**Binary Layer 0 –** along face bounds

Left rotation (04) – xC decreased, yC increased.

Right rotation - centroid moved higher

Smile – small difference too

Median filter – difference is small

**Binary Layer 1 –** skin pixels

Left – xC changed more compared to yC

Right – no dramatic changes, a bit more xC increased

Smile – no dramatic changes

**Binary Layer 2 –** central region around nose, eyebrows and lips

Left - no big changes, xC+, yC-

Right – almost same

Smile – almost same, however I expected increased yC

**Binary Layer 3 –** lips and ears

Left – almost same

Right – same

Smile – almost same too. Also expected centroid to get higher

So we may conclude that head rotations mostly affect on boundaries. Application of the average filter mostly have no effect on centroid position.