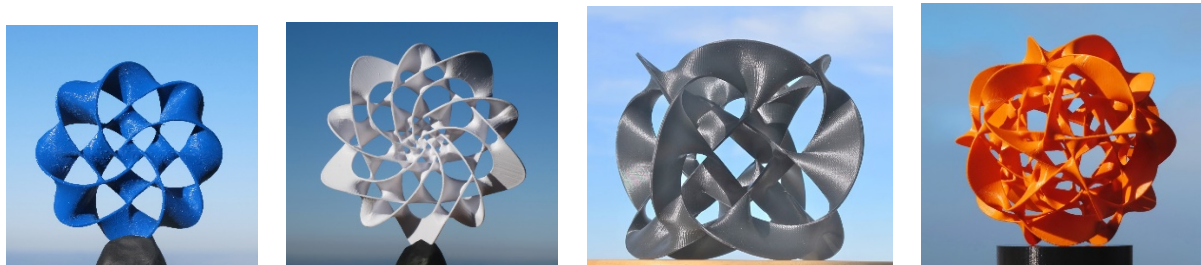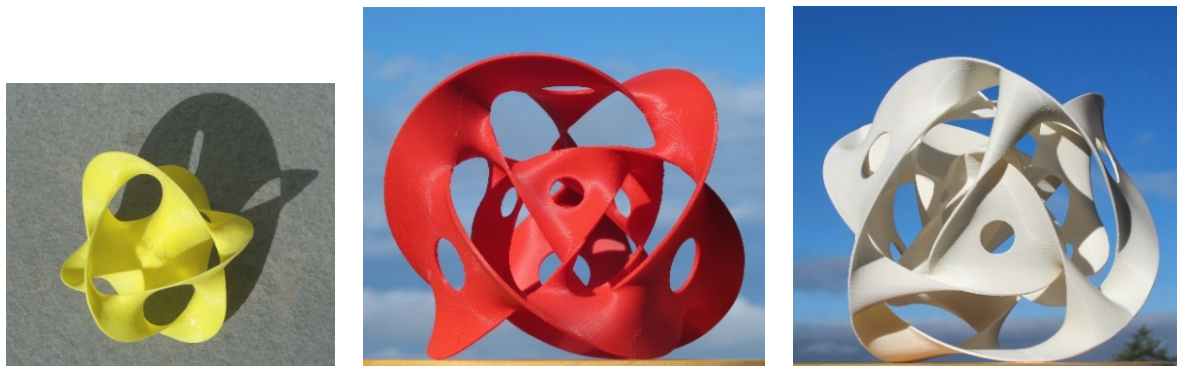Minimal surfaces defined by simple border curves on regular polyhedra.

Soap-film surfaces in tangled, knotted border curves.

Soap films on multi-level Borromean rings.

"Artistic Geometry" by Carlo Séquin

Carlo Séquin has been a computer science professor at UC Berkeley since 1977. He is a physicist, turned electrical engineer, turned computer scientist. For much of his career he has focused on computer graphics, geometric modeling, and on the development of computer-aided design (CAD) tools for circuit designers, architects, mechanical engineers, -- and, more recently, also for artists. In his collaboration with sculptor Brent Collins and other artists, Prof. Séquin has found yet another domain where new frontiers can be opened through the use of computer-aided design tools.

His exploration of the interface between Art and Mathematics works in both directions. Inspired by abstract sculptures by Brent Collins, Helaman Ferguson, or Charles Perry, Séquin looks for the underlying generating principles that can be captured in a computer program in order to produce similar shapes and many other pleasing forms that lie in the same shape family. Physical maquettes of new designs are quickly realized on 3D-printers. Some of these models have been turned into bronze sculptures in Steve Reinmuth's Bronze Studio in Eugene, OR, using a classical investment casting process.

Other mini-sculptures emerge when Séquin creates a visualization model to explain some mathematical concepts to his students. Examples may concern mathematical knots, minimal surfaces, or topological transformations. An extra effort to enhance the aesthetic qualities of these models, can lead to pieces that can stand on their own as artistic artifacts, even for viewers who are not familiar with the underlying mathematical story.

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Carlo Séquin, Biography and Artist's Statement.   -- Paul Suciu and Séquin with "Pillar of Engineering."

Work inspired by Brent Collins, based on Scherk's 2ⁿᵈ minimal surface.
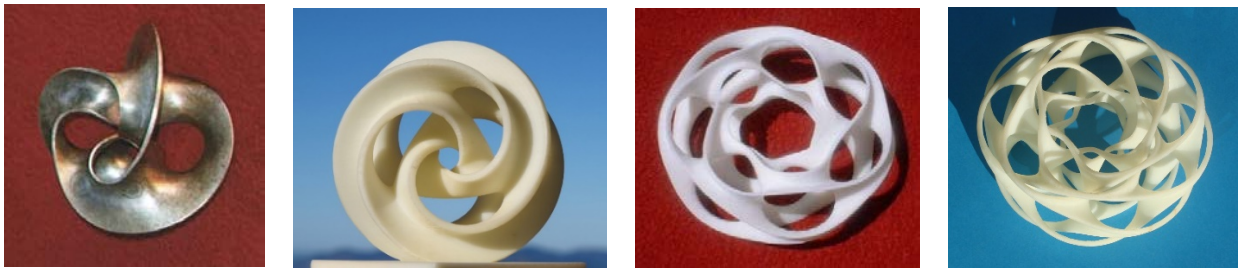
Work inspired by Brent Collins, based on Scherk's 2ⁿᵈ minimal surface.

Sculptures based on mathematical knots

"Pax Mundi" and "Evolving Trefoil" with Brent Collins. --- Snow Sculpture "Knot Divided"