DOUBLE KITE STRUCTURE OF THE HUMAN FACE

It is well known to individuals working in the AI area of facial recognition, that the superposition of hundreds of frontal face images can be morphed into a single image giving precise locations for averaged eyes, nose , and mouth. The following shows such an averaging-

AVERAGE CAUCASIAN MALE AND FEMALE FACE SHOWING SUPERIMPOSED DOUBLE KITE FEATURES

data source: https://www.pinterest.com/pin/ 522910206706662100/
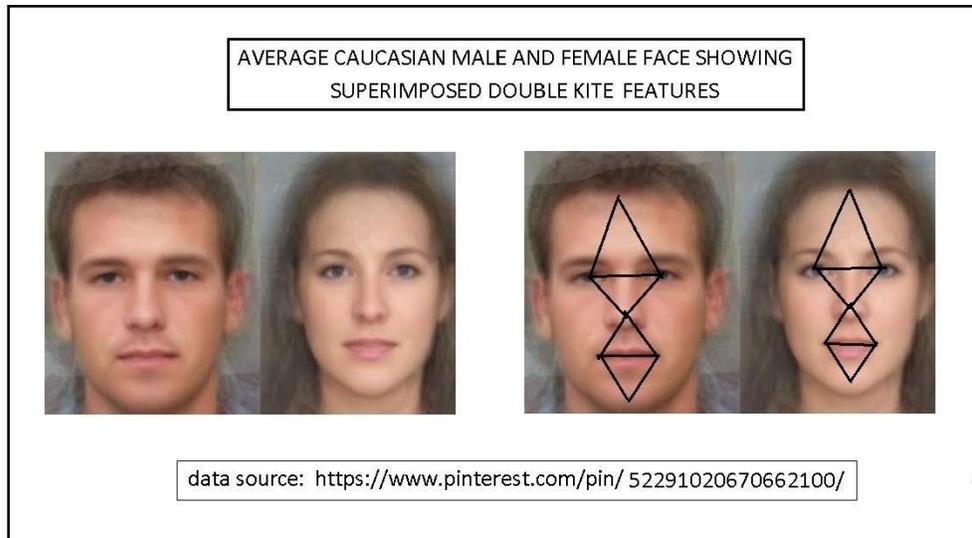
We see first of all that the averaged face is rather attractive with perfect bilateral symmetry. I have superimposed on this image a grid pattern connecting the more important facial features. I call this grid the **double kite pattern** with the upper downward pointing kite connecting the hairline to the pupils of the eyes to the nose tip. The lower upward pointing kite connects the chin bottom with the mouth extremes to the nose tip. We first came up with this grid structure some nine years ago (search FACIAL REGONITION u.h.kurzweg). You notice the pattern is almost but not quite identical for the averaged male and female image.

In thinking about the above averaged values, it became clear to me that our brain must have this pattern stored and individuals are recognized by departures from this averaged pattern. This means that small departure from the average will be hard to find via facial recognition by computer while larger departure will be easy to spot.

It is our purpose here to the precisely locate the various facial features of the averaged male and female face. These numbers should be the departure points when analyzing a particular individual using an appropriate data base.

We begin with carrying out measurements on the double kite for the male and female patterns shown above. We find, by normalizing the distance from the hairline to the chin bottom as z=1, other points in the grid pattern can be easily calculated. One finds the following scaled double kite structures-
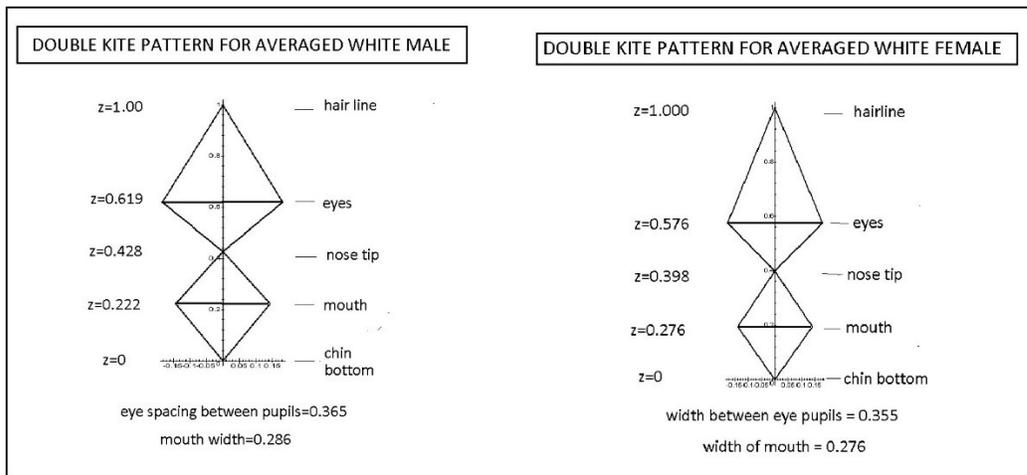

The facial pattern for the female seems a bit thinner. However, this does not take away the fact that the eye spacing between pupils compared to the mouth width stays very close to 1.3. Furthermore there are two near Xs formed between the eye and mouth level with the crossing occurring at the nose tip.

The simplest identification will be of individuals showing obvious departures from the standard double kite pattern. There are numerous personalities which show such larger departure. It makes them easy to find from large data lists. Those individuals closest to the above averaged dual kite patterns will be most difficult to recognize by a computer search.

Next we searched the web for two attractive individuals to see how their double kite pattern compares with the earlier averaged results. Here is the result-

DOUBLE KITE FACIAL PATTERN FOR IDEAL CAUCATION FEMALE AND MALE

Facial Double Kite Feature of an Attractive Caucasian Female

Double Kite Facial Pattern for Ideal Male
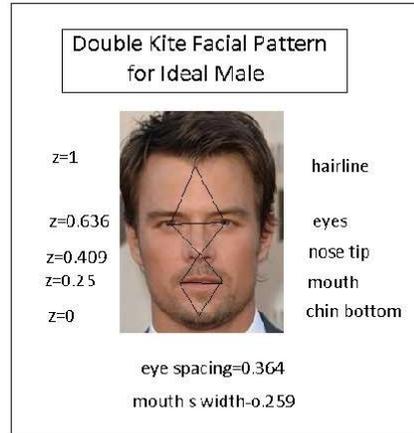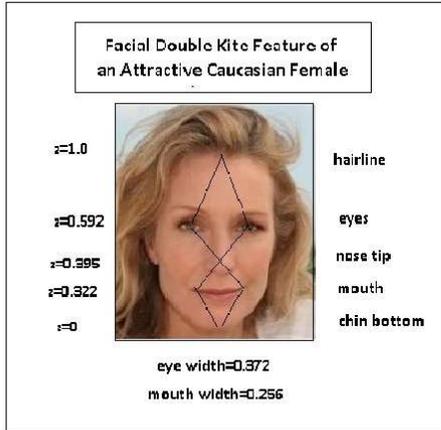
What is most interesting about their facial features is that they closely resemble those of the averaged male and female suggesting that our brain is tuned to judge individuals as attractive if they closely follow the above double kite facial pattern. Facial recognition of individuals closely approximating the above double kite patterns will be more difficult to pick out from a data base .

U.H.Kurzweg
August 15, 2021
Gainesville, Florida