

Final list of transformation

This document presents all the transformations used for generating the video queries for the copy detection pilot task. For each transformation, the parameters, the limits of their values and an illustration in the worst case are described.

T1 : Cam Cording

Parameter : *angle*

Values: 3 different angles

T2 : Picture in picture Type 1 (The original video is inserted in a front of a background video)

Parameters: *scale* , *position*

Values: scale : 0.3 ... 0.5

position : 5 positions (top right, top left, bottom right, bottom left, center)



T3: Insertions of pattern

Parameters: *Random pattern inserted*

Values : 15 different patterns



T4 : Strong réencodage

Parameters : *change of resolution, bitrate*

Values : bitrate : 16000 ... 64000

resolution : 0.14 ... 0.33

At the end the video is reencoded in mpeg1.



T5 : Change of gamma

Parameter : *gamma*

Values : 0.3 ... 1.8



T6 and T7 : decrease in quality

7 transformations are used.

1. Blur :

Parameters : blur

Values : 1 ... 3



2. Gamma : see **T5**

3. Frame dropping:

Parameter : *frequency*

Values: 0.05 ... 0.2

4. Contrast :

Parameter : contrast

Values : 0.7 ... 1.3



5. Compression: see **T4**

6. Ratio

Parameter : letterbox

Values : 0.75 ... 0.9



7. Noise (white noise)

Parameters

Values 0.1 ... 0.2 (normalized)



For **T6**, 3 transformations are randomly selected and combined.

For **T7**, 5 transformations are randomly selected and combined. **T8 and T9** : Post Production transformation

7 transformations are used.

1. Crop

Parameter: *number of pixels covered from the extrema*

Values: 5 ... 20 pixels



2. Shift

Parameter : *DeltaX, DeltaY*

Values: DeltaX : -50 ... 50 pixels

DeltaY : -40 ... 40 pixels



3. Contrast : see above

4. Caption (text insertion)

Parameter : *color*

Values: black, red, green (or inverted)



5. Flip (vertical mirroring)

Parameter : no parameter



6. Insertion of pattern : see **T4**

7. Picture in Picture type2 (the original video is in the background)

Parameters: *scale* , *position*

Values: scale : 0.2 ... 0.5

position : 5 positions (tr, tl, br, bl, c)



For **T8**, 3 transformations are randomly selected and combined.

For **T9**, 5 transformations are randomly selected and combined.

T10 : Combination of everything

5 transformations among all the transformations described above are randomly selected and applied (PiP type 1 et PiP type 2 can not be selected in the same combination).