

Plane/Rotation Induced Homographies

Homography

- Maps from one coordinate space to another

Homography

- Maps from one coordinate space to another
- i.e., from one image plane to another



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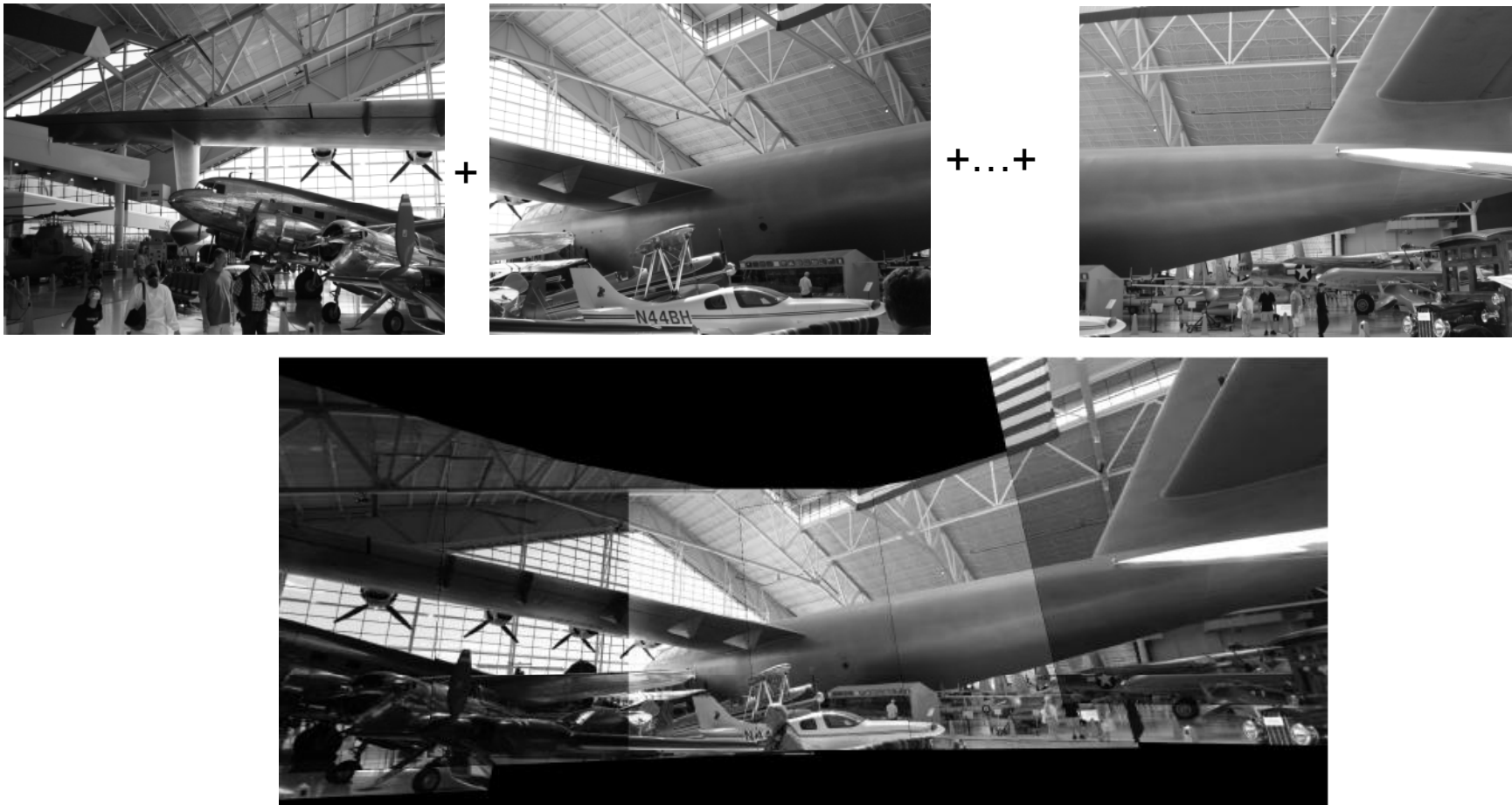


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Homography

- Maps from one coordinate space to another
- i.e., from one image plane to another



Homography

- Camera images.. How do you solve?
 - Setup homography equation
 - Use sample correspondences with equation
 - Solve for homography
- Two systems that give solutions
 - Rotation induced
 - Plane induced

Rotation Induced

- 3D Scene –
 - Camera rotates but no translation



Rotation Induced

- 3D Scene –
 - Camera rotates but no translation



Rotation Induced

- 3D Scene –
 - Camera rotates but no translation



Rotation Induced

- 3D Scene –
 - Camera rotates but no translation
 - On ANY axis. All rotations OK



- If camera moves, homography unsolvable

Rotation about focal point



Plane Induced

- 3d scene is planar



Plane Induced

- 3d scene is planar
- Camera can have arbitrary movement, rotation



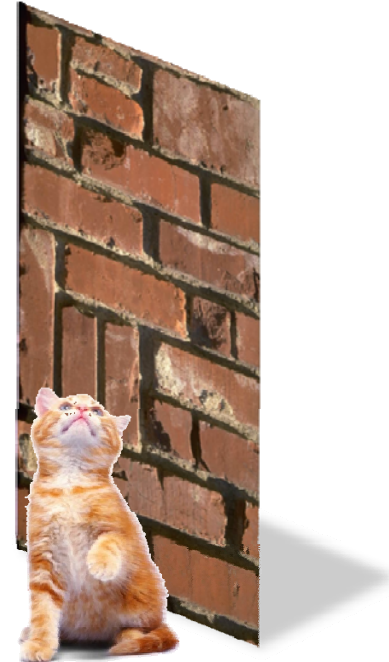
Plane Induced

- 3d scene is planar
- Camera can have arbitrary movement, rotation



Plane Induced

- 3d scene is planar
- Camera can have arbitrary movement, rotation



- If scene is 3D, falls apart

Homography

- Which one is this?



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