

Dominant Camera Motion Estimation

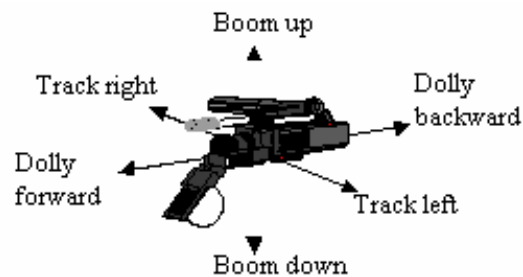
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More Info: <http://www.ims.tuwien.ac.at>

Problem

m3

- Estimate camera motion:



- Additionally: zoom in, zoom out

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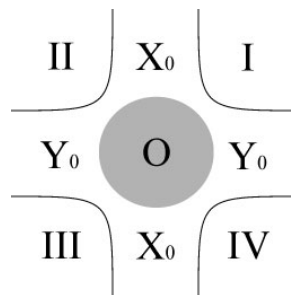
Frame of the Test Sequence



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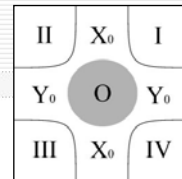
Solution

- Split image into 7 Regions



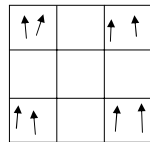
- Statistically analyze regions independently

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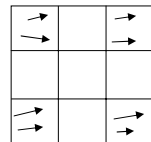


Motion evaluation

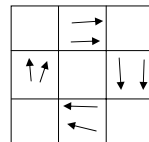
- Compute mean motion in each region
 - tilt, boom: little horizontal movement in Regions I, II, III, IV
 - pan, track: little vertical movement in Regions I, II, III, IV
 - roll: little vertical motion in X0 and little horizontal motion in Y0
 - zoom, dolly: vertical motion in X0 and horizontal motion in Y0



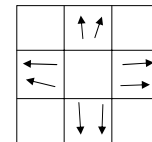
tilt, boom



pan, track



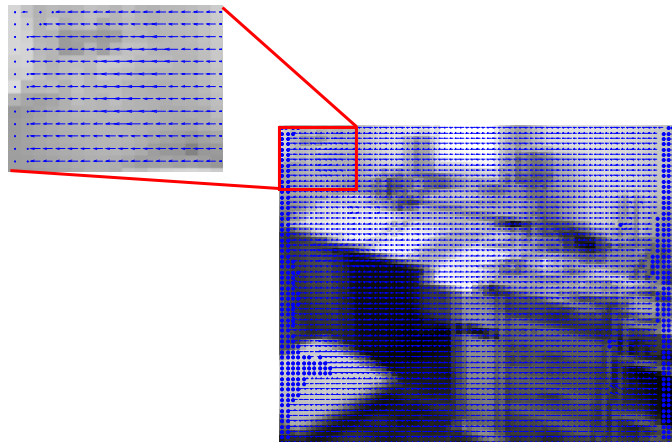
roll



zoom, dolly

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Realworld Examples (pan)



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Roll

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Zoom

More Info: <http://www.i>

References

- W. Xiong, J. Lee: Efficient Scene Change Detection and Camera Motion Annotation for Video Classification, Technical Report HKUST-CS97-16, Hong Kong University of Science and Technology, 1997

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