

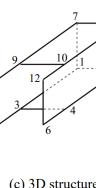
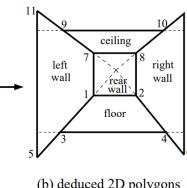
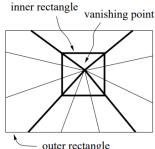


Method

- Select foreground objects

- Mask the selected objects
- Fill the missing pixels

- Draw a rectangle defining the fore and background
- Select the vanishing point



- 3D to 2D Projection with Changed Perspective:
- change the camera viewpoint
- Fill missing pixels using interpolation

Vivid Image

construct 3D scene model from a single image using a **Spidery Mesh**



Challenges

- 3D reconstruction foreground objects



- Corner point selection

- Processing time

- Assuming there is one vanishing point in each picture

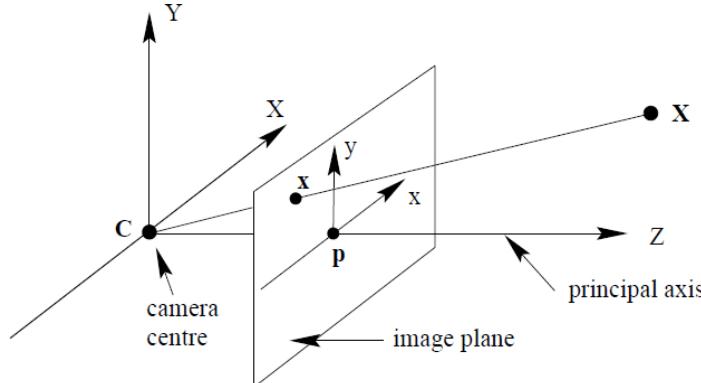


- Focal length estimation

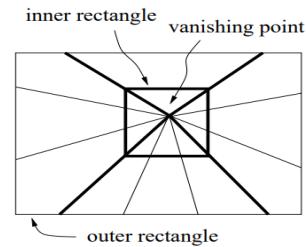
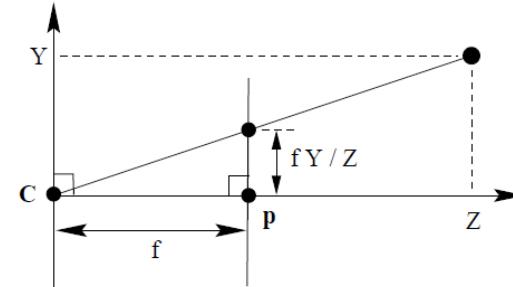
References:

- [1] Kang, Hyung Woo, et al. "Tour into the picture using a vanishing line and its extension to panoramic images." Computer Graphics Forum. Vol. 20. No. 3. Oxford, UK and Boston, USA: Blackwell Publishers Ltd, 2001.
- [2] Horry, Youichi, Ken-Ichi Anjyo, and Kiyoshi Arai. "Tour into the picture: using a spidery mesh interface to make animation from a single image." Proceedings of the 24th annual conference on Computer graphics and interactive techniques. 1997.

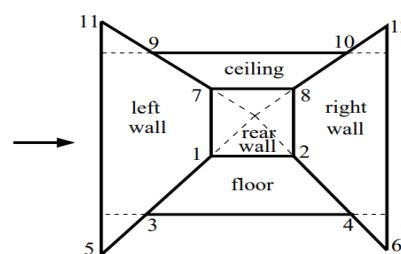
Pinhole Camera



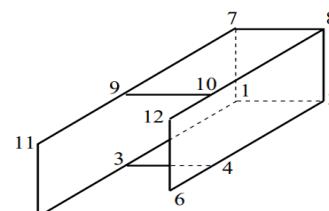
Source: <https://hedivision.github.io/Pinhole.html>



(a) spidery mesh



(b) deduced 2D polygons



(c) 3D structure

Sources: Kang, Hyung Woo, et al. "Tour into the picture using a vanishing line and its extension to panoramic images." Computer Graphics Forum. Vol. 20. No. 3. Oxford, UK and Boston, USA: Blackwell Publishers Ltd, 2001

Challenges – images

