

# Computational Origami from Science to Sculpture

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Can we build sheets that fold themselves automatically into desired origami? Can we use self-folding sheets to manufacture 3D shapes, from buildings to nanostructures? Can we use folding to build reconfigurable robots like Transformers or Terminator 2? Does all the origami that we fold in reality exist in the mathematical sense? I will describe the latest research toward answering these and other questions.

Our approach is unusual in the way we combine art and science. We have found these two disciplines to be converging more and more in our minds. No longer do we have separate art projects and mathematics projects: many of our projects have both artistic and mathematical angles, and we pursue both. The art and mathematics inspire each other: building sculpture inspires new insights into the mathematics, and mathematical understanding inspires new sculpture.



**Figure 1:** Two sculptures in the series *Pushing Curves to the Limit*, exhibited at Peel Gallery in Houston, Texas, November 2009–January 2010.