Digital Image Transformation

This program is for Dr. Weiss' Digital Image Processing class Program Assignment 3.

This documentation is to give a brief description of the UI interaction and what to expect of the various menu options of the program that are specific to the program being submitted and does not cover the basic interaction of the ImageLib UI created by the ImageLib library.

Transformations

This is the menu where all our created menu items are.

Scale by Nearest Neighbor

After selecting an image and picking the menu option a dialog appears. The X Scale Factor (from 0 to 10) determines how to scale the image in the horizontal plane. The Y Scale Factor (again from 0 to 10) determines how to scale the image in the vertical plane. Hit the ok button to scale the image. Cancel will leave the image unaltered.

As the name suggests, this method uses the Nearest Neighbor approach to determine what the intensity of the pixels will be in the resulting image.

Scale by Bilinear Intensity

After selecting an image and picking the menu option a dialog appears. The X Scale Factor (from 0 to 10) determines how to scale the image in the horizontal plane. The Y Scale Factor (again from 0 to 10) determines how to scale the image in the vertical plane. Hit the ok button to scale the image. Cancel will leave the image unaltered.

Again as the name suggest, this method uses Bilinear Interpolation to determine the intensity of the pixels of the resulting image.

Rotation by Nearest Neighbor

After selecting an image and picking the menu option a dialog appears. Inside the dialog will be a slider that moving will set the degrees to rotate by. Pressing Ok will rotate the image by the degrees set. Pressing cancel leaves the image unaltered.

This rotation uses the Nearest Neighbor method for determining the resulting image's pixels intensity.

Rotation by Bilinear Intensity

After selecting an image and picking the menu option a dialog appears. Inside the dialog will be a slider that moving will set the degrees to rotate by. Pressing Ok will rotate the image by the degrees set. Pressing cancel leaves the image unaltered.

General Warp

THE INTEDED USE:

 After selecting the image and selecting the menu option a large dialog appears. This is a Tie-Points dialog using Dr. Weiss' supplied Tie-Points classes. Move the dots in the target image to the desired positions. Pressing Ok will morph the image into the new shape. Pressing Cancel will leave the image unaltered.

This general warping was meant to use Perspective transformation in order to warp the image. Unfortunately, due to several events in Jonathan's life and the difficulty of the code, he was unable to get the coding done in time.