

# Home

Bring Your Ideas to Life with

## 3D Printing Studios Asia

### 1 Printing, Infinite Uses

By Li Yen & Cindy Liew | Epoch Times Staff



Jason Joo - technopreneur and founder of 3D Printing Studios Asia - wearing a 3D-printed prosthetic limb.

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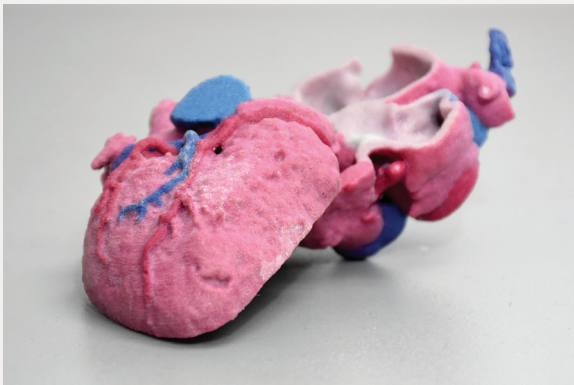


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3D printed figurine of Jason Joo (R).

3D printing can be used to make heart models based on Computed Tomography (CT) scan for cardiac surgeons to practise complicated surgery on.



With 3D printing, x-ray film can be converted to a digital file and printed out as a 3D model, which helps doctors pinpoint problems.



**Y**ou have printed documents in black and white or colour, but can you imagine printing a steak, a liveable house, rocket engine parts, prosthetic limbs, functional replica pistols, designer sunglasses, a two-seater car, a rowboat, clothing, or even a functional human organ? The rapidly evolving technology of additive manufacturing or three-dimensional (3D) printing has turned storybook fantasies into reality.

Projected as signalling the third industrial revolution, 3D printing is a process of making three dimensional solid objects directly from a digital file.

A 3D-printed object is created by laying down successive layers of material until the entire object is created. Instead of using ink, the materials can be plastic, porcelain, sandstone, wax, resin, wood, concrete, titanium, carbon fibre, gold, metal, transparent glass or even living tissue. The materials are deposited layer by layer as liquids, pastes, or powder and are fused using heat, light or laser.

With the emergence of this technological innovation, what possible changes could it bring to our lives and what are the opportunities?

Jason Joo, a technopreneur and founder of 3D Printing Studios Asia, and his wife Paulene Siew tell us more. With an MBA from the University of South Australia, Jason Joo has accumulated 17 years of corporate experience in the IT industry. Paulene Siew holds a Degree in Computer Science with Coventry University, UK, and a Master's degree in IT with Queensland University of Technology.

#### How It Started

Our trip to 3D Printing Studios at Burlington Square is an inspiring and insightful experience. We are entranced by an interesting 3D-printed figurine that sits on the shop's display shelf. "This is me," says Jason, his eyes twinkling with pride. "I was scanned and 3D-printed out. The original form was powder. It was printed layer by layer and colour was fused together during the printing. After that, we go through the post-processing process to glue everything together."

Established since 2012 in Australia by Stuart Grover and Howard Wood, 3D Printing Studios is

the leading pioneer and forefront 3D Service Provider in Asia Pacific. Singapore's 3D Printing Studios started operation in January 2015.

"In Australia, we are recognised as the first 3D printing retail shop. We are recognised in the world as the fifth 3D printing shop" Jason says.

The couple's fascination with 3D printing technology has led them to bring the 3D retail concept over to Singapore. "My partner wanted to bring this technology out of Australia. So we thought, why not Singapore?" Jason says.

The decision is a carefully made one. "The main reason for opening up in Singapore is because it is strategically located. We can provide services not only in Singapore, but also around ASEAN region or Southeast Asia," he says.

They aim to be the largest 3D Service Provider across the Asia Pacific region, bringing 3D technologies at an affordable price and making it more accessible to companies and consumers.

Companies, whether big or small, can leverage on the 3D printing technology and incorporate it into their businesses with help from a service provider. Jason explains, "Companies are thinking of how to incorporate the technology into their businesses, but they would also realise that 3D printing requires a lot of skills. That is when we come in as a service provider to facilitate the whole process. Besides investing in machines, we can also facilitate mastering the technology."

The couple also imparts the knowledge of 3D printing technology to their customers. 3D Printing Studios conducts a three-hour course at S\$125, which teaches students all the different technologies in the 3D printing world as well as hands-on modelling.

"At the end of the three-hour course, they will walk away with the part that they print on the spot," says Jason.

"The opportunity for us in Singapore is going to be huge as companies are opening up to accept 3D printing into their business," says Jason. "For ourselves, we hope to expand to have a network of studios. The end goal of the company is to be listed as the first 3D printing company in Asia."

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### About 3D Technology

With great enthusiasm, Jason talks about the development of 3D printing technology. "Back in the 1980s, 3D printing was invented by Chuck Hull. After finding the Stereolithography (SLA) technology, he discovered how he could commercialise this. That's why he set up 3D Systems with his partners. Today they are listed in NYSE and produce 3D printers," he recounts.

"It was an engineering tool. It was initially developed to help engineers prototype parts. Pretty early on, we kind of got a glimmer that it was going to have a broader application," said Hull in an interview with New York Times.

"Besides 3D Systems, there are many other companies like Stratasys of US-Israel collaboration and EOS from Germany. These companies make 3D printers. The reason why we exist today is because even if there are a lot of printers, you still need to know how to use them. Service providers like us will help bring the true value of the technology to the mass market," Jason points out.

"The future for us now is not 3D. We are actually talking about 4D; it's actually shape changing material, which changes according to the climate or temperature," says Jason with excitement.

### 3D Printing Technology Changes Our Lives

The benefits of 3D printing are amazing and potentially life-changing. The possibilities are limitless, according to Jason.

"The effect is all around us; it's just whether we investigate further. Companies like Apple, Samsung, Huawei are employing 3D printing technology too, just that they don't expose it," reveals Jason.

#### Food Industry

With a digital file, we could use foodsafe materials to print cookies, chocolate, confectionary, burger, pizza and even meat. The Italian food company Barilla has developed the world's first 3D-pasta printer – the machine can print out pasta in any shape.

And instead of buying raw meat, you can 3D-print meat that is more environmentally friendly and natural using animal tissues. However, it is still in the planning stages. "Honestly we think it's not there yet, because food deals with human life," says Jason.

#### Medical Industry

The use of 3D printing could save lives. 3D printing will bring many benefits to the medical industry, especially in the area of medical implants.

"Our bone structures and sizes are different, but with 3D printing, the x-ray film can be converted to a digital file and be printed out as a 3D model which facilitates doctors to pinpoint problems and plan operations more accurately. Imagine if they can do early detections with 3D printed models, they can save many lives," explains Jason.

For instance, 3D printing makes heart models based on Computed Tomography (CT) scan for cardiac surgeons to practise complicated surgery on.

Besides that, dental x-rays can also be 3D printed for detailed consultancy, and dental companies have been using 3D printers to create teeth for implantation. To our amazement, extension arms can be 3D printed and combined with the robotic part to form a functional limb.

In fact, 3D printed pills for medication are already available and approved by FDA.

The success stories of 3D printed prosthetic limbs and implants have propelled scientists to conduct further research on the possibilities of 3D printing technology for the medical industry – the latest vision is to print human tissues and organs. Integrating 3D printing technology in the biomedical field, functional organs for transplant can be printed from a patient's own cells. Other than 3D printing substitute organs, doctors can print tissue patches to repair damaged livers in humans.

#### Cosmetic Industry

Can you scan your face and create a 3D-printed face? It is workable. In the US, there are successful examples of doctors utilising 3D printing technology to create pros-



A 3D printed object is created by laying down successive layers of material until the entire object is created. The materials are deposited layer by layer, as liquids, pastes, or powder, and are fused using heat or light.

thetic faces for patients who had lost their faces after surgery.

Many activists are against animal testing. With 3D printing technology, it can shape the beauty industry. L'Oréal has begun to research on the possibility of employing the emerging technology to print living tissue types for testing, substituting research that uses laboratory animals.

#### Architecture Industry

Stratasys 3D Printing has enabled architectural firms to create complex, smooth, detailed architectural models faster, directly from CAD data.

"In China, they are talking about 3D-printed houses," Jason shares.

A 2,500-square foot house can be built in just 20 hours using a large 3D printer. It reduces cost and labour, while improving speed and flexibility compared to conventional construction.

"Let's say there is a tsunami. The printer can go to the location and print out the wall and everything, then assemble to form a house - that's the possibility of 3D printing," says Jason. "Even old artefacts can be scanned and kept. They can be reproduced if one day, they are destroyed."

#### Fashion and Design Industry

3D printing technology gives designers unlimited creative freedom. 3D printing would give hobbyists and enthusiasts the capability to turn their designs into reality.

Jason explains, "We did a project for a guy who wanted to print out an eight-carat gold ring. Imagine the possibilities for designers or jewellers to print out a few products in small quantities and sell. They design and give us the digital file, and we become more like their back-end manufacturing."

Paulene remembers a customer who had special cut-

lery printed for a special occasion. "Recently, a lady came to me and said she wanted to do a pair of bride and groom cutlery for her husband. She came in with a piece of paper, and from her sketches, I did the modelling and turned the design into a real object," she recalls.

"Our company's slogan is 'Bring your ideas to life'. It is true. The idea is yours, and we execute that idea to make it a reality," says Jason with delight.

3D printing is also slowly entering the world of fashion. Big brands such as Nike and Adidas are experimenting with the technology to create prototypes. Dutch Designer Iris Van Herpen utilises 3D printing to make customised Lady Gaga style clothing that are flexible and made to fit perfectly.

#### Aerospace and Defence

3D printing could also speed up and advance the building of planes and rockets. For instance, NASA prints combustion chamber liners using selective laser melting.

Military and defence manufacturers are also benefiting from the technology – they can customise the weapons and build complex, precise prototypes quickly.

#### 3D Printing Improves Businesses

3D printing improves efficiency, quality, and productivity in companies, and 3D Printing Studios is helping customers by leveraging 3D technologies in their business and making it a part of their competitive advantage in their respective industries.

Jason mentions that with 3D printing technology, companies no longer need to rely on suppliers and things can be made in-house.

"The advantage of 3D printing is that they can make something and test it out to see if it is suitable before printing the mould," he affirms.

"We helped a customer do a prototype after which they brought the model with them for a discussion with their customers. Apparently it is easier to communicate with their customers by showing an actual model in their hands rather than just showing a picture or video," he shares.

With 3D printing, the manufacturing process can be faster and the integration will be much better.

"Let's say if you design something in the morning, you can send it for 3D printing before lunch. Before you go back home, your product would be ready. That's how 3D printing speeds up the workflow."

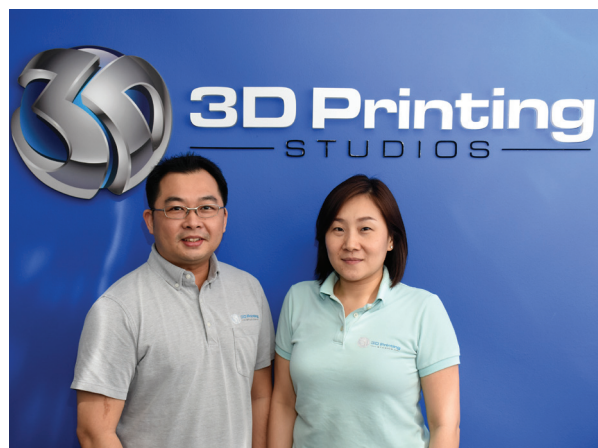
The materials for 3D printing is in powder-form and the wastage can be reused, unlike conventional manufacturing. In this way, it helps to eliminate waste and conserve the environment.

Usually, manufacturing cannot make objects of small quantities, but with 3D printing technology, it solves that problem.

"At the end of the day, companies are able to release products that are better, safer and more advanced. Their businesses will grow and they will gain a competitive advantage."

## The end goal of the company is to be listed as the first 3D printing company in Asia.

Jason Joo



Jason Joo - a Technopreneur and Founder of 3D Printing Studios Asia and his wife Paulene Siew.