

Face Aging Hypothesis Against **how-old.net**

13th assignment in PV181

Bc. Jan Kvapil

December 20, 2018

1 Tested Several Facial Features

Each of the following subsections (starting with 1.2) corresponds to one specific hypothesis (with the exception of the last one being a bit more complicated). The files can be found in the respective directories. All modifications were done manually in Gimp using the tools `Warp transform` and `Paintbrush tool`.

1.1 Baseline

The provided pictures (in `data/baseline` dir) were used as baselines for all the subsequent hypothesis. The baseline ages were 27 for `martin.jpg` and 34 for `vlasta.jpg`. The baselines are always included for brevity.

1.2 Longer nose

Hypothesis. The age of a person is estimated to be higher as its nose gets longer.

Martin		Vlasta	
image	age	image	age
<code>baseline/martin.jpg</code>	27	<code>baseline/vlasta.jpg</code>	34
<code>experiment_1/a_martin.jpg</code>	29	<code>experiment_1/a_vlasta.jpg</code>	33
<code>experiment_1/b_martin.jpg</code>	27	<code>experiment_1/b_vlasta.jpg</code>	32
<code>experiment_1/c_martin.jpg</code>	24	<code>experiment_1/c_vlasta.jpg</code>	31

Table 1: Experiment 1 results.

Results. For results see [1](#).

Conclusion. Even though it's possible, that the prolonged nose gives higher age, the hypothesis should be *rejected* as the data gives lower age in most cases.

1.3 Gray hair

Hypothesis. A person with gray hair is estimated to be older.

Martin		Vlasta	
image	age	image	age
baseline/martin.jpg	27	baseline/vlasta.jpg	34
experiment_2/a_martin.jpg	27	experiment_2/a_vlasta.jpg	38
experiment_2/b_martin.jpg	29	experiment_2/b_vlasta.jpg	41
experiment_2/c_martin.jpg	29	experiment_2/c_vlasta.jpg	40

Table 2: Experiment 2 results.

Results. For results see 2.

Conclusion. This hypothesis should not be rejected as in all of the cases the ages were increased (however, not linearly). But in order to be confident we should gather more data.

1.4 Longer ears

The following hypothesis was tested only on the first subject, as it was almost impossible to test on the second one (more precisely on the provided image).

Hypothesis. The age of a person is estimated to be higher as it has more longer ears.

Martin	
image	age
baseline/martin.jpg	27
experiment_3/a_martin.jpg	23
experiment_3/b_martin.jpg	28
experiment_3/c_martin.jpg	24

Table 3: Experiment 3 results.

Results. For results see 3.

Conclusion. This hypothesis should be *rejected* as only in one case the age was estimated to be higher than the baseline.

1.5 Forehead wrinkles

Hypothesis. The age of a person is estimated to be higher as it has more wrinkles on the forehead.

Results. For results see 4.

Conclusion. This hypothesis should be *rejected* as only in one case the age was estimated to be higher than the baseline.

Martin		Vlasta	
image	age	image	age
baseline/martin.jpg	27	baseline/vlasta.jpg	34
experiment_4/a_martin.jpg	27	experiment_4/a_vlasta.jpg	34
experiment_4/b_martin.jpg	27	experiment_4/b_vlasta.jpg	33
experiment_4/c_martin.jpg	26	experiment_4/c_vlasta.jpg	35

Table 4: Experiment 4 results.

1.6 Eye wrinkles

Hypothesis. The age of a person is estimated to be higher as it has more wrinkles below the eyes.

Martin		Vlasta	
image	age	image	age
baseline/martin.jpg	27	baseline/vlasta.jpg	34
experiment_5/a_martin.jpg	27	experiment_5/a_vlasta.jpg	24
experiment_5/b_martin.jpg	27	experiment_5/b_vlasta.jpg	36
experiment_5/c_martin.jpg	27	experiment_5/c_vlasta.jpg	37

Table 5: Experiment 5 results.

Results. For results see 5.

Conclusion. This hypothesis should be *rejected* as only in one case the age was estimated to be higher than the baseline.

1.7 Smaller lower jaw

Hypothesis. The age of a person is estimated to be higher as it has more wrinkles below the eyes.

Martin		Vlasta	
image	age	image	age
baseline/martin.jpg	27	baseline/vlasta.jpg	34
experiment_6/a_martin.jpg	24	experiment_6/a_vlasta.jpg	36
experiment_6/b_martin.jpg	24	experiment_6/b_vlasta.jpg	28
experiment_6/c_martin.jpg	24	experiment_6/c_vlasta.jpg	28

Table 6: Experiment 6 results.

Results. For results see 6.

Conclusion. This hypothesis should be *rejected* as in most cases the person appeared to be younger than the baseline.

1.8 Neck wrinkles

Hypothesis. The age of a person is estimated to be higher as it has more wrinkles on the neck.

Martin		Vlasta	
image	age	image	age
baseline/martin.jpg	27	baseline/vlasta.jpg	34
experiment_7/a_martin.jpg	26	experiment_7/a_vlasta.jpg	36
experiment_7/b_martin.jpg	25	experiment_7/b_vlasta.jpg	34
experiment_7/c_martin.jpg	27	experiment_7/c_vlasta.jpg	34

Table 7: Experiment 7 results.

Results. For results see 7.

Conclusion. This hypothesis should be *rejected* as in most cases the person appeared to be younger or of the same age as the baseline.

1.9 All at once

Finally, we've tried to combine all the previous hypothesis, however, due to time constraints only one specific change was done on each subject.

Hypothesis. All the previous hypothesis considered at once.

Martin		Vlasta	
image	age	image	age
baseline/martin.jpg	27	baseline/vlasta.jpg	34
experiment_8/a_martin.jpg	29	experiment_8/a_vlasta.jpg	35

Table 8: Experiment 8 results.

Results. For results see 8.

Conclusion. This hypothesis should be *rejected* since we don't have enough data points. But it's encouraging, that the two data points suggest, that the hypothesis might hold.