

## 'Superhero' 3D printed hands help kids dream in Argentina

June 23 2017, by Luis Andres Henao

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In this June 12, 2017 photo, Kaori Misue breaks into a smile in Buenos Aires, Argentina. Misue has a brand new prosthetic hand thanks to the genius of 21-year-old inventor Gino Tubaro and his 3D printer. Today, more than 500 people, mostly children, have received similar prostheses and 4,500 more remain on a waiting list. (AP Photo/Natacha Pisarenko)

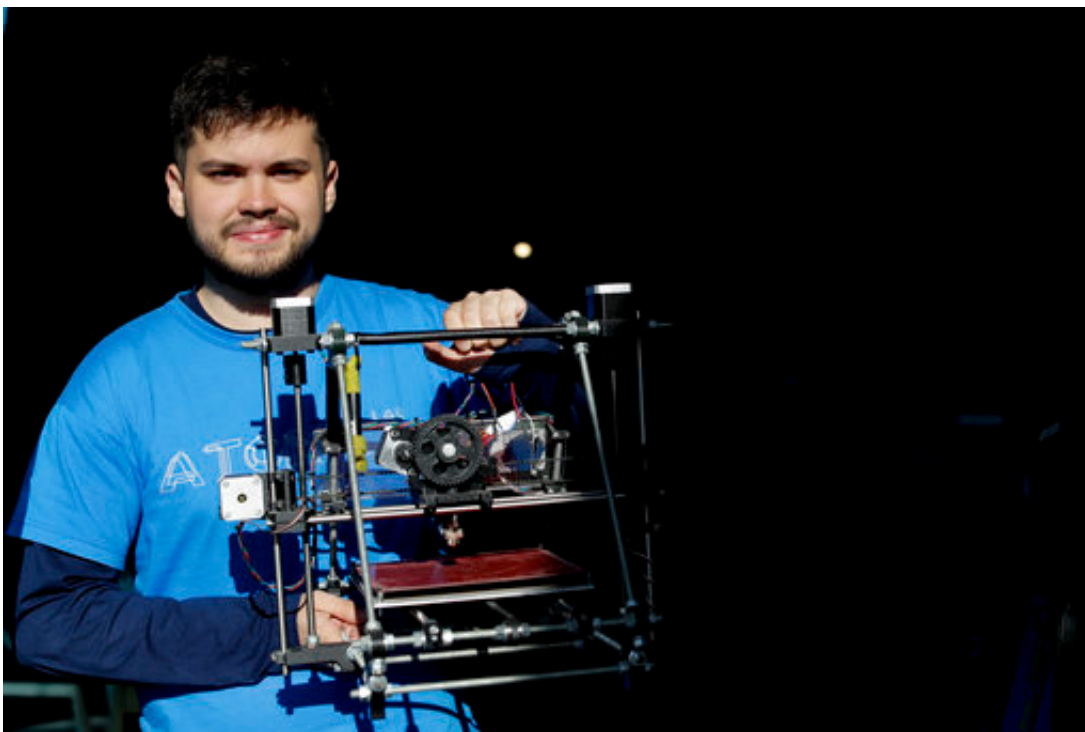
Being born without fingers can be tough for any child. Getting new ones—especially red and blue superhero themed digits—has made 8-year-old Kaori Misue a vibrant playground star.

Flexing her wrist muscles to bend the plastic fingers, she can work with tape and stickers at an arts and crafts class. She can ride a bike, skip a rope and bake pastries with her mom. Her amazed friends have even begged to borrow the 3D printed hand, which looks a little like a cheerily colored Transformers toy strapped to her wrist.

"It was magical," her mom, Karina Misue, said. "The confidence it gives kids is tremendous. They're using it with pride."

Hundreds of Argentine kids like Kaori who were born without limbs are now able to write, play sports and make music thanks to low-cost prosthetic hands devised by Gino Tubaro, a 21-year-old inventor whose work was praised by President Barack Obama during a visit to Argentina last year.

Tubaro's "Limbs" project is part of a trend of open-source 3D printing technology initiatives around the world. They include the nonprofit e-NABLE organization that groups volunteers to provide hands and arms to those born with missing limbs or who lost them to war, disease or natural disaster, and the Build It Workspace studio, which teaches people how to use high-tech printers.



In this May 30, 2017 photo, Gino Tubaro poses for a picture with the first 3D printer he invented in Buenos Aires, Argentina. Hundreds of Argentine kids born without limbs are now able to write, catch a ball or play a musical instrument thanks to the low-cost 3D prosthetic arms and legs created by Tubaro. (AP Photo/Natacha Pisarenko)

Growing up, Tubaro remembers breaking apart home appliances to try to turn them into new inventions. Instead of reprimanding him, his parents signed him up to a weekend workshop where he had free range to experiment. Along the way, he began earning awards for his designs.

When he began using 3D printers, the mother of a child who was missing a limb asked him if he could design a hand for her son. Tubaro delivered it in 2014, when he was still in high school.

Today, more than 500 people, mostly children, have received similar prostheses and 4,500 more remain on a waiting list. Basic designs are

custom modified to fit the needs of each user with the help of orthopedists.

The project uses volunteers around the world who own 3D printers to print the pieces and assemble and deliver the hands. They can cost as little as \$15 compared to sophisticated designs that are priced up to \$15,000. Some of the pieces can be interchanged to fit a specific purpose: from playing pingpong to grabbing a fork or riding a bike.



In this June 12, 2017 photo, Kaori Misue attends art class in Buenos Aires, Argentina. Misue was born without fingers but she is now a proud playground star thanks to her new 3D printed, red and blue superhero themed prosthetic digits. (AP Photo/Natacha Pisarenko)

If children outgrow a model, it can be easily replaced, perhaps with a

different theme. A black Batman design can hurl plastic disks. A red and gold Iron Man version can shoot rubber bands.

"It's a wonderful experience because we're getting photos of kids using the prostheses in Thailand, Mexico, Egypt ... doing things that they couldn't do before," Tubaro said about the project, which is partly financed by donations and award money.

"Seeing a kid wearing a hand from Iron Man, Batman or Princess (Elsa from Frozen) gives us so much pride," said Tubaro, who divides his time between the project and his second-year studies in electrical engineering at National Technological University in Buenos Aires.

Misue said she found out about Tubaro's project when she saw Obama praise his work on TV. She filled out a form requesting a hand at his [atomiclab.org](http://atomiclab.org) site and sent a photo of her daughter's hand on squared paper.



In this June 12, 2017 photo, Kaori Misue attends an art class in Buenos Aires, Argentina. Misue who was born without fingers can now flex her wrist muscles to bend the plastic fingers of her prosthesis, she can work with tape and stickers at an arts and crafts class. (AP Photo/Natacha Pisarenko)

Kaori wanted a light blue-and-white Princess Elsa model, but since they ran out of those, she got a bright blue and red one that she likes to match with her outfits.

"Now it's got these colors and it looks like Wonder Woman," Kaori said after she used her 3D printed [hand](#) to pick up a cupcake baked by her mother. "It's just missing yellow, but it doesn't matter because I can wear something yellow."

The walls of Tubaro's Atomic Lab workshop in Buenos Aires are decorated with printed drawings of hands by Leonardo da Vinci next to designs for Iron Man robotic hands. Microwave-size 3D printers are stacked on wooden tables next to containers filled to the brim with plastic for prosthetic hands. On a recent day, Tubaro answered emails and phone calls while he slurped noodles straight from a pot and finished printing a new prosthesis for a jazz trumpeter.

"Thanks to the prosthesis, I can communicate with my instrument much better. It's a total joy," said Juan Pablo Pelaez, 33, who lost his arm in a car accident at age 14.

"It's something that's good for your soul," Pelaez said. "Knowing that technology can help achieve these kinds of things is wonderful."



In this May 30, 2017 photo, Juan Pablo Pelaez stands in Gino Tubaro's workshop, as he waits for a 3D printer to finish a piece for his prosthetic arm, in Buenos Aires, Argentina. Tubaro organizes "Manothons" or hand marathons where he hands out prostheses to kids for free. (AP Photo/Natacha Pisarenko)

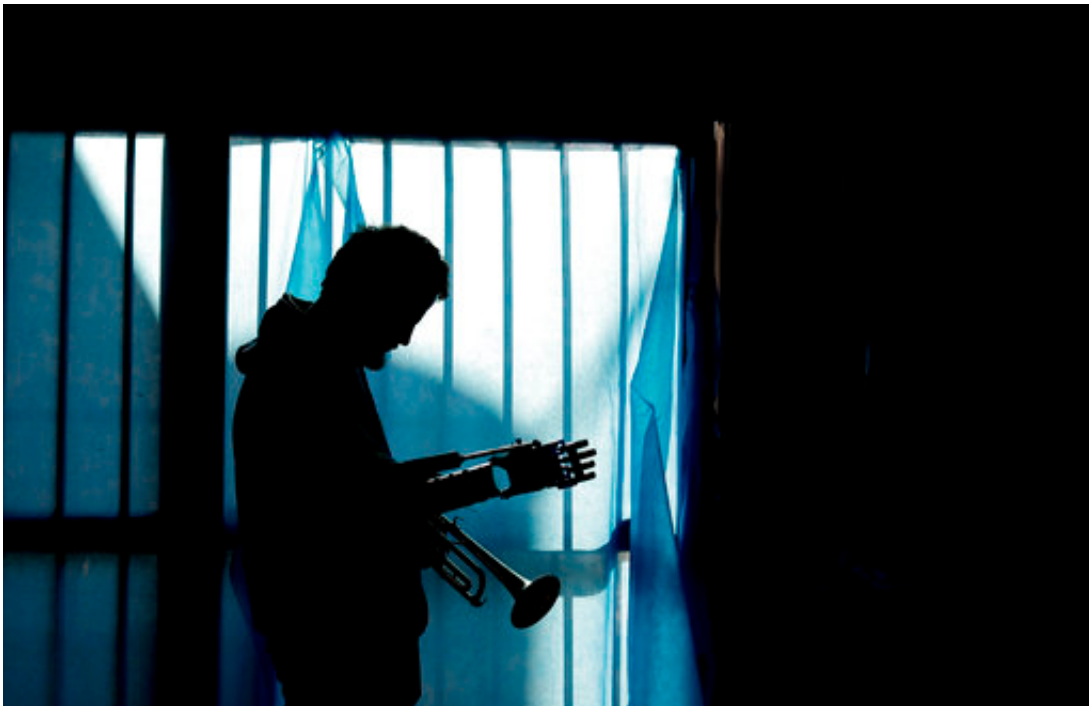


In this May 30, 2017 photo, Gino Tubaro, right, fits a prosthetic arm on Juan Pablo Pelaez in Buenos Aires, Argentina. Pelaez is now able to play his beloved trumpet thanks to the new arm. (AP Photo/Natacha Pisarenko)

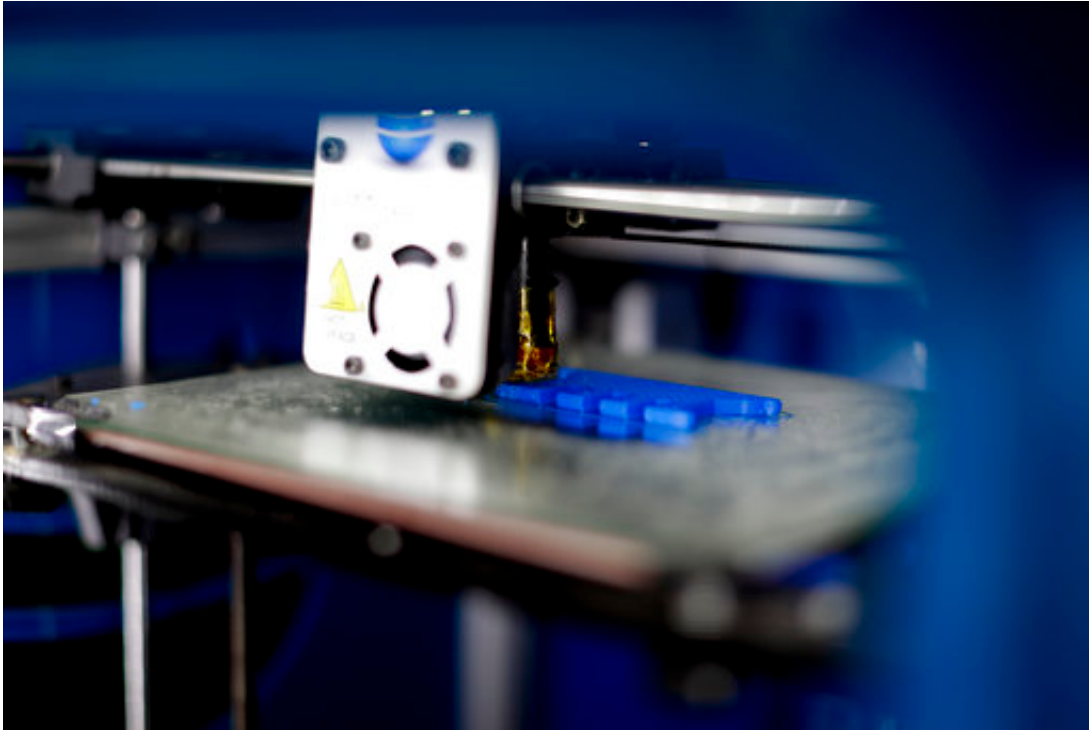




In this Tuesday, May 30, 2017 photo, Juan Pablo Pelaez plays his trumpet using his new prosthetic arm, in Buenos Aires, Argentina. "It's something that's good for your soul," he said. "Knowing that technology can help achieve these kinds of things, is wonderful." (AP Photo/Natacha Pisarenko)



In this May 30, 2017 photo, Juan Pablo Pelaez prepares to play his trumpet using his new prosthetic arm in Buenos Aires, Argentina. "Thanks to the prosthesis, I can communicate with my instrument much better. It's a total joy," said Pelaez, 33, who lost his arm in a car accident at the age of 14. (AP Photo/Natacha Pisarenko)



In this May 30, 2017 photo, a 3D printer prints a piece of Juan Pablo Pelaez's prosthetic arm in Buenos Aires, Argentina. The arm is possible thanks to low-cost prosthetic hands devised by Gino Tubaro, a 21-year-old inventor whose work was praised by President Barack Obama during a visit to Argentina last year. (AP Photo/Natacha Pisarenko)



In this May 30, 2017 photo, inventor Gino Tubaro poses for a picture with a 3D printed prosthetic hand he invented in Buenos Aires, Argentina. Hundreds of Argentine kids are now able to write, play sports and make music thanks to low-cost prosthetic hands devised by the 21-year-old inventor. (AP Photo/Natacha Pisarenko)

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