

# Programing Assignment for 3D Computer Vision Lecture (Prof. Navab, WT 2006)

December 20, 2006

## 1 General description

Finally. Here comes what you have been waiting for all the time. Now, you can use almost everything you have learned in the lecture in order to robustly match and stitch two or more uncalibrated images of the same scene. The assignment consists of four parts. In the first, you should find candidate matches using a correlation technique. In the second part, you robustly determine a homography using the matches as correspondences. In the last part, you finally refine your matches by keeping the points that are verifying the best the projective transformation constraint.

Detailed description is attached. But first, here are some general remarks.

- Teams: up to 3 people
- Points: up to 20, same points for every team member
- Deadline: February 8, 2007

## 2 Implementation

- Programing Language: Matlab or C/C++ (for motivated teams).
- Matlab Functions wanted (no script or main) for every part of the solution. This guarantees modularity so that multiple solution can be used together.
- Matlab script (or C/C++ main) for testing that loads the images, calls all the functions, displays the results. For displaying in C++ you can choose your favorite UI, however, it should be OpenGL compatible. Examples

include `glut`, `FLTK`, `QT`. The UI should be as simple as possible (a simple GL Window showing input images, extracted features, and the result).

- Your own solution.

### **3 Documentation**

We want to keep this short. Required are just the following two things:

- Matlab (C/C++) headers with detailed input and output parameter description required (so that we & the rest of the world know how to use it).
- Small webpage with Matlab (C/C++) code, results, and short comments on the results as well as on the decisions made.