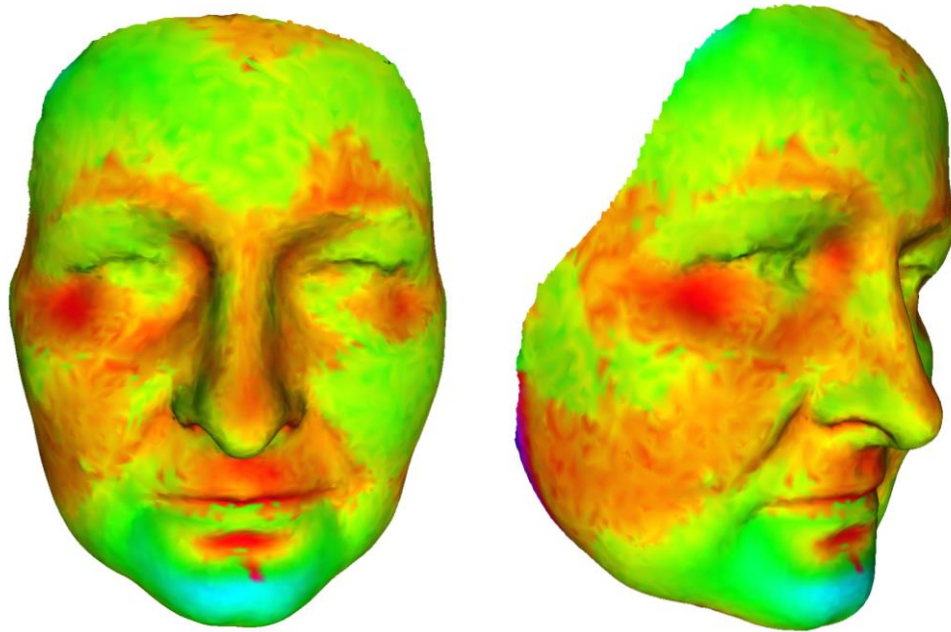


PART I - Visualization of intersecting surfaces

This part of the questionnaire is dedicated to visualization of two intersecting facial surfaces with aim to convey the shapes and differences of the shape.

1. Color map - visualization currently used in application

Distances or variability between two or more faces are mapped on one model in a form of color.



Minimal distance (negative)

Maximal distance (positive)

How well does this visualization convey shapes of individual models?

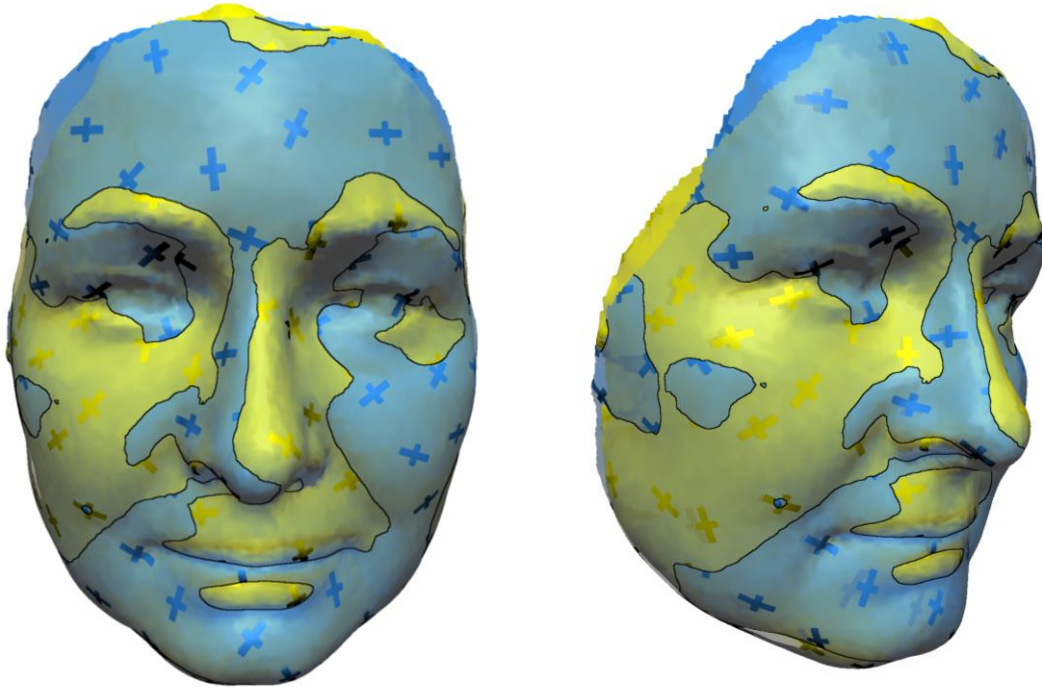
very well	well	neutral	poorly	very poorly
-----------	------	---------	--------	-------------

How well does this visualization convey differences between models?

very well	well	neutral	poorly	very poorly
-----------	------	---------	--------	-------------

2. Transparency + glyphs

Two models are rendered over each other, intersections of surfaces are contoured and outer layer (layer closer to viewer) is rendered transparently with opaque shadow-casting glyphs. The orientation of glyphs indicates principal curvature directions of surface at given points.



How well does this visualization convey shapes of individual models?

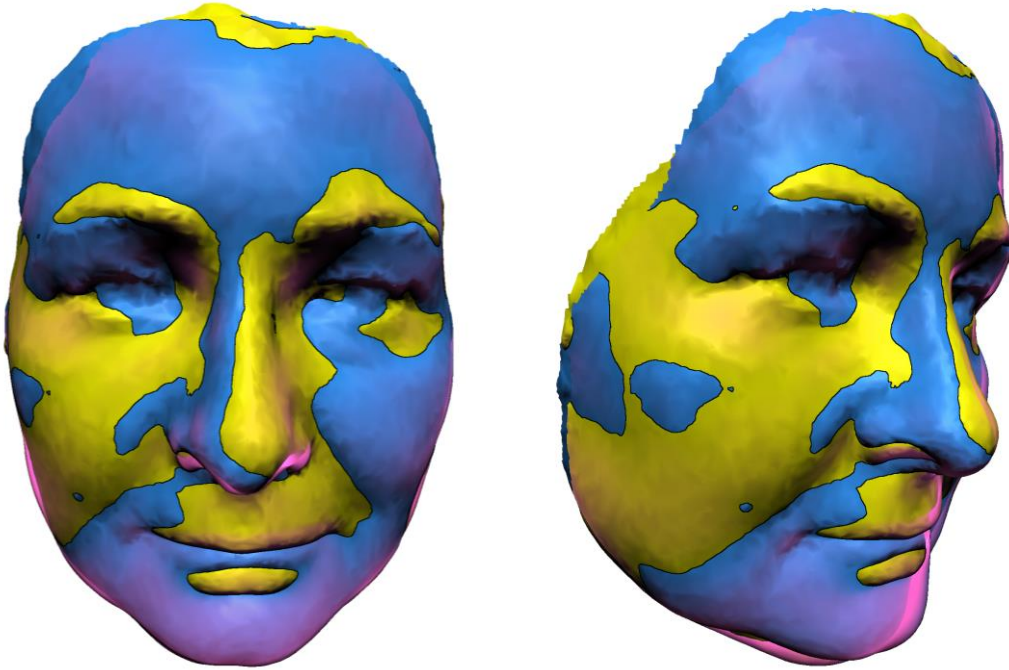
very well	well	neutral	poorly	very poorly
-----------	------	---------	--------	-------------

How well does this visualization convey differences between models?

very well	well	neutral	poorly	very poorly
-----------	------	---------	--------	-------------

3. Overlay fog

Two models are rendered over each other with adjustable transparency. Additional layer in color different to colors of the models is rendered over the image indicating the distances between surfaces - the bigger the distance between surface, the more opaque the layer is.



How well does this visualization convey shapes of individual models?

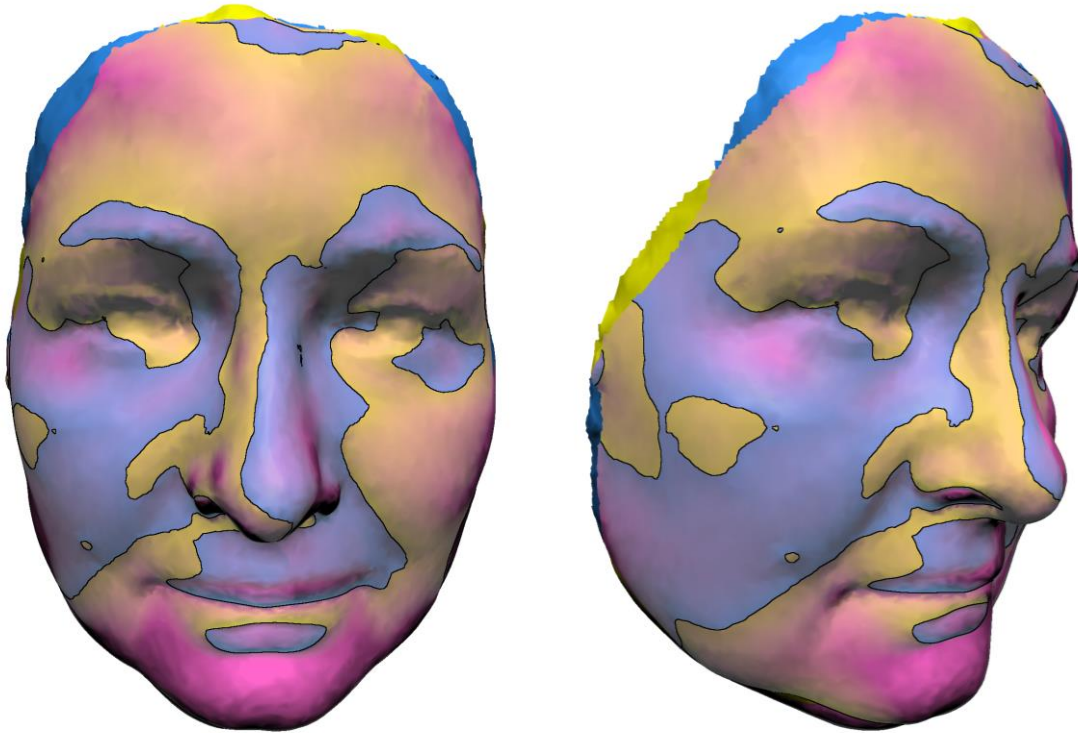
very well	well	neutral	poorly	very poorly
-----------	------	---------	--------	-------------

How well does this visualization convey differences between models?

very well	well	neutral	poorly	very poorly
-----------	------	---------	--------	-------------

4. Outer surface fog

The entire outer layer (layer closer to viewer) of intersecting models is colored to color different to colors of the models. The distances between surfaces are mapped to transparency - the bigger the distance between surfaces, the more opaque the color is.



How well does this visualization convey shapes of individual models?

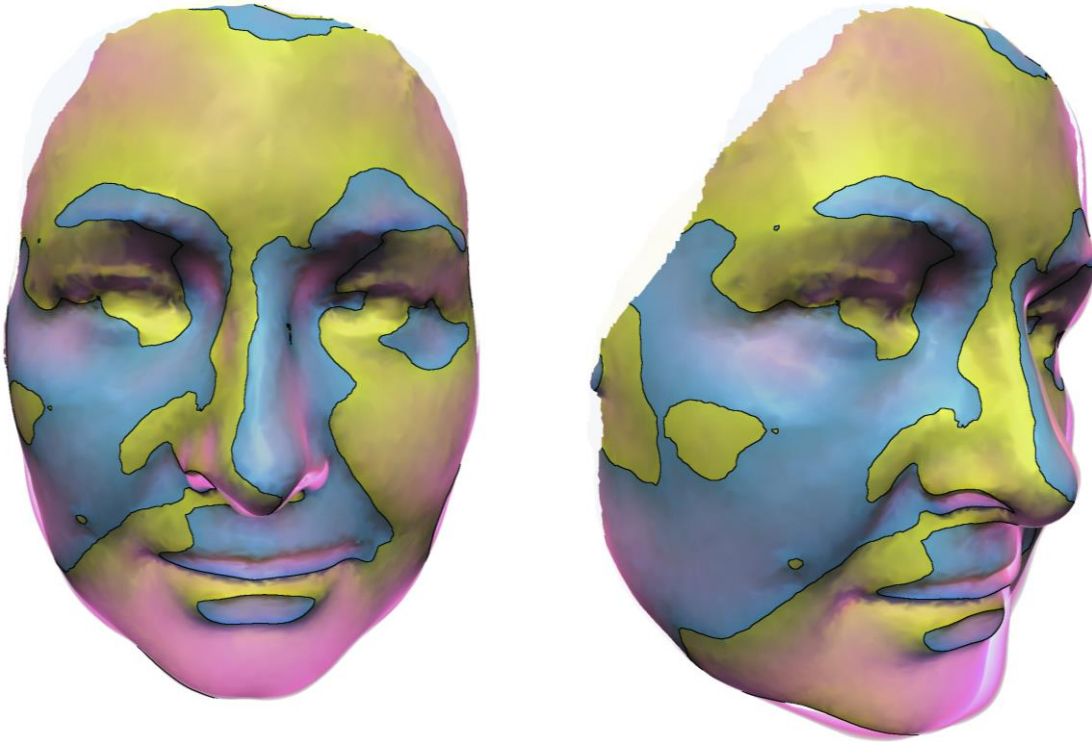
very well	well	neutral	poorly	very poorly
-----------	------	---------	--------	-------------

How well does this visualization convey differences between models?

very well	well	neutral	poorly	very poorly
-----------	------	---------	--------	-------------

5. Inner surface fog

The distance between model surfaces is mapped onto inner layers (layer further from viewer) in a form of color. Outer layers are rendered at least partially transparently in order for the inner surfaces to be visible.



How well does this visualization convey shapes of individual models?

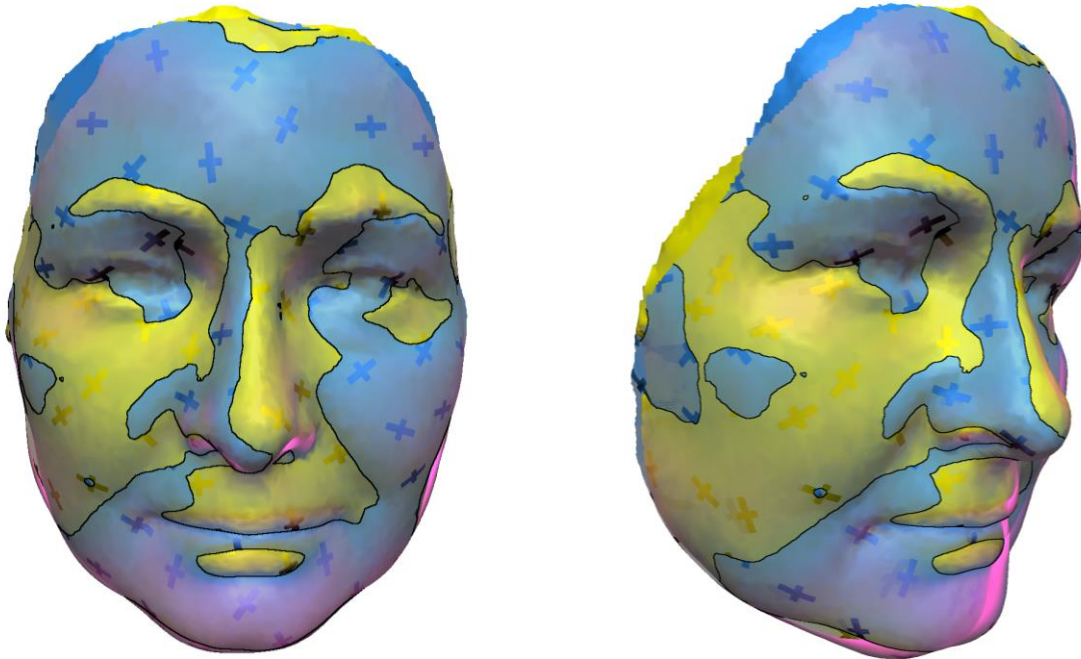
very well	well	neutral	poorly	very poorly
-----------	------	---------	--------	-------------

How well does this visualization convey differences between models?

very well	well	neutral	poorly	very poorly
-----------	------	---------	--------	-------------

6. Overlay fog + glyphs

Two models are rendered over each other with adjustable transparency. Additional layer in color different to colors of the models is rendered over the image indicating the distances between surfaces - the bigger the distance between surface, the more opaque the layer is. In addition the shadow-casting curvature glyphs are mapped on outer surface.



How well does this visualization convey shapes of individual models?

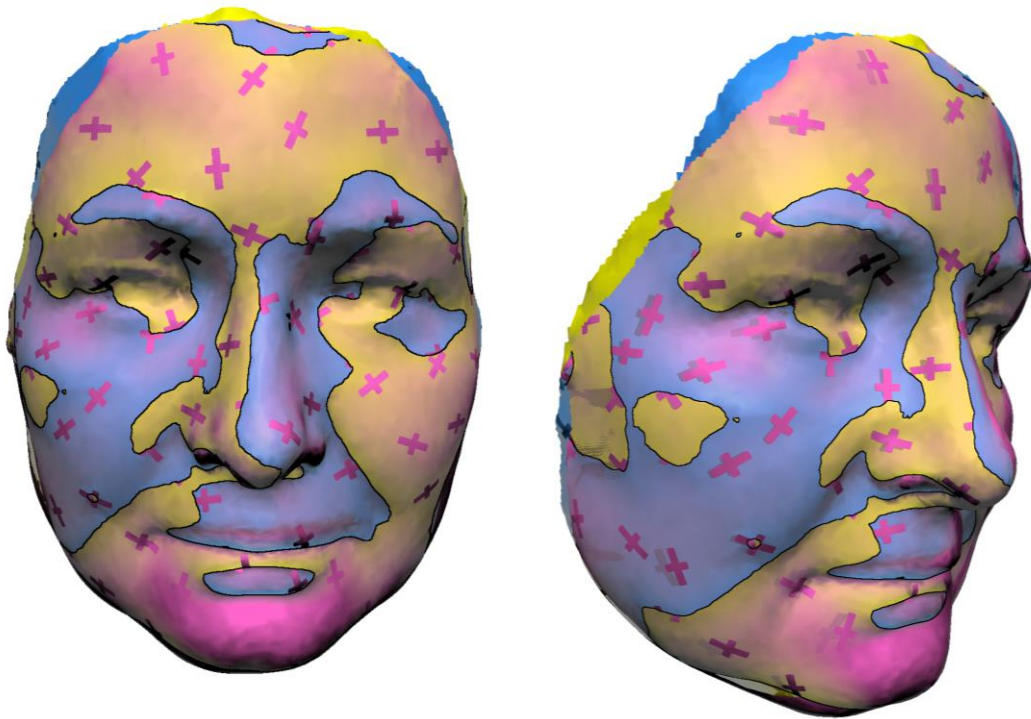
very well	well	neutral	poorly	very poorly
-----------	------	---------	--------	-------------

How well does this visualization convey differences between models?

very well	well	neutral	poorly	very poorly
-----------	------	---------	--------	-------------

7. Outer surface fog + glyphs

The entire outer layer (layer closer to viewer) of intersecting models is colored to color different to colors of the models. The distances between surfaces are mapped to transparency - the bigger the distance between surfaces, the less transparent the color is. In addition the shadow-casting curvature glyphs are mapped on outer surface.



How well does this visualization convey shapes of individual models?

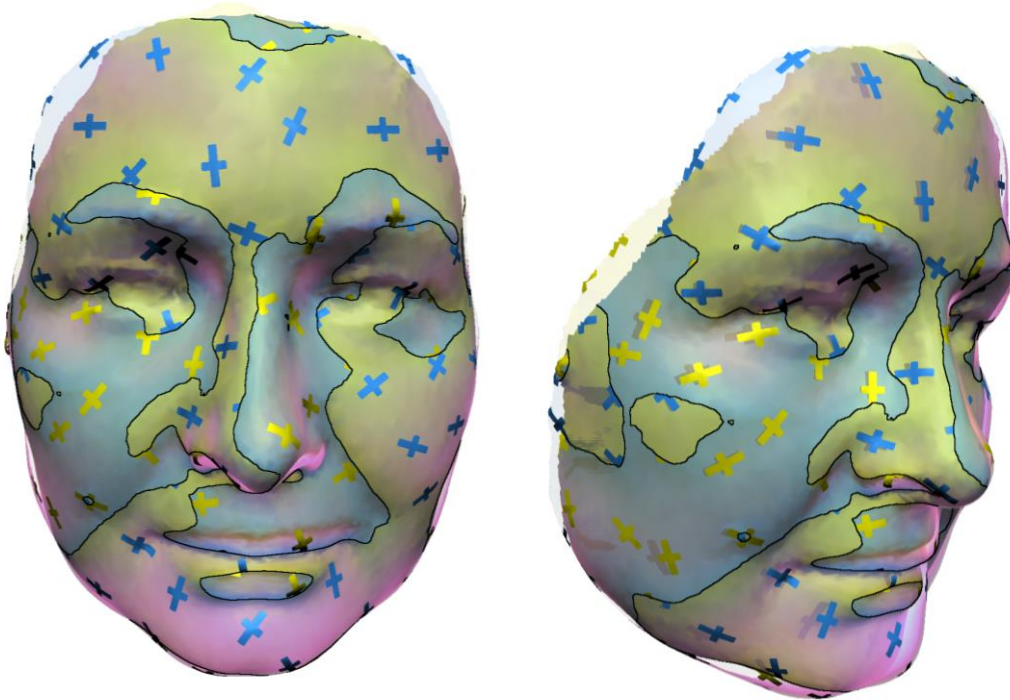
very well	well	neutral	poorly	very poorly
-----------	------	---------	--------	-------------

How well does this visualization convey differences between models?

very well	well	neutral	poorly	very poorly
-----------	------	---------	--------	-------------

8. Inner surface fog + glyphs

The distance between model surfaces is mapped onto inner layers (layer further from viewer). Outer layers are rendered at least partially transparently. In addition the shadow-casting curvature glyphs are mapped on outer surface.



How well does this visualization convey shapes of individual models?

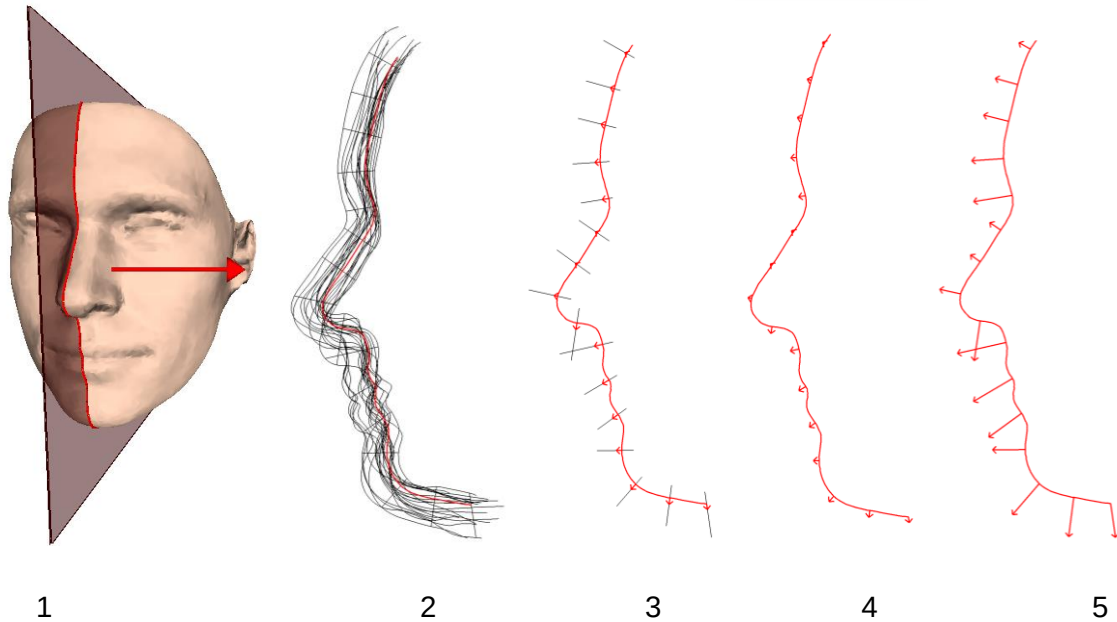
very well	well	neutral	poorly	very poorly
-----------	------	---------	--------	-------------

How well does this visualization convey differences between models?

very well	well	neutral	poorly	very poorly
-----------	------	---------	--------	-------------

PART II - Visualization of surface cross-sections

This part of the questionnaire is dedicated to visualization of two or more intersecting surfaces via cross-sectional slices.



1 - reference picture of average face with the plane specifying cross-sectional slice.

2 - red - intersection of plane with the average face, black - intersections with all faces in dataset

3 - black - variability at sampling points in the direction of normal to the intersection with average face, red - vectors indicating average distance in this direction from average face to all faces in dataset

4 - same as (3 - red)

5 - same as 4 with enhanced vector sizes

How well does this visualization convey variability in a set of models at specific (sampling) points?

very well	well	neutral	poorly	very poorly
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Does this visualization convey local variability better or worse than color map on surface (see #1)?

better	I don't know	worse
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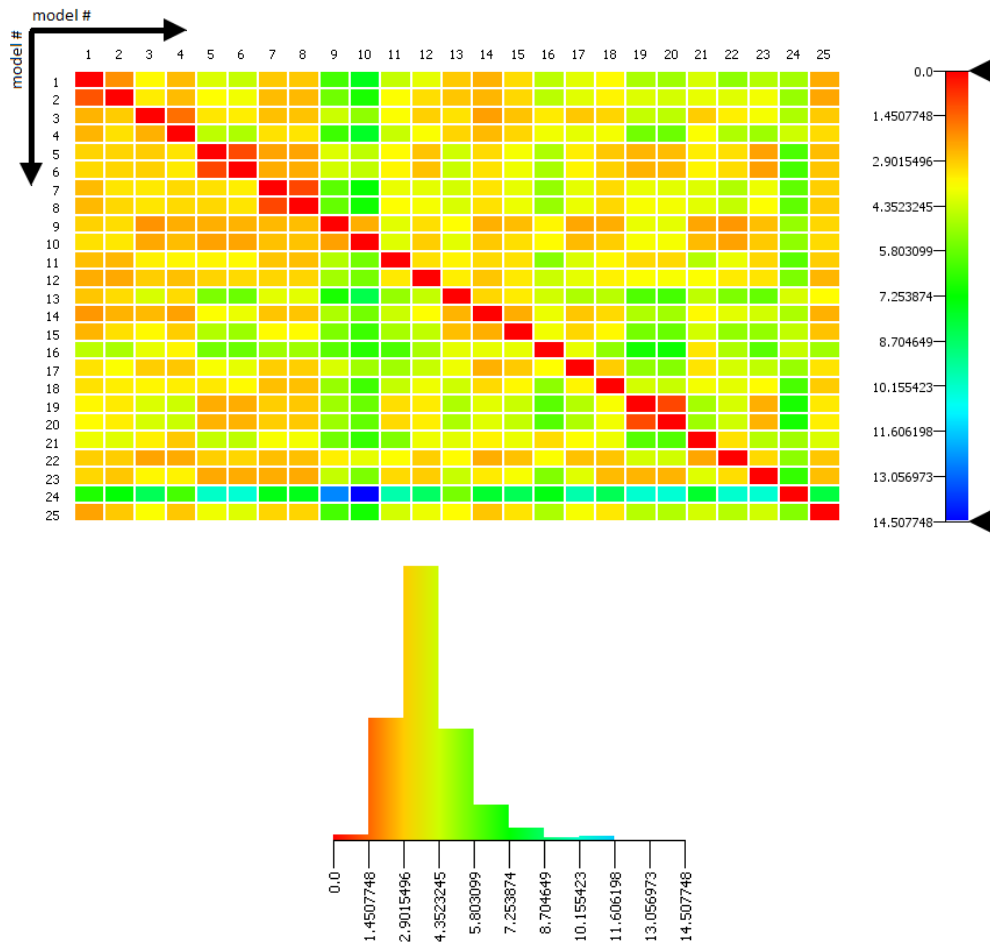
Is this visualization contributory to variability perception and analysis?

yes	I don't know	no
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PART III - Visualization of numerical results for whole dataset

1. Numerical results

Pairwise numerical results for set of facial models mapped on color in interactive heat plot. The visualization allows selection, sorting and filtering of values. Complementary histogram shows distribution of values in given set.



How well does this visualization convey variability in a set of models?

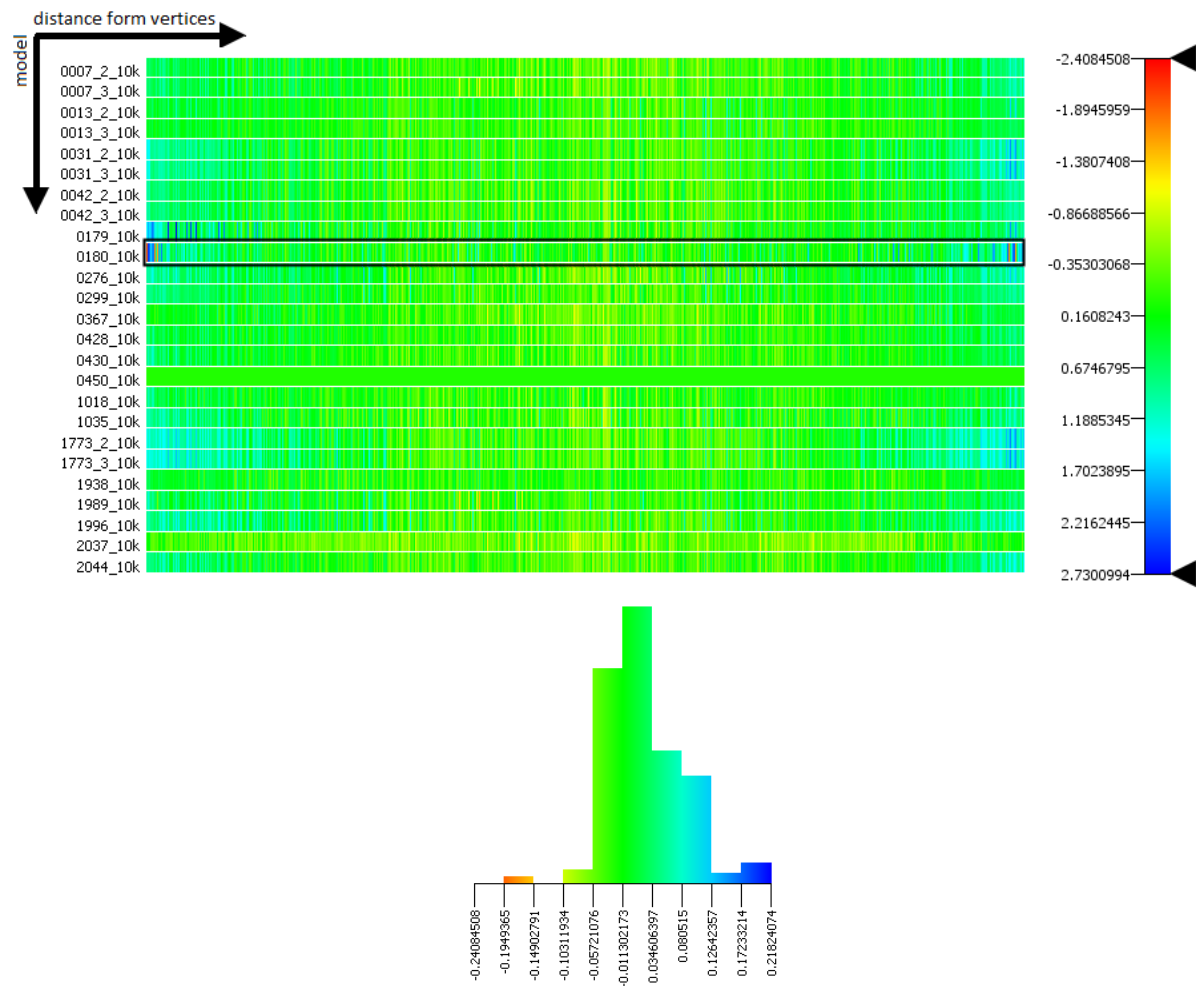
very well	well	neutral	poorly	very poorly
-----------	------	---------	--------	-------------

Is this visualization contributory to analysis of facial dataset?

yes	I don't know	no
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2. Auxiliary results

Distances from one model (e.g. average model) to each model in set. Each vertical line in the heat plot represents distance from one vertex of selected model to the nearest vertex in another model in a set. Complementary histogram shows distribution of values either in entire set or in respect to one selected face.



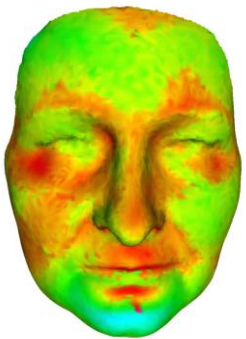
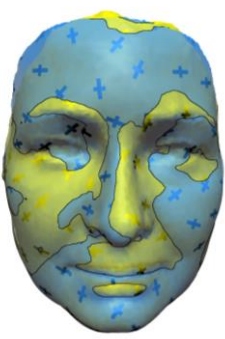
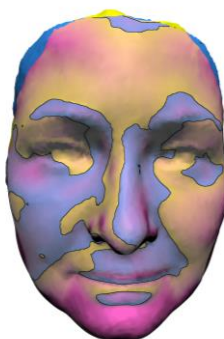
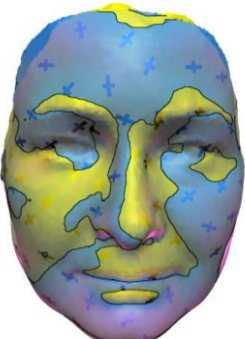
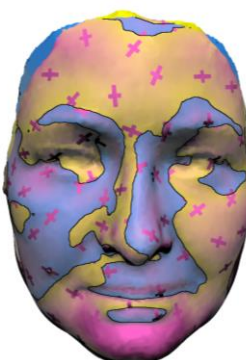
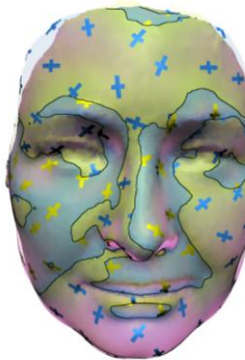
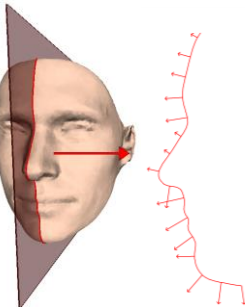
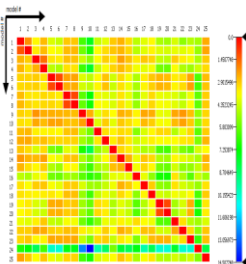
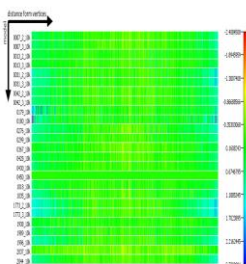
How well does this visualization convey variability in a set of models?

very well	well	neutral	poorly	very poorly
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Is this visualization contributory to analysis of facial dataset?

yes	I don't know	no
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Summary

			
1.	2.	3.	4.
			
5.	6.	7.	8.
			none
9.	10.	11.	12.

Of the afore mentioned visualizations, select a visualization which would be in your opinion best suited for:

1. verifying the alignment of the models:
2. analyzing shape of the models:
3. comparing two models:
4. analyzing local variability of models:
5. analyzing a set of models (comparison, variability, etc.):

Comments & suggestions: