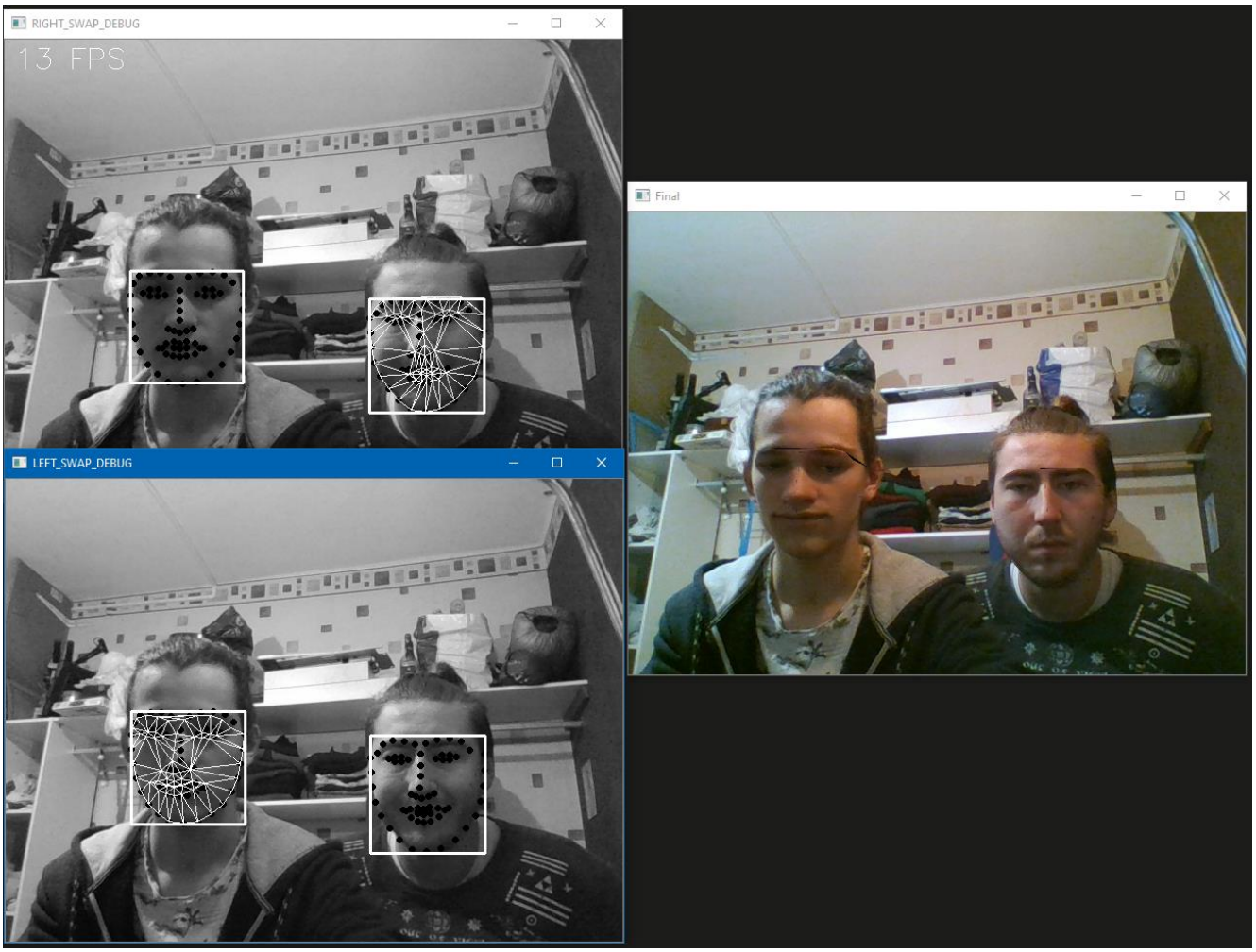
Documentation
« Swap »



Ulysse REGNIER and Maximilien CHAUX

This class contains all the variables and the functions needed for an expression swap.

I - Class Diagram

Swap	
+ Swap(src_img_init, src_rect_face_init, dst_img_init, dst_rect_face_init, shape_predictor)	
+ getFrame(src_img, src_rect_face, dst_img, dst_rect_face)	Array
- getLandmarks(img, face_rect)	Array
- getConvexRect(points)	Tuple
- getPointsFromRect(points, rect)	Array
- getTriangles(landmarks)	Array, Tuple

II - Public functions (meant to be used)

Swap (src_img_init, src_rect_face_init, dst_img_init, dst_rect_face_init, shape_predictor) : Initialize the swap with init images.

- src_img_init (Array) : Source image where the subject hasn't any facial expressions

- src_rect_face_init (DLIB::Rectangle) : DLIB rectangle locating a face on the initial source image

- dst_img_init (Array) : destination image where the subject hasn't any facial expressions

- dst_rect_face_init (DLIB::Rectangle) : DLIB rectangle locating a face on the initial destination image

- shape_predictor : function that detects landmarks on a face

getFrame(src_img, src_rect_face, dst_img, dst_rect_face) : Array[]

Returns destination image after facial swapping. This function is meant to be called every frame (so in a while loop for exemple).

- src_img (Array) : Source image for the current frame

- src_rect_face (DLIB::Rectangle) : DLIB Rectangle of the source image for the current frame

- dst_img (Array) : Destination image for the current frame

- dst_rect_face (DLIB::Rectangle) : DLIB Rectangle of the destination image for the current frame

III - Private functions (used in public functions)

getLandmarks (Array, DLIB::Rectangle) : Array

Returns the landmarks of the faces on the image.

getConvexRect (numpy Array) : Tuple

Returns the convex rect made by the points using an OpenCV function

getPointsFromRect (Array, Tuple) : Array

Takes the landmarks and the convex rect around those landmarks. It returns the landmarks with coordinates depending on the convex rect x and y.

getTriangles (Array) : Array, Tuple

Returns an array of tuples containing index three points in the array for each triangle. It uses Delaunay Triangulation with OpenCV.