## Function approximation by fuzzy inference system

Design a Mamdani FIS to approximate the 2D sinc function:

$$f(x_1,x_2) = \frac{\sin(x_1)\sin(x_2)}{x_1 x_2} \quad , \quad x_1,x_2 \in [-7,7]$$

Use the modified Wang-Mendel method (Paper of Casillas, et al.), but
 - Generate 50*50 random training patterns and build the FIS with 49 rules. Then, optimize the rules by using GA.

 - Generate new 30*30 random patterns to test the FIS. Compare the MSE of main FIS versus the modified FIS.