The Genius of 3D Printed Rockets

Relativity Space, a 5 and a half year old startup, has built the world's largest 3D metal printer with the aim of printing an entire rocket in just 60 days. There are several advantages to using 3D printing for rocket parts: the four major systems – payload, guidance, structural, and propulsion – make up the bulk of the rocket and the roughness of 3D printing only adds 5-10% extra mass. Omaze is offering a chance to win a trip to space at the end of this video, so be sure to check it out! Relativity Space plans to launch their first rocket this year and it's incredible that something that looks 3D printed can fly – perhaps the only type in the world!

Aerospace companies have been using metal 3D printing for over a decade to construct small complex parts that are thinner than their diameter compared to a Coke can. This 3D printing process uses metal powder and lasers which produces stronger materials than traditional techniques. With 3D printing, engineers can quickly build, test, redesign and print again, making it an invaluable tool in the development of the Space Shuttle main engines and our next rocket, Terran R. Additionally, there is no fixed tooling in our factory anymore, allowing us to build dragon-fly wing type structures as ordinary structures with much fewer parts than the hundreds of thousands to millions of individual parts used in the Apollo era.

Relativity Space is focused on advancing 3D printing technology to create a factory of the future that can be shrunk down to launch and build an industrial base on Mars. The company is now the world experts on 3D printing rocket hardware, making it possible and cheaper for people to go to space. To further this mission, Omaze is partnering with Space for Humanity to offer a once-in-a-lifetime opportunity: two seats on one of Virgin Galactic's first commercial space flights estimated to take place in early 2022. Enter at Omaze.com/veritasium for your chance to win and play a part in expanding access to space and training global leaders.