

Computer Vision
EMARO/JEMARO *Master on Advanced Robotics*
Robotics Engineering Master Degree

Lab Session n. 1

Image warping and bilinear interpolation

Given a coordinate transform $(x,y)=h(x',y')$ and a source image $f(x',y')$, compute a transformed image $g(x,y) = f(h(x',y'))$.

- Perform backward warping (from the output image to the input image) with a bilinear interpolation, see Fig. 1 (it is also possible to use the function `griddata`).
- Example of transformations, see Fig. 2: 1) translation and rotation (try different angles). 2) To use the data of the file *data.mat* to warp the pixels of the test images.

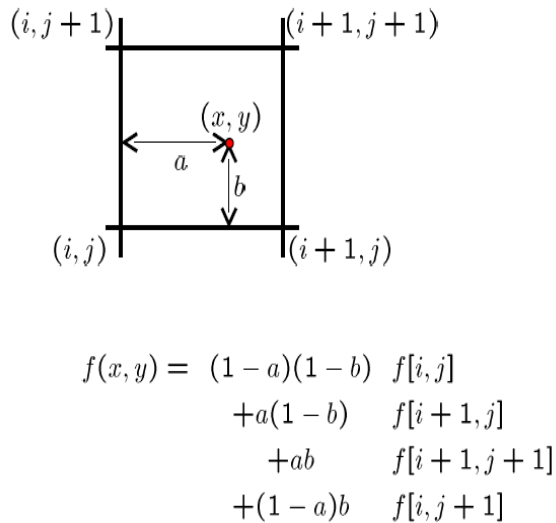


Fig.1 Bilinear interpolation

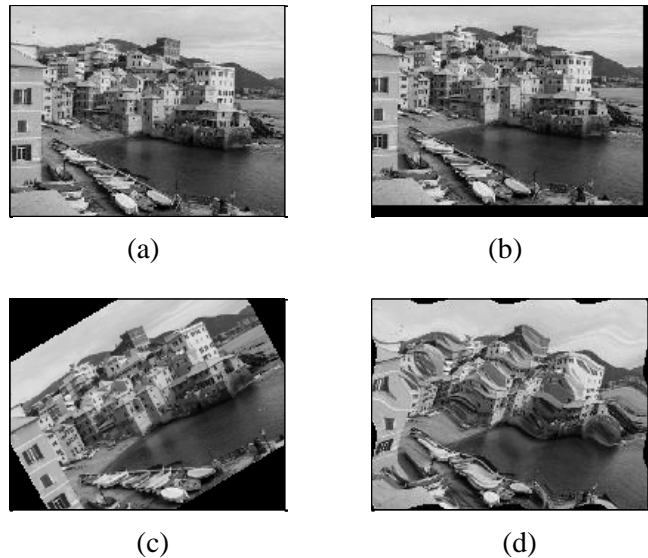


Fig.2 (a) Test image (gray scale). (b) Translation. (c) Rotation. (d) Transformation by using data.dat.

Notes:

- About the code:
 - You have to use relative paths.
 - You have to write and use functions
 - You have to provide a script to test your code.