

### **Possible CS 39 Course Project Topics:**

Symmetry groups in Indian basketry.

Symmetry in contemporary art (sculpture).

Using symmetry to generate music.

A musical score on a Moebius band.

The symmetry of Chladni figures.

Symmetry in the layout of computer chips.

Symmetry in inorganic and organometallic compounds.

Symmetry and anti-symmetry in fashion.

Topology of knitwear.

Symmetry in traditional Chinese paper cuts.

The symmetry of viruses.

(Unusual) symmetries evolved in nature

Minimal-genus, maximal-symmetry surfaces that can embed a complete graph  $K_n$ .

Minimal-genus, maximal-symmetry surfaces that can embed a given mathematical knot.

Finding the genus of the Kepler-Poinsot polyhedra.

Archimedean polytopes in 4 dimensions (We will discuss the Platonic solids in class.).

Topology and urban connectivity (traffic)

Symmetry & topology of the maps underlying video games.

Topology and architecture.

A practical, usable Klein-bottle house.