



## 3D printed parts for custom-built motorcycles

GT Moto uses their Robo R2 3D printer for prototyping, functional testing, and creating final parts for custom-built motorcycles. By using 3D printers, GT-Moto significantly speeds up their iterative design and prototyping process to produce uniquely-designed finished parts.

"When we first saw a 3D printer and realized that we could put one on our desk and just design and immediately produce a part, we knew that was it. Motorcycle parts are typically small and can definitely fit on the R2. And I can actually afford it. It was perfect for us!"

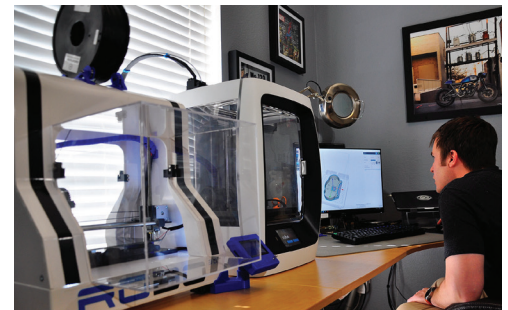
### DEVELOPING CUSTOM MOTORCYCLE PARTS USING 3D PRINTING

3D printing plays a critical role in the design cycle at GT-Moto, allowing Sofi and her team to expand their creativity to endless possibilities, whilst significantly reducing their design cycle times through the rapid prototyping benefits of using a 3D printing.

As a custom motorcycle shop located in Plano, Texas, GT-Moto immediately saw the potential that a 3D printer could bring to their business. The parts they wanted to design were unique, and both difficult and expensive to make using traditional manufacturing methods.

GT-Moto owner, Sofi Tsingos, developed her passion for motorcycles when she was a little girl, gaining inspiration from her father George when she would play with old motorcycles at his aircraft maintenance shop while she was growing up. After George was diagnosed with cancer, Sofi felt that the best therapy for her father would be to build a custom motorcycle together, in hopes to get his mind off of things. When the motorcycle was finished, they decided to sell it and donate over \$16,000 to St. Jude's Hospital. Every year, they continue to build one custom bike to raffle off and donate 100% of the profits to cancer research organizations.

"Our process before 3D printing required multiple costly and time-consuming CNC iterations which delayed completion of our custom bikes, but now we are much quicker, more cost efficient, and confident with Robo 3D printing."



### WHO

Sofi Tsingos, Owner at GT-Moto

Ross Freehling, Modeling Expert at GT-Moto

### WHERE

Plano, Texas

### BENEFITS

Ability to create custom parts at home, shorten design cycle, saves time, less materials wasted, cost reduction

### SECTOR

Small-Medium Business, Entrepreneurship, Innovation

### 3D PRINTERS USED



Robo R2



Robo R1+

## ENCOUNTERING ROADBLOCKS

When building their first custom motorcycle together, Sofi and her father encountered multiple challenges. Since they created their own designs, they would measure out a part that they needed, send it to a machine shop, get the part back, and then realize that the part did not fit. It was not the machinists' fault for the wrong dimensions but their own.

Going through multiple iterations not only delayed the completion of their motorcycle, but also incurred significant cost overruns. In some cases, some of the designs could not be manufactured, leading to further time delays.

## OVERCOMING CHALLENGES

Sofi first encountered a 3D printer when she was at a makerspace. This sparked her curiosity and she saw the immense value that 3D printing could bring to her business. Motorcycle parts are typically small and able to be produced on a 3D printer.

Listening to a recommendation from a friend, Sofi decided to purchase a Robo R1+ for a Christmas present to GT-Moto's design and modeling expert, Ross Freehling. She chose the R1+ primarily for its large build volume, affordable price, and flexibility with materials she could print with. Wanting to create parts that are original and unique, the 3D printer allowed GT-Moto to design and print complex geometries using extruded plastics. This allowed them to expand out their creativity and create something unique, while saving time and money.

"3D printing really makes it easy to take ideas and turn them into a physical item to place onto the motorcycle, in a matter of hours and at basically no cost. Since we were able to do this at our shop, we no longer need to deal with the high costs and slow lead times associated with outsourcing jobs. Plus lots of time has also been saved by not having to communicate back and forth during the prototyping phase."

## 3D PRINTS DIRECTLY TO PRODUCTION

GT-Moto recently upgraded to the Robo R2 for more advanced features, particularly its WiFi capability allowing the team to communicate with the printer across a variety of means. Their favorite material to print with is Robo's carbon fiber PLA since its texture and surface quality is perfect for the parts that they are printing.

Every part that they design and print is a solution to a problem that they face, whether it be engineering-related or aesthetic.

"3D printing technology is going to make a huge difference with how much less metal is going to wind up in the trash for us. And how many hours and hours we will save that previously were spent building something just to find out that it is garbage. Robo 3D printers are a game changer for GT-Moto."

To see the full GT-Moto story, including the video, check out:  
[Robo3D.com/robostories](https://robo3d.com/robostories)

## ABOUT ROBO

Robo is the future of 3D printing, and that future is now — whose goal is to give makers of all ages and skills levels the tools needed to help turn their passion into a physical reality, as quickly and as easily as possible.

Founded in 2012 by a group of students from San Diego State University, Robo delivered its first model to customers in 2013. Since then, the company has grown into a leading brand in the desktop segment of the 3D printing industry.

Robo is based in sunny San Diego and continues to improve the total experience of 3D printing with its diverse range of products — most recently with the launch of the Robo C2 compact smart 3D printer with Wi-Fi and the Robo R2 high-performance 3D printer with Wi-Fi.

[robo3d.com](https://robo3d.com)

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# robo



"With a print that is ready to pop right on the motorcycle, the Robo R2's quality can also be used as production ready for us."

	Traditional methods of CNC	3D printing
Cost per part	\$500-\$1000	\$1-\$25
Time saved	3-4 iterations take a few weeks	3-6 hours

