

Singapore Centre for 3D Printing is Top 3D Printing Research Lab in Asia Pacific

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At the Singapore Centre for 3D Printing (SC3DP), researchers are developing the latest 3D Printing technologies in various fields such as aerospace, construction and biomanufacturing. Let's take a deeper look at what kind of technologies are being researched at this facility.

SC3DP was established a decade ago in 2014 with the funding and support from the National Research Foundation (NRF) of Singapore. The center is located inside the campus of Nanyang Technological University (NTU), one of Singapore's top universities. According to All3DP, a leading magazine in 3D printing, SC3DP is the top 3D Printing research lab in Asia Pacific and 7th worldwide. Currently, there are more than 120 researchers hailing from 16 different countries around the globe under the center, out of which 3 of them are top 1% researchers and 25 are top 2% researchers in the world. The center is also heavily involved in international collaboration with countries worldwide including the United States, China, France, Brazil, as well as many others, with both research organizations and industry partners. There are several collaborative efforts with Japan as well, such as the joint research lab with Obayashi Corporation for 3D printing in construction and collaborative research with Panasonic on 3D printing for electronics.

SC3DP is well equipped with numerous 3D printers of different types and sizes that are most suited for each field of research, since 3D printing technology varies greatly depending on the field it is applied in. Some are specialized for printing concrete, while others are specialized for printing food, artificial skin, and many other types of materials.

1) 3D Printing of Concrete

Out of all the 3D printers which were showcased, the biggest was the 3D printer for construction. According to the researchers, it is able to 3D print a full room in merely 12 hours or so. By optimizing the density and lattice structure of the concrete through 3D printing technology, it is possible to reduce both the time taken and materials needed in construction by about 30%.



3D Printer for Printing with Concrete

2) 3D Printing of Food

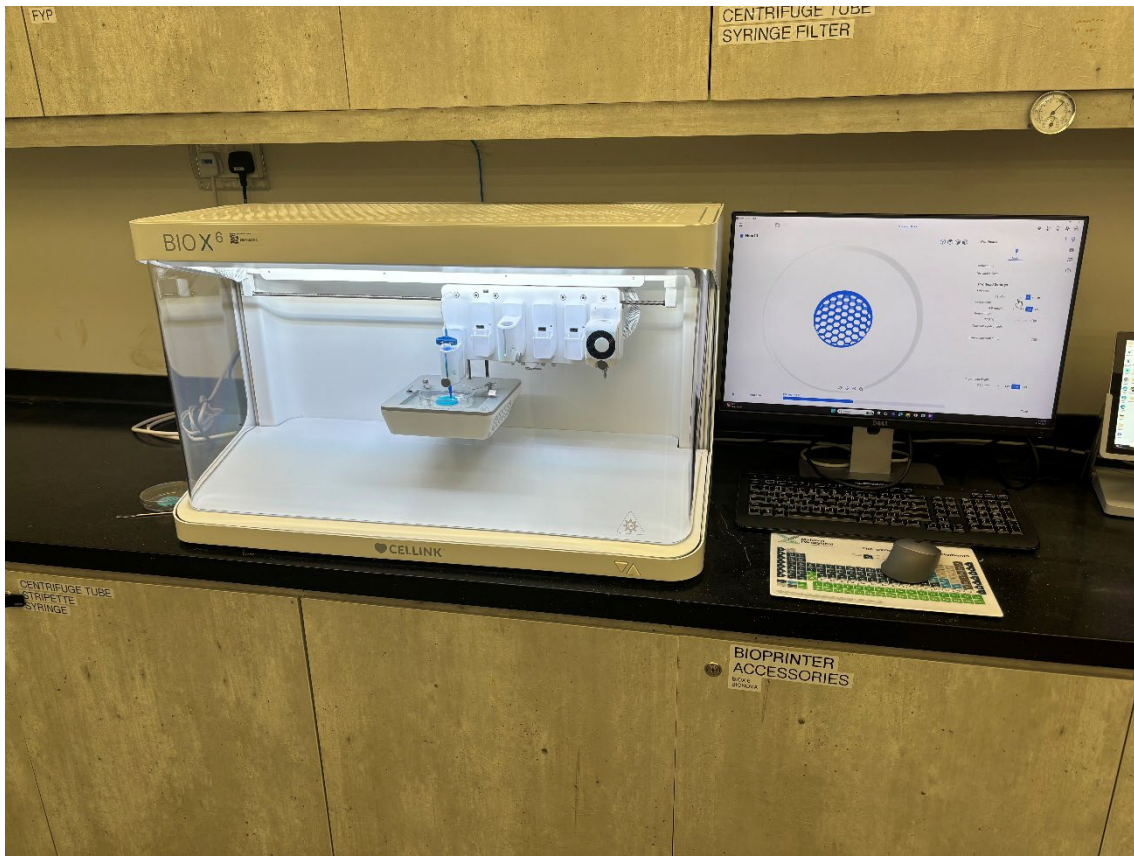
As the world population continues to rise, so does the demand for foods such as meat and grain, inevitably leading to a food shortage. 3D printing of food may become a key solution in solving this issue by providing alternatives to traditional food and increasing food supply. Researchers at SC3DP are studying the usage of cultivated cells taken from animals such as cows and fish in the 3D printing of food, but there is still a need to continue such research before the safety and taste of 3D printed food can be considered up to par.



3D-printed Food Samples of Salmon Fillet and Wagyu Beef

3) Bioprinting

The 3D bioprinter is capable of controlling the specific temperature at which biomaterial and cells are printed, simulating the environment at which these cells usually function. By using 3D bioprinting technology, researchers have been able to print artificial skin that can be used to aid in the treatment of burn victims. As bioprinting technology advances further, we may become able to 3D print artificial internal organs to save the large number of patients who are waiting for an organ transplant.



One of the Bioprinters at SC3DP

Besides these examples, 3D printing is also making waves in many other fields such as aerospace and electronics, making contributions to current research in a unique manner. In view of the limitless possibilities that 3D printing technology brings, I believe we can expect to see many more great applications in the future as well.