CS335 Program 4: "JMorph" (completed)
Due Friday 7 December

1. Introduction

The goal of this project is to provide a user interface and backend driver that supports the specification and rendering of a piecewise (triangular) image morph between two images. Once specified, the morph will be rendered as a sequence of images that can be wrapped as a video (mp4, for example) and used in standard video editing software. Your work in this phase will complete the backend of the framework by applying the specified transitions to the underlying target images and by adding additional features.

2. Features

Now that the user can position a 10x10 grid of control points on the start and end images, you must render the morph that warps and cross-dissolves between the two images. This means that the user must be able to read in the desired images (you must use a menu and a file browser widget). The computed warp should follow the positions of the two sets of triangles. The cross-dissolve should linearly scale the intensities between start and end images over the interpolation interval. Render tween images as JPEGs.

The following features are **required:**

- Start/End Image Enhancement: implement the ability to apply a simple intensity adjustment to the start and end images. In particular, you must allow the user to adjust/change the brightness of the images. You may design how the interface will allow these changes to be specified. The morph should use the current image intensity values (after any image processing adjustments have been applied).
- Grid Resolution: Implement the ability to change the grid resolution. At a minimum, provide three grid resolution settings (5x5, 10x10, 20x20).
- Drag Constraints on Control Points: implement a constraint so that no control point can be moved to create overlapping triangles.

The following features will receive **extra credit**:

- Arbitrary control point resolution: If you want to provide arbitrary resolution (user selects), you will receive additional credit.
- Control Point Group Move: implement the ability to select a group of control points (within a bounding box) and drag/move their position as a group.
- Project Save/Read: ability to save a project (all state: control point positions, parameters, image files) and read it in order to continue work over multiple sessions.

3. What to Turn In

You must submit a complete solution with both internal and external documentation via the class submission webpage. In addition, submit a complete movie file that demonstrates a transition or set of transitions created by your tool. Create the movie by wrapping the JPEG frames from your tool with some 3rd party software. Make sure that the movie can play under a standard installation of the Chrome web browser.