RANSAC algorithm for Fundamental matrix computation

Background:

Display ***epipolar line*** in an image which correspond with a point in another image.

Using normalized ***8 points*** algorithm to compute the Fundamental matrix ***F*** , and use ***RANSAC*** algorithm to find the best matrix ***F*** with all correspond points among all interest points(find with ***SIFT***).

Testing environment:

Linux (ubuntu 16.04 LTS)

Dependent packages:

Imagine++ - version 4.3.2

http://imagine.enpc.fr/~monasse/Imagine++/

Compile:

Create a new folder called ***"build"***

In this folder, run command :

 cmake ..

If cmake success, then run:

 make

If no error appears, then it will generate a executable file called "***Fundamental"***, then run:

 ./Fundamental

It will lancer this application.

Usage:

Once application start, it will display the result of ***SIFT***, show the gradients of interest points. As in example, it find 1350 interest points and suppose 675 matches.

After SIFT is completed, user can click left button to process the next step, which it will compute Fundamental matrix **F** and display all true correspond points(285) in 675 matches. As in example, we get 285 correspond points and matrix **F**.


```
F=
5.01263e-07 2.86015e-05 -0.0059615
-2.67152e-05 8.56504e-07 0.00964444
0.00512392 -0.0108162 0.30182
```

After get Fundamental matrix, user can click left button in left or right button, if user clicks in left image, application will display the point where user clicks(in yellow) and display the correspond epipolar line(in red) in right image, and the same way if user clicks in right image.

User can click right button to exit application.