360

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Learning Objectives

- Evaluate if Fusion 360 is a CAD tool suitable for use in your organization.
- Explore best practices for deploying and using Fusion 360 in an organisation like a large educational institution.
- Learn how Fusion 360 can unlock unanticipated benefits within an organisation.
- Gain an understanding of how CAD is taught, and the skills and working practices future engineers will bring to organizations.

Description

This industry talk will begin by describing where we were back in 2017, how we came to find out about Fusion 360 software, and the decision-making process we went through when converting to using Fusion 360. In 2017, our students were stuck to a desk in our "CAD suite" using a competitor product, "collaborating" with USB sticks, and finding creative ways to get around the limitations with "locked down" educational software. The talk will present some case studies detailing the impact Fusion 360 has had on certain workflows and teaching methodologies, as well as some fundamental details of how we deployed the software successfully and are now able to teach more than 300 novice engineers a year how to use the software. During each year that we have subsequently used Fusion 360, we have been able to refine our approach to teaching and using the software on a daily basis, and during the talk we will share some of the best practices and teaching materials we have created.

Speaker(s)

Simon is an Associate Professor of Engineering in School of Engineering at the University of Warwick. He teaches core Engineering Design to all first year students as well as supervising third and fourth year design projects. He is academic lead for Warwick's Engineering Build Space and head of the Digital and Material Technologies Research Lab.

Example Projects

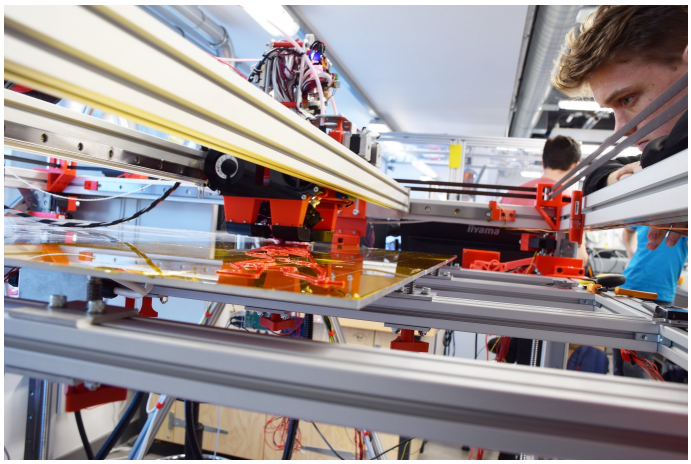
Videos of the projects in action can be seen at: **https://youtu.be/GV_dk4wlfS0**

Thinking Big and Printing Big at the University of Warwick

When a group of finalist Engineering students decided to build a 3D printer, they knew they wanted to go big and they knew they needed software that was going to match their ambitions.

Their goal was to build a giant 3D printer capable of printing parts up to a metre in width and height. They designed the whole 3D printer from scratch, including a novel print head capable of depositing polymers at incredible speed, which meant they could print parts that would have normally taken days, in only a couple of hours. “Fusion 360 really was indispensable for us, it meant we could collaborate easily while designing and manufacturing all the parts using just one piece of software”, said Matt Oosthuizen, a Manufacturing and Mechanical Engineering student on the project. The students were able to design and iterate every part using Fusion and according to Dr Chris Purssell, their project supervisor, “they were designing and machining parts seamlessly”. The printer, based in the University’s Engineering Build Space will now be a permanent feature in the facility for future cohorts of students to use.

You can hear more about the innovative ways in which students are using Fusion 360 at the University of Warwick in the Autodesk University talk ‘Hello from the Other Side: What It’s Really Like Living with Fusion 360’.



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Successful First Test of 3D Printed Autonomous Racing Vehicle

A group of students from the School of Engineering at the University of Warwick have successfully completed the first test of their new autonomous racing vehicle. Designed from the ground up and built in just four months by the team of seven students, the vehicle was designed in Autodesk Fusion 360 and made almost entirely using 3D printing with readily available components, making it quick to manufacture whilst keeping it lightweight and fast.

The car, powered by an electric motor and roughly the size of a go-kart is designed to navigate a race track autonomously without a driver on board but with a human driver able to take over remotely for part of a race. The brains of the car are a Jetson Nano, a low-cost embedded computer designed for power efficient Machine Learning applications.

The test, at Fullbeck karting circuit near Grantham saw the team's vehicle autonomously navigate sections of the track based on an algorithm that uses a Deep Learning model that had been previously trained using a publicly available dataset typically used for city navigation applications (https://www.cityscapes-dataset.com/). Further work is now under way to improve the system and hand over complete control to the vehicle for a subsequent full speed test run.

With increasing interest in electric and autonomous vehicles and now that the team have demonstrated the design and manufacture of a car in this way and in such a short space of time, they hope to launch an accessible race series. They hope that demonstrating the use of 3D printing and readily available components to make a car will keep entry and running costs down and the series as accessible to as many people as possible.

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