

Video: Launching origami into space

29 October 2014, by Miles O'brien



Erik Demain is a computer scientist turned artist, whose scientific area of expertise lies in computational geometry--specifically, computational origami, that is, the mathematical study of bending and folding. Martin Demaine, Erik's father, is an artist turned computer scientist. Once known as "the father of Canadian glass," Martin began his artistic career glass-blowing and later taught himself computer science by sitting in on his son's classes. The two began turning science into sculptures about 15 years ago. Find out more in this discovery. Credit: Erik Demaine and Martin Demaine, MIT

Most people who know of origami think of it as the Japanese art of paper folding. Though it began centuries ago, origami became better known to the world in the 20th century when it evolved into a modern art form.

In the 21st century, [origami](#) has caught the attention of engineers who are using it to create all sorts of new structures—from collapsible packaging to airbags for cars. Origami has even found its way into space!

With support from the National Science Foundation (NSF), mechanical engineer Larry Howell and a

team of researchers from Brigham Young University collaborated with NASA to design a solar array that can be tightly compacted for launch and then deployed in space to generate power for space stations or satellites.

The collaboration began when Howell received an NSF grant to explore combining origami with his focus on compliant mechanisms, which are typically single-piece structures that are jointless and flexible.

The folded designs of origami are typically more flexible, have few moving parts and require less maintenance than traditional ones, and what works for paper can also work for fiberglass, acrylics—even titanium! Howell's original origami-inspired inventions include medical devices such as artificial spinal disks and injectable forceps, called Oriceps.

Whether the goal is catching solar rays in [space](#) or devising a better way to inject DNA into a cell, Howell and his team make it look good on paper—and more!

Provided by National Science Foundation

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