Nathan Blyler
Mount Holyoke College Math/Stats REU

This summer I worked on using statistical algorithms to improve the compression techniques used in the popular image compression method of JPEG. We focused on improving images with sharp contrast and thin lines by using a modified K-means algorithm to downsample images.

Ryan W. Matzke
Texas A&M University Pre-REU: Signal and Image Analysis

More often seen in science-fiction movies and television shows than in everyday life, voice recognition software is not some technology of the future. But how does it work? In this talk we will examine two basic methods of mathematically recognizing spoken words: through Fourier and wavelet analysis.

Wes Galbraith
Hope College 2012 Summer REU Program, funded by the NSF

Pebbling is a game played on combinatorial graphs. Pebbles are placed on the vertices of a graph, and may be moved between vertices by removing two pebbles from a vertex and adding one pebble to an adjacent vertex. An initial configuration of pebbles on a graph is said to be solvable if it is possible move a pebble to any vertex from that configuration. The pebbling number of a graph is the smallest integer such that any configuration with that many pebbles is solvable. Topics that will be discussed in this talk are: basic bounds on pebbling numbers, the pebbling number of Cartesian products of graphs, and the probability that a configuration with a fixed number of pebbles is solvable.