



**POTENTIAL:**  
Mr Fan Mingwei hopes to become a key player in the 3D bioprinting industry.

PHOTOS:  
NANYANG TECHNOLOGICAL UNIVERSITY

# He wants to print skin tissue for transplants

When he was 20, biotech whiz already had four 3D bioprinter patents under his company

Report by YVONNE PRIVITHA  
yvonnepa@sph.com.sg

**This biotech whiz has created a 3D bioprinter that can generate human skin tissues, organ tissues and other biological products.**

It is the first of its kind made in Singapore.

Mr Fan Mingwei, whose start-up is called Bio3D Technologies, already has four patents.

Not bad for a 29-year-old who took six years to graduate from his university. But taking the path less travelled is nothing new for the entrepreneur.

He started at age 14, providing services in web design and application development.

At 20, he registered his first private business where he continued his focus on web designing and software development.

The young entrepreneur enrolled at the School of Biological Sciences at Nanyang Technological University (NTU) in 2008, but deferred his education for six months in 2009 to pursue a business venture.

He went back to university in 2010 but took another break of almost 2 years to continue work on that venture. He returned to classes in 2012 but again took time off, this time to develop Bio3D Technologies.

He finally graduated on Monday – six years after he first enrolled.

“Regular 3D printing mostly uses materials like plastics and metals, but 3D bioprinting makes use of living substances like cells and bacteria,” said



**The 3D bioprinter is a breakthrough in 3D technology. In 10 to 20 years, we may even be able to print an entire kidney to be used for transplants.**

– NTU School of Biological Sciences Associate Professor Li Hoi Yeung

Mr Fan.

“It is a young industry, but in the future, I hope it can be used to print skin tissue for transplants and even bionic parts like biological hearing aids.

“Currently, 3D bioprinting is mainly used for medical research. The 3D bioprinter generates human tissues and polymers used for studying disease progression, drug testing and conducting toxicology studies.”

Mr Fan is in talks with local organisations and a few universities that have shown interest. He plans to lease out bioprinting systems to these groups for six months to a year, before going into sales.

## **COST**

The lease will cost from \$3,000 to \$10,000 a month while the cost of purchasing an entire system will be a “a few hundred thousand dollars”, he said.

NTU School of Biological Sciences Associate Professor Li Hoi Yeung sees great potential in Mr Fan’s 3D bioprinter. “The 3D bioprinter is a breakthrough in 3D technology. In 10 to 20 years, we may even be able to print an entire kidney to be used for transplants,” he said.

He had visited Mr Fan’s office once and was “very amazed” at what he saw, adding that Mr Fan exhibits knowledge that is “beyond many undergraduates”.

“I’m very proud of Mingwei. Not only has he received his degree, but he also launched his business and took a progressive step for technology in Singapore.”