

Some “Low Level” Vision Problems

- Tracking
- Backgrounding
- Optical Flow
- Stereo
- Affine Invariant Matching
- Medical image registration
- Image stitching

Optical Flow



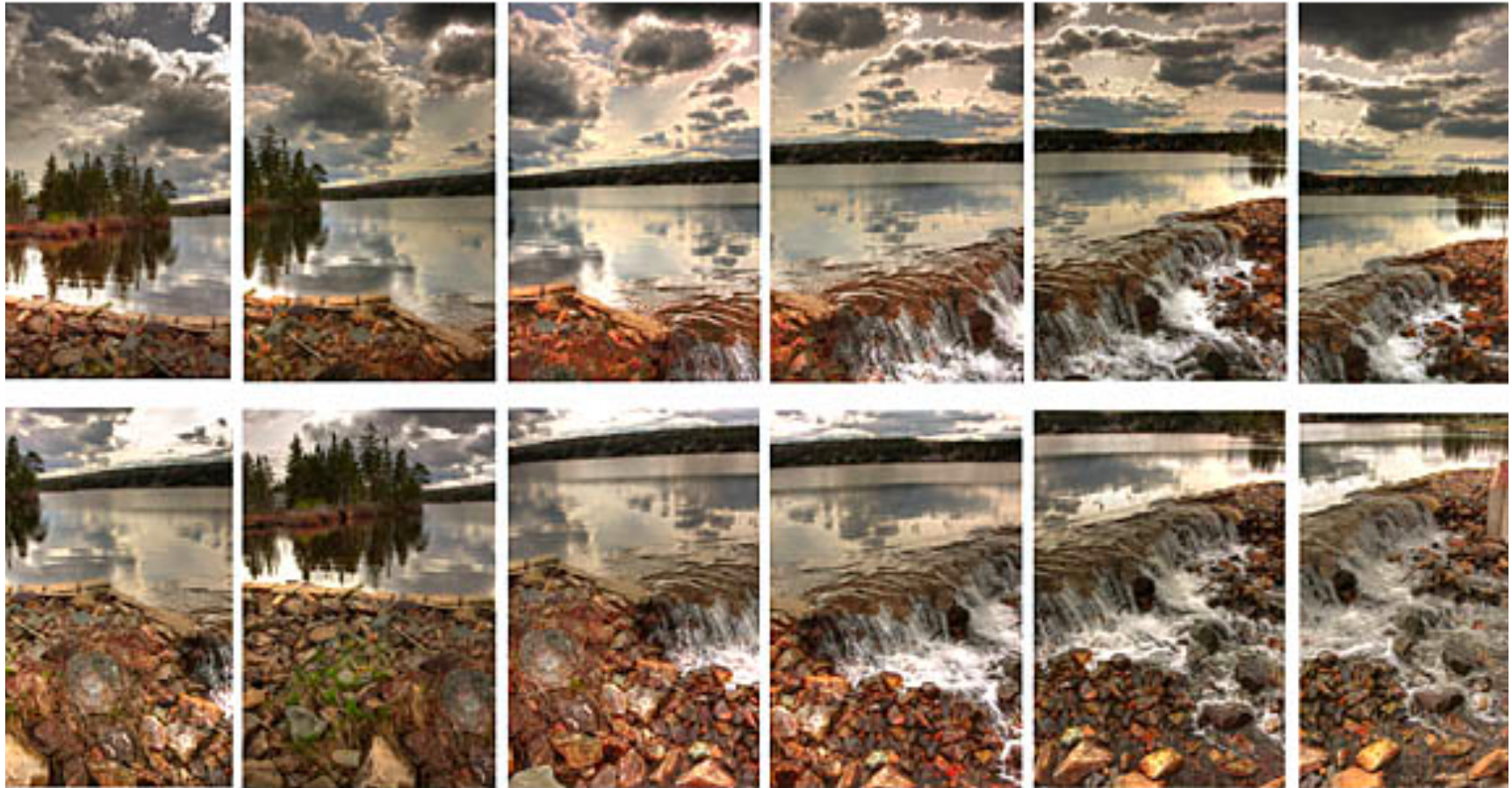
Tracking



Tracking



Panorama Stitching



Panorama Stitching



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- What makes these “low level”?
 - Weak models of appearance

Basics of Tracking

Frame T



Frame T+d



Basics of Tracking

Frame T



Frame T+d

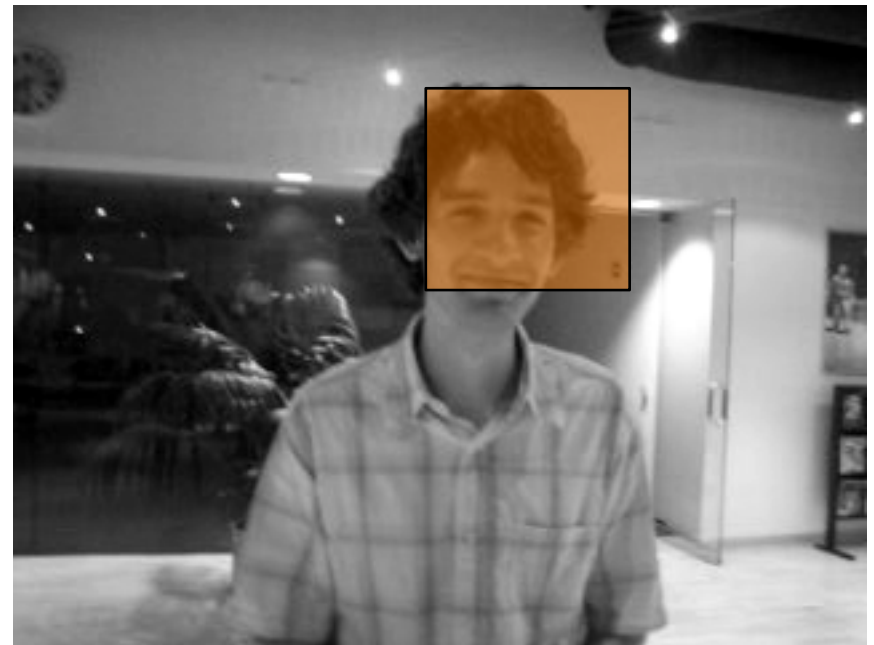


Basics of Tracking

Frame T



Frame T+d



Basics of Tracking

Frame T



Frame T+d



Basics of Tracking

Find best match of patch I to image J,
for some set of transformations.

patch I



image J



The core alignment problem

- Given a patch in one image, find the region in another image that is as similar as possible to that region.
 - What similarity function?
 - Image representation
 - Comparison function
 - What method to find the optimum?