Homework2 – 2D vector fields

Consider a rectilinear grid. Create a continuous vector field by (i) assigning distinct vectors to the vertices of the grid and (ii) choosing a proper interpolation scheme (either linear or bilinear).

Provide vector values such that:

1. There are no critical points on the vertices or edges of the mesh
2. There are at least four critical points in the field: (i) a source focus, (ii) a repelling spiral, (iii) a saddle, and (iv) a center
3. Write a program that detects the critical points of a 2D vector field with linear and bilinear interpolants
4. Using the vectors determined in (2) run the program (3) to find the critical points for both linear and bilinear interpolant. What is the diference in results.
5. Draw the topology of the vector field.

Due on September 29, 2009.