1056-BF-1946 **Erik D. Demaine*** (edemaine@mit.edu), MIT CSAIL, 32 Vassar St., Cambridge, MA 02139, and **Martin L. Demaine** (mdemaine@mit.edu), MIT CSAIL, 32 Vassar St., Cambridge, MA 02139. *Computational Origami from Science to Sculpture.*

Our understanding of the mathematics and algorithms behind paper folding, and geometric folding in general, has increased dramatically over the past several years. These developments have found a surprisingly broad range of applications. In the art of origami, it has helped spur the technical origami revolution. In engineering and science, it has helped solve problems in areas such as manufacturing, robotics, graphics, and protein folding. On the recreational side, it has led to new kinds of folding puzzles and magic. I will give an overview of the mathematics and algorithms of folding, with a focus on new mathematics and sculpture.

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. (Received September 22, 2009)