Implicit Filtering Example

You can download the latest code from:

<http://www4.ncsu.edu/~ctk/iffco.html>

First, you need to unzip the file and locate the directories.

In the directory where imfill.m is, use:

>>str=pwd;

>>addpath(str);

to make imfill.m available.

Second, you need to go to the directory where the example is. Here, it is under Examples/Simple\_Example. Simply click on “Add Path” when given the chance.

You can then run driver\_easy.m to see the basic example. Note that there is also a parallel option in driver\_easyp.m.

To visualize the results, you can plot the function that is being optimized using:

[x1,x2] = meshgrid(-1:0.01:+1, -1:0.01:1);

fs = (x1.^2 + x2.^2) \* (1 + 0.1\*sin(10\*(x1+x2)));

figure(1), mesh(x1,x2,fs);

figure(2), contour(x1,x2,fs);

Then, the results after running driver\_easy.m give:

K>> histout

histout =

1.0000 0.4728 0 0 0 0.5000 0.5000

3.0000 0.4728 0.0544 0 0 0.5000 0.5000

8.0000 0.4728 0.4255 -1.0000 -1.0000 0.5000 0.5000

15.0000 0.2657 0.3926 0.4419 2.0000 -0.3839 -0.3839

20.0000 0.0010 0.1754 0 0 -0.0224 -0.0224

25.0000 0.0010 0.0655 0 0 -0.0224 -0.0224

30.0000 0.0010 0.0658 0 0 -0.0224 -0.0224

35.0000 0.0010 0.0783 0 0 -0.0224 -0.0224

40.0000 0.0006 0.0825 0 0 0.0088 -0.0224

45.0000 0.0001 0.0869 0 0 0.0088 -0.0068

where:

1. The first column counts the number of function evaluations. They stopped at 45.
2. The last two columns show how the (0,0) optimal point is being reached.
3. The 2nd column contains the values of f(.).
4. The 3rd column contains the norm of the gradient.
5. The values are described in imfill.m.