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FORENSIC 3D FACIAL IDENTIFICATION SYSTEM

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SOURCE SANS PRO

SOURCE SANS PRO

SOURCE SANS PRO

SEMIBOLD (TRACKING: 200)

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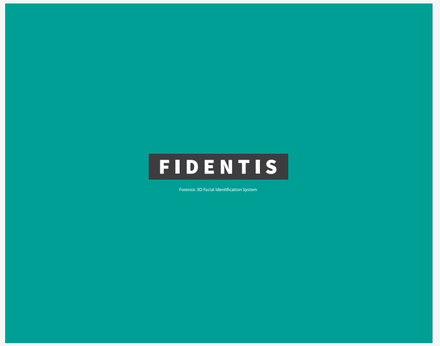
FORENSIC 3D FACIAL IDENTIFICATION SYSTEM



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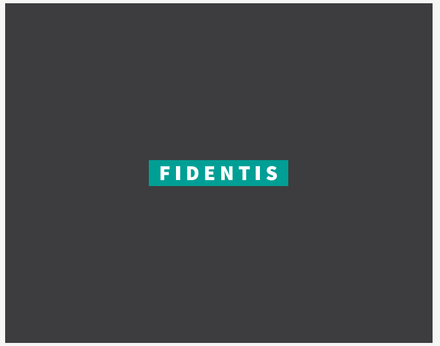

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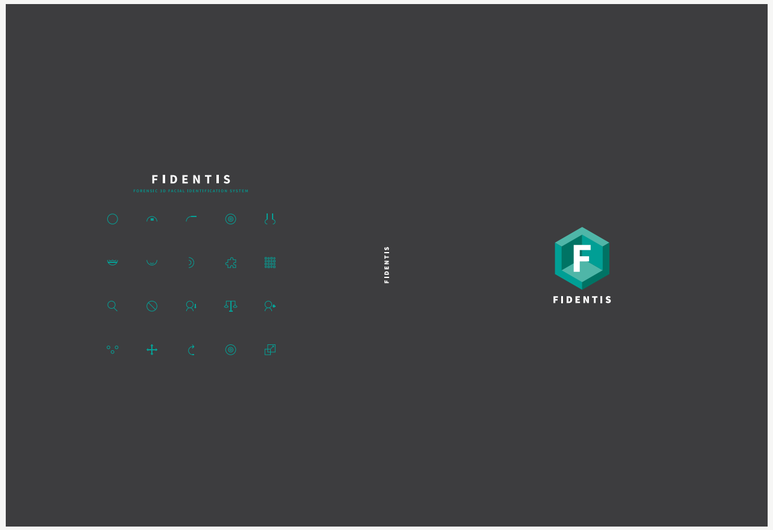
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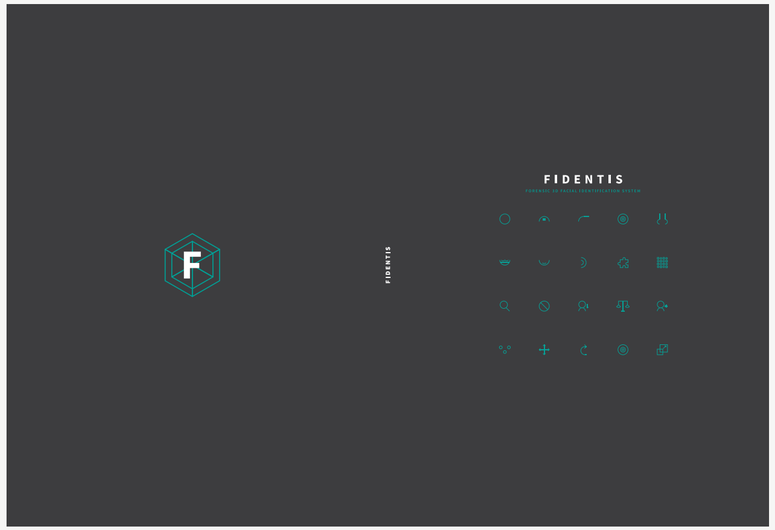
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Forensic 3D Facial Identification System
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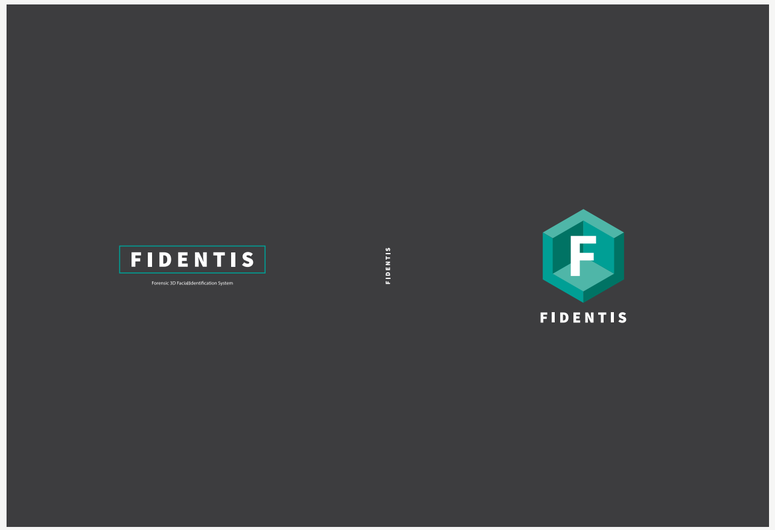
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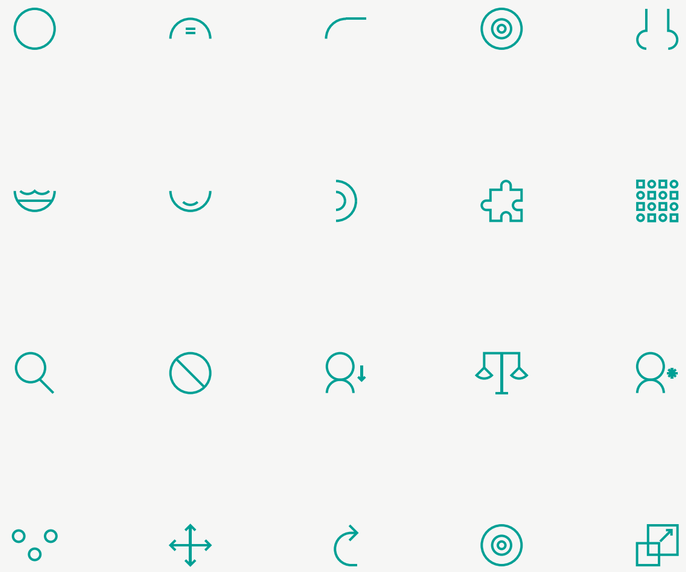

IKONKY

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ICON SET

MAIN TOOLBAR


CREATE COMPOSITE


IMPORT COMPOSITE


COMPOSITE MODE


VIEWER MODE


FEATURE POINTS MODE


COMPARISON MODE


TEXTURES

INTERACTIVE EDITING


MOVE


ROTATE


VIEW


SCALE

ALTERNATIVES


NOSE


CHIN

SOMATOSCOPIC FEATURES


REMOVE


HEAD


FOREHEAD


EYEBROWS

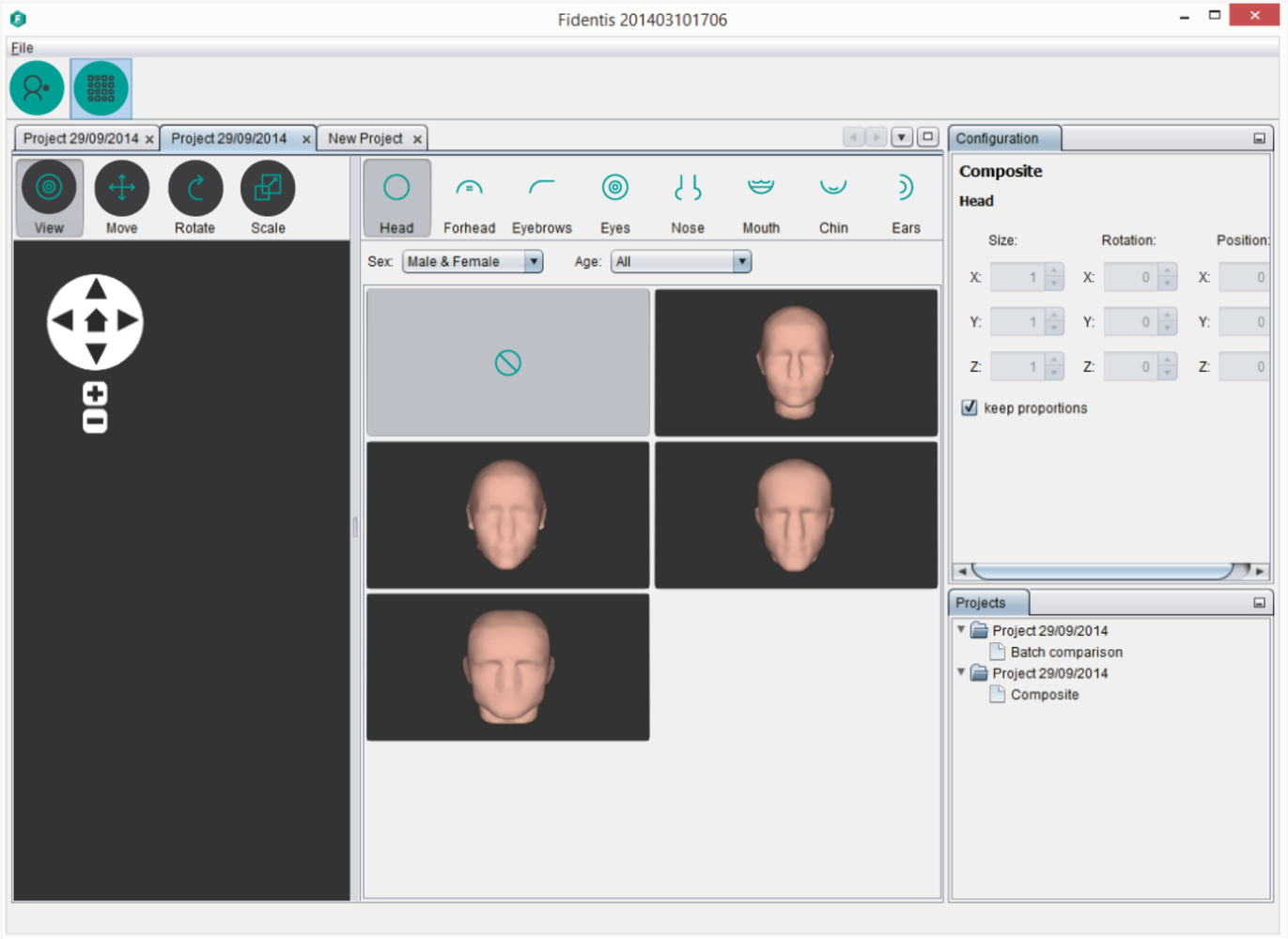

EYES


NOSE


CHIN


MOUTH


EARS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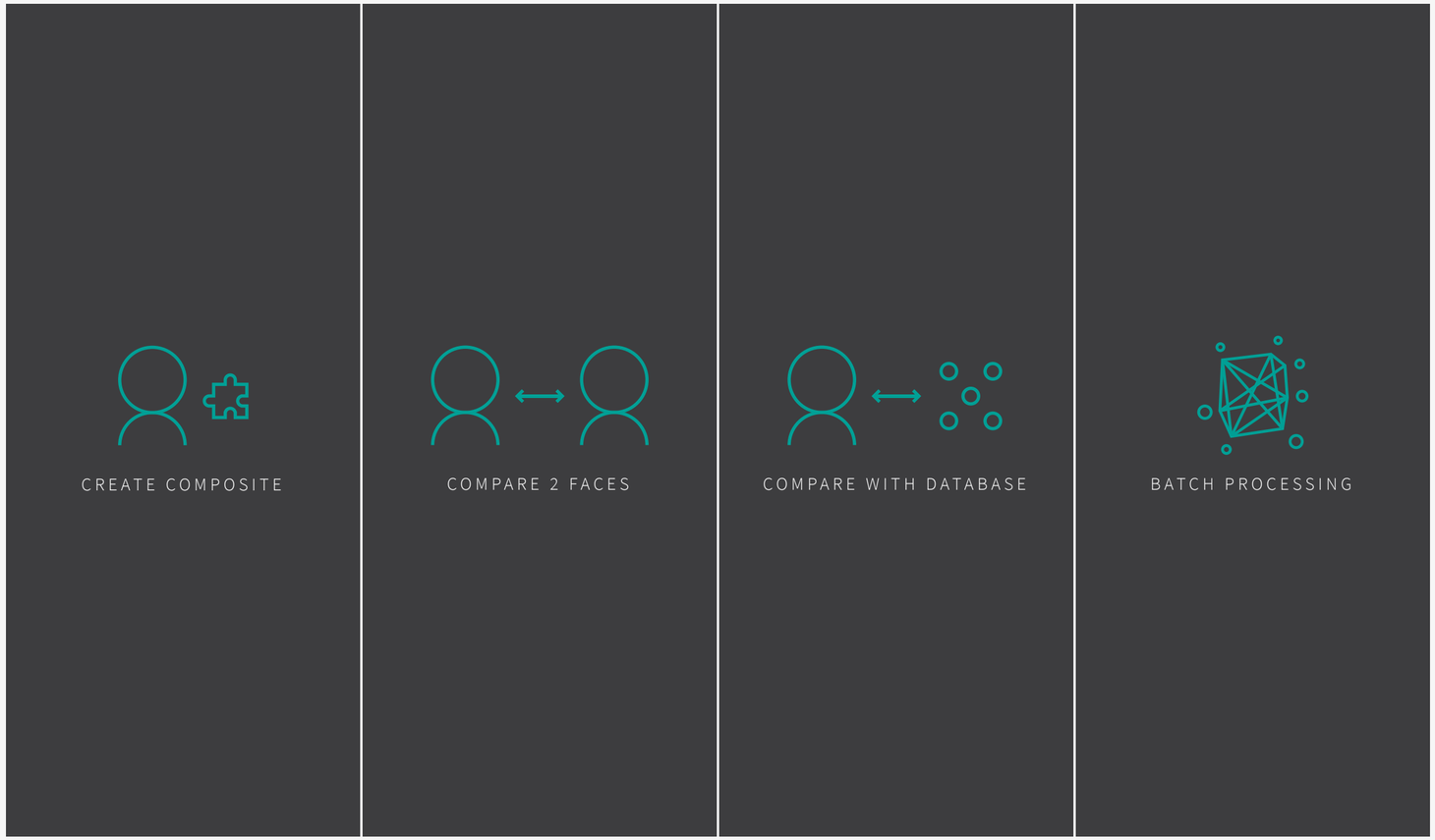
File
Project 29/09/2014
Project 29/09/2014
New Project
View
Move
Rotate
Scale
Head
Forhead
Eyebrows
Eyes
Nose
Mouth
Chin
Ears
Sex:
Male & Female
Age:
All
Configuration
Composite
Head
Size:
Rotation:
Position:
X:
Y:
Z:
keep proportions
Projects
Project 29/09/2014
Batch comparison
Project 29/09/2014
Composite



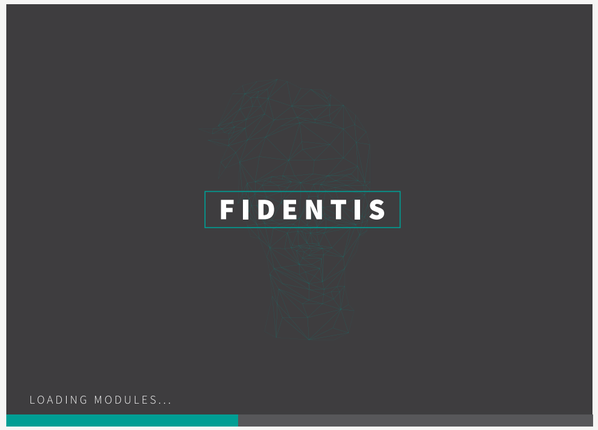
ÚVODNÁ OBRAZOVKA

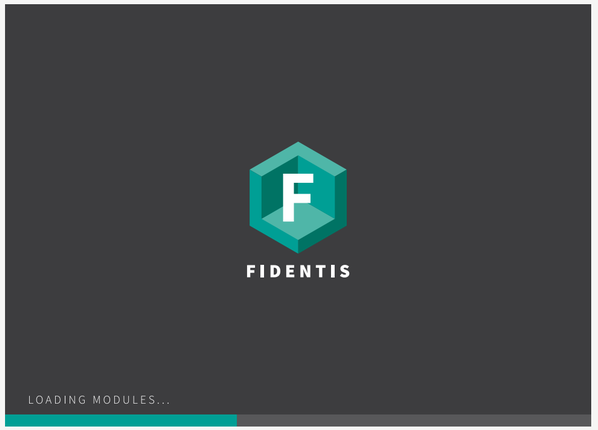
CREATE COMPOSITE

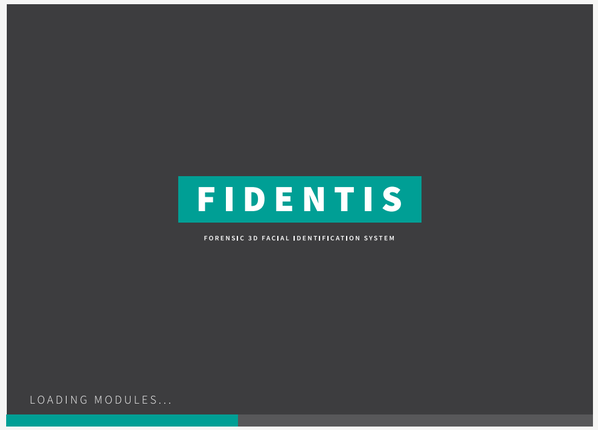
COMPARE 2 FACES

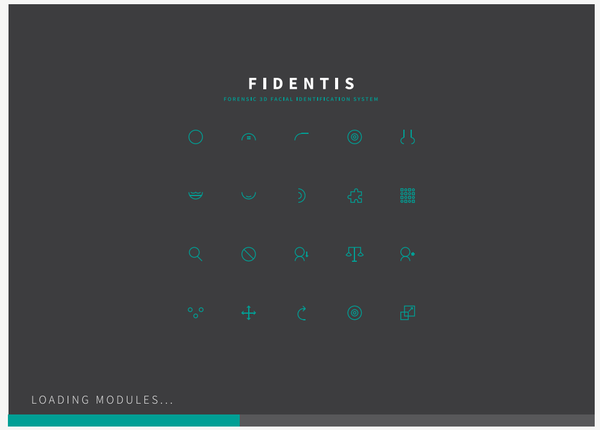
COMPARE WITH DATABASE

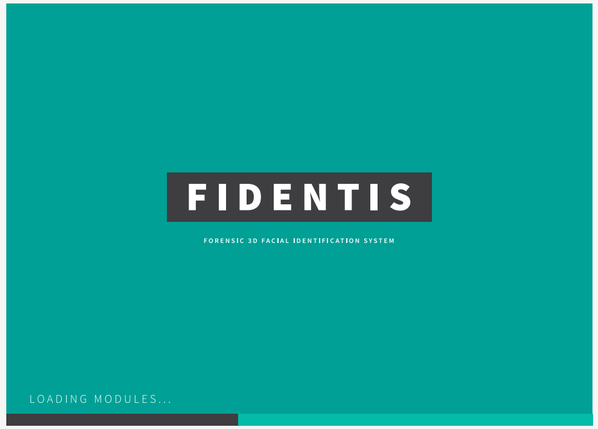
BATCH PROCESSING

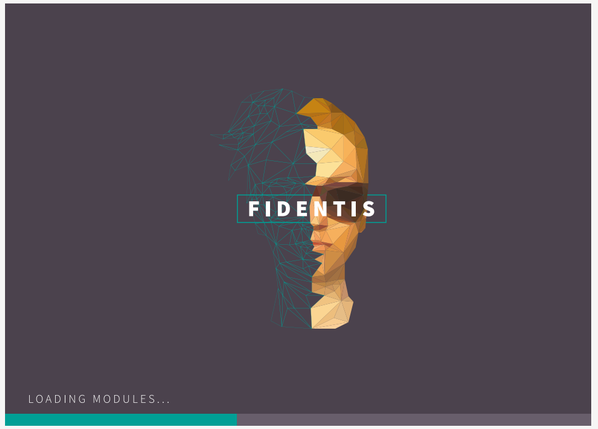


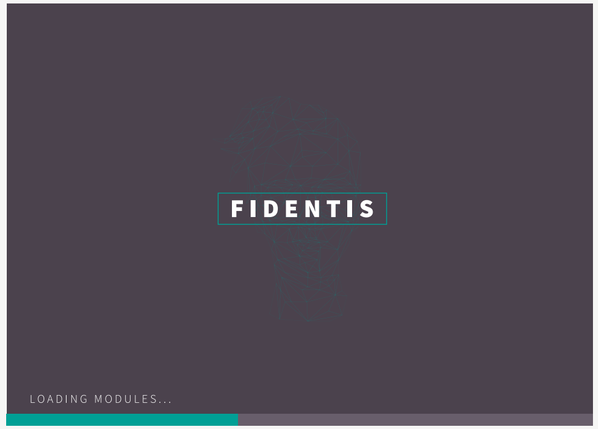


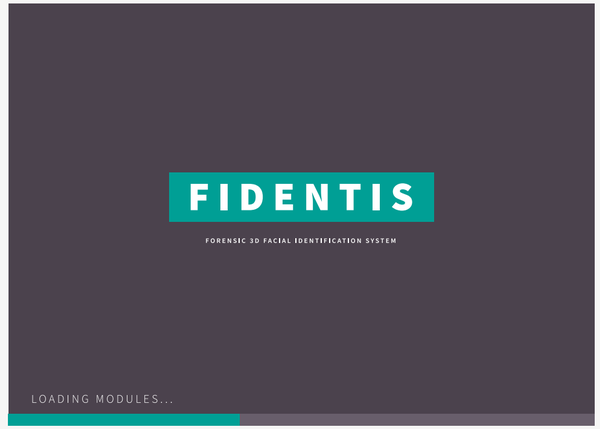












SPLASH SCREEN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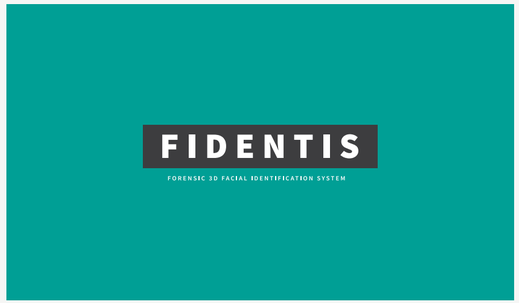
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Forensic 3D Facial Identification Software

MOTIVATION

An appropriate visual representation of morphological variation greatly improves the process of understanding and interpreting clinical findings and facilitates communication with a patient or next-of-kin. In this manner the developmental anomalies can be easily identified, surgery or treatment outcome can be predicted or within or between-population variation can be displayed. Currently existing methods are able to visualize the comparison between two facial models. Our aim is to compute and visualize the morphological variations on the large set of human faces.

OUR APPROACH

Firstly we compare the facial meshes of different persons or the same person in different ages, then we create an average face derived from the input set of faces, determine the most and the least varying facial parts and present them intuitively to the user. For this purpose we utilize color maps mapped onto the average facial mesh.

ALGORITHM DESCRIPTION

Our algorithm takes as an input the dataset of high resolution 3D scans of human faces, taken from our 3D Virtual Model Database of Human Faces (facial meshes of around 2000 individuals).

THE METHOD CAN BE DIVIDED INTO THE FOLLOWING PARTS:

1. ALIGNMENT OF FACES

We select a random face from the input set which serves as the initial average face. The other faces from the input set are then aligned to the average face using the ICP algorithm.

2. CREATING THE FINAL AVERAGE FACE

We find the nearest neighbor of each point in the initial average face to every face in the input set. On this basis, we compute a new average face which is used in the next iteration.

3. DETERMINING THE VARIATION

From the final average face and the input set we can determine the variation of the set by calculating the Hausdorff Distance between the average face and each face of the input set. The final variation is then determined as the variance of the results for each point on the final average face.

4. CREATING COLOR MAP

The resulting values are then used to create the color map which is applied to the final average face.

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POSTER

AUTOR:

ADAM MIHALOV