Meeting: 1003, Atlanta, Georgia, MAA CP B1, MAA Session on My Favorite Demo: Innovative Strategies for Mathematics Instructors, I

1003-B1-91 **Anne M. Burns*** (`aburns@liu.edu`), Department of Mathematics, Long Island University, C.W. Post Campus, Brookville, NY 11548. *Visualizing Mobius Transformations.* Preliminary report.

This demo uses a Flash program to tell a story; it describes how we start with a simple idea and gradually develop a fantastic animation. The demo illustrates how visualization can help in understanding mathematical concepts and in suggesting new research projects for students. We start with one Mobius transformation, show how to find the center and radius of the image of a circle with given center and radius. Then we progress to a system of Mobius transformations and show the effect of iterating them using recursion. This produces some interesting and complex designs. We then obtain more interesting designs by composing the maps with another map that depends on a complex parameter. Seeing the effect of changing the parameters suggests an animation showing the changes that occur when the parameter is changed continuously. Finally we develop an animation of different colorings of the designs using a trigonometric formula for the color changes that produces an extraordinary effect. (Received August 03, 2004)