Shallow representation - From Shallow to Deep representation for multimedia data - Lecture 2 : keypoints

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***Abstract*— This electronic document permits me to synthesis the second course of analysis and indexation.**

I. MATCHING

A. Correlation

Be able to match to the correct image and its meaning. Shape a face in 3D while recording it.

B. Human eye movements

We can see how our eye will read an image. We pick an infrmation and our brain will predict the information.

C. Keypoint matching

Select points on an image that represent the information. With Harris, we can detect the corner using the scale (automatic scale detection). We define a f function to detect the correct scale on an image.

D. SIFT

Extract a part of an image and get diretion of pixel. We use histogram to match the part.

Mainsteps

- Scale-space extrema detection,
- Keypoint localization,
- Orientation assignment,
- Keypoint descriptor.

Integral of an image : sum of all pixel.

E. SURF

Three times faster than SIFT. Less robust to illumination than SIFT.

II. CONCLUSIONS

SIFT : most powerful. Database -¿ keypoints -¿ pool -¿ descriptor Use the descriptor to match the pool.

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REFERENCES

[1] https://moodle.polytech.unice.fr/course/view.php?id=31

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