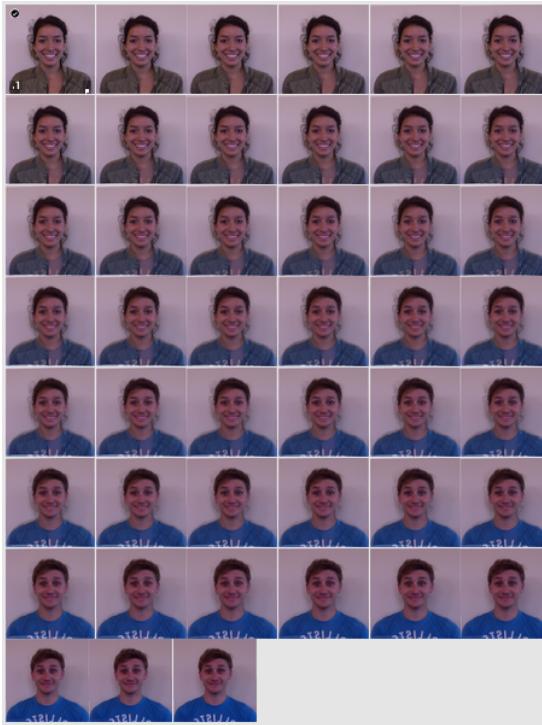


Feature-Based Image Metamorphosis



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Objective

Morph two given images

||

|| (Possible to then...)

∨

Morph two given videos

Procedure for Image Morphing

Morphing between two images:

- 1) Define the common features between the source and destination images
- 2) Create intermediate frames
- 3) Generate video from all of the intermediate frames

Procedures for Video Morphing

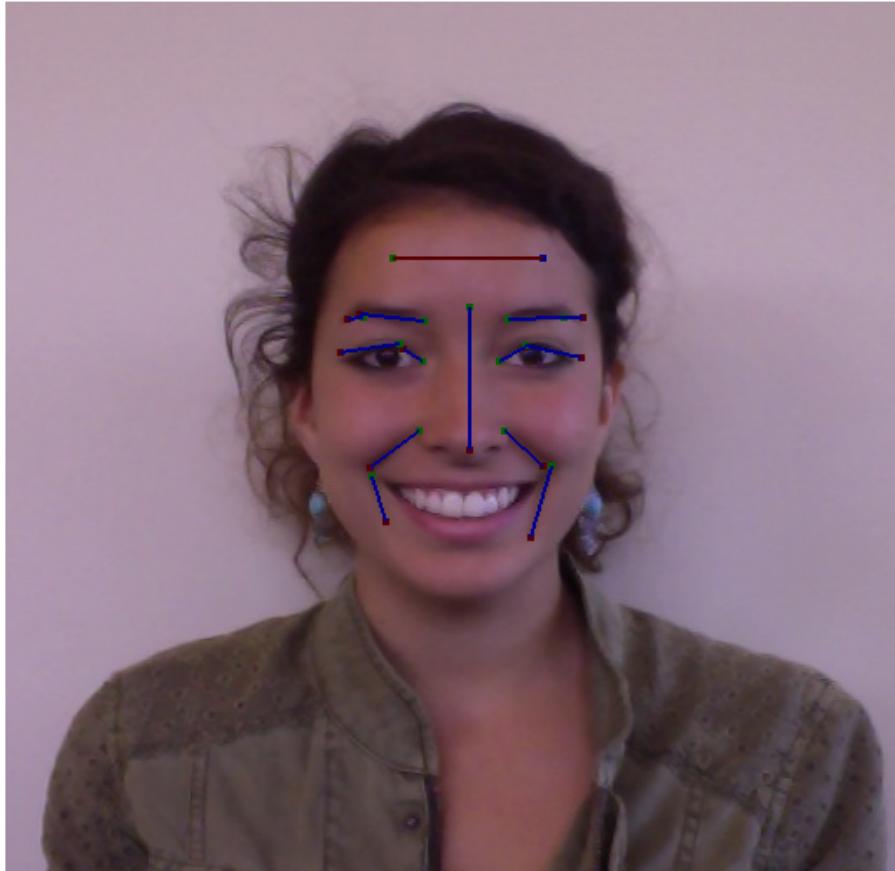
Morphing between two videos:

- 1) Split each video into its respective frames
- 2) Create intermediate frames between each of the corresponding frames in the videos
- 3) Select appropriately interpolated/morphed frames for each frame in the final video
- 4) Generate video from chosen frames

Programs

- 1) featureAdder
- 2) imageMorph
- 3) combiner
- 4) frameExtractor
- 5) *autoFeatures (!)*

Feature Adder



Feature Adder



Feature Adder



Feature Adder

A user interface that allows users to specify common features in both the source and destination images.

Other functions include: (1) undoing mistakes, (2) opening/editing previously made feature files, (3) taking screenshots

Feature Adder

Input: Two images (source and destination),
with other relevant parameters

Output: Two .feat files (source and destination)

Image Morph



Image Morph

Generates the intermediate frames between source and destination images and a video made up of the sequential intermediate images to simulate metamorphosis

Various easing functions are available

Image Morph

Input: Two feature files, with other relevant parameters

Output: A video that demonstrates the metamorphosis between the 2 input images, and sequence of intermediate images that indicates the between them

Combiner / Frame Extractor



Combiner / Frame Extractor

(use *SimpleVideo* class!)

Video reader: Given an AVI video file, this class can produce a set of frames

Video writer: Given a sequence of PNG image files, this class can produce an AVI video file

Frame Extractor

Input: An AVI video file

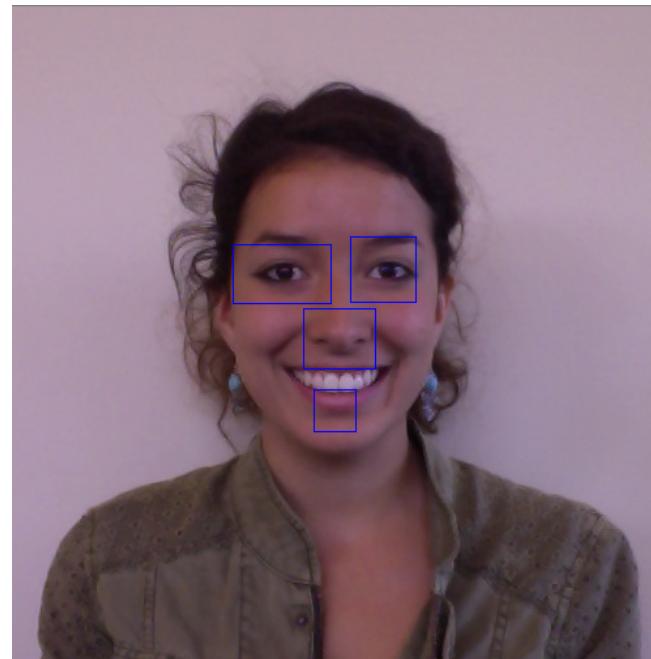
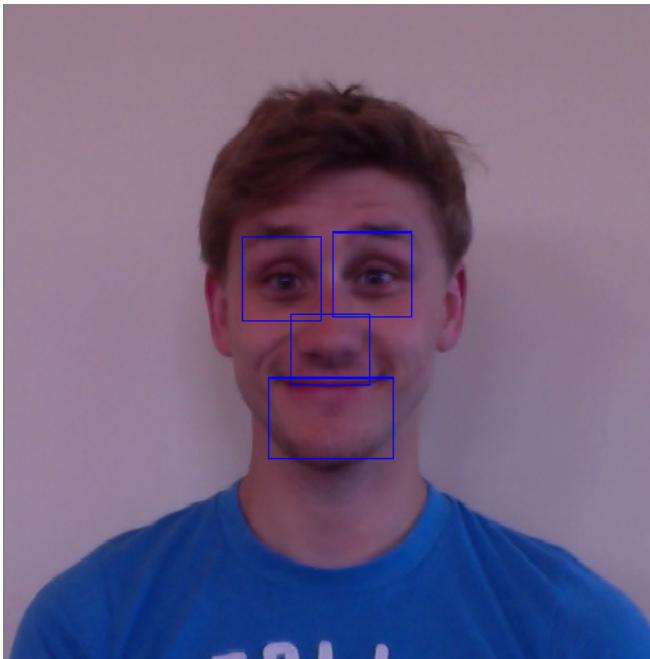
Output: n frames of the AVI video file (as PNG image files), for processing by Feature Adder

Auto Features

Input: A PNG image file

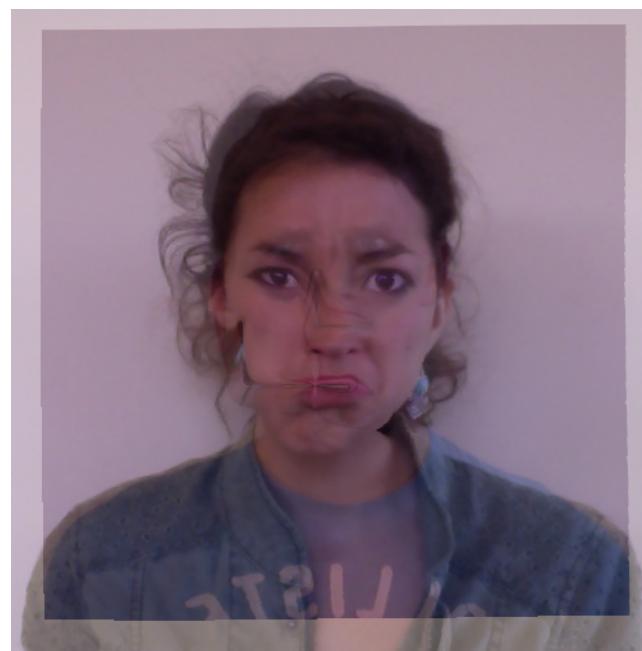
Output: A .feat file in the same format as Feature Adder, using facial feature detection with haar cascades (functionality from OpenCV). Each rectangle detected is turned into two features, by taking the top and left sides.

Auto Feature



Auto Feature

Poor results. Features are unreliable and inconsistent



References

Feature-Based Image Metamorphosis, SIGGRAPH 1992,
Thaddeus Beier.