1
Introduction

* ## What is photogrammetry?

→ Photo ⟹ Light

⟹ Photogrammetry ⟹ Measuring with photographs.

" Estimation of the geometric and (Semantic) ← meaning
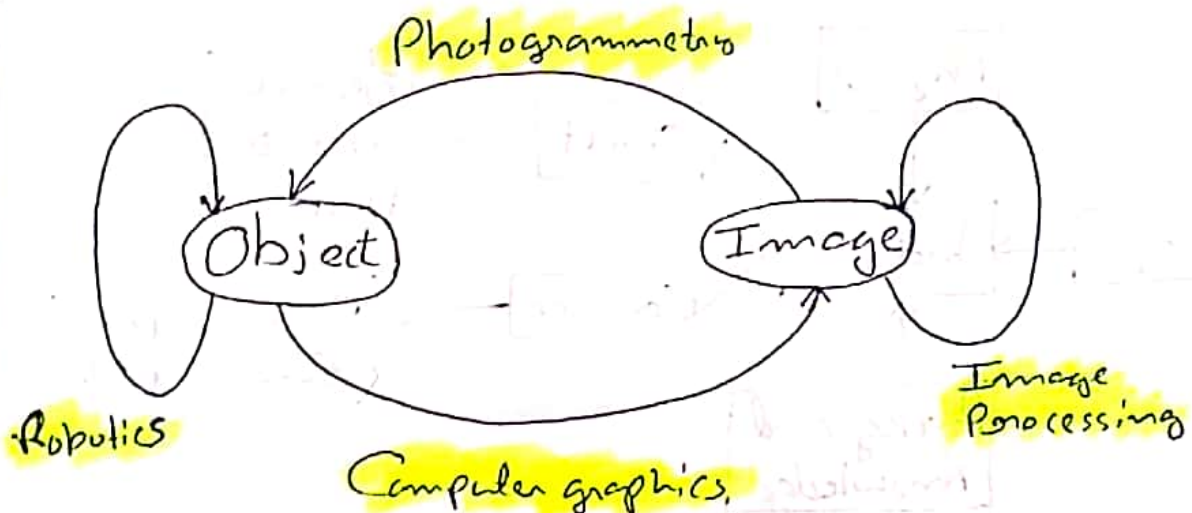Properties of objects based on images or
observations from similar senses "
↓
Laser Scanner

* ## What do we measure?

- Camera orientation
- Location of objects/scene
- 3D reconstruction of objects/scenes.
- Object recognition
- Interpretation of Image
- Semantic Interpretation

* ## Connections
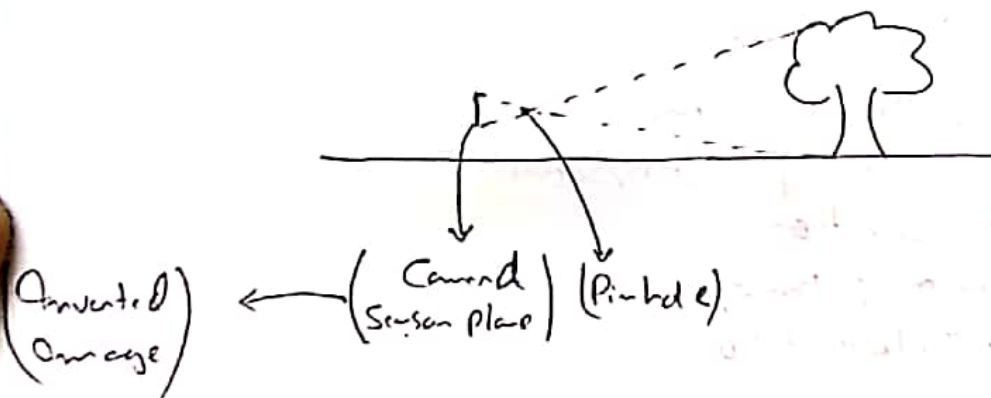
⇒ Cameras Measures Direction

* <u>3D Perception</u>

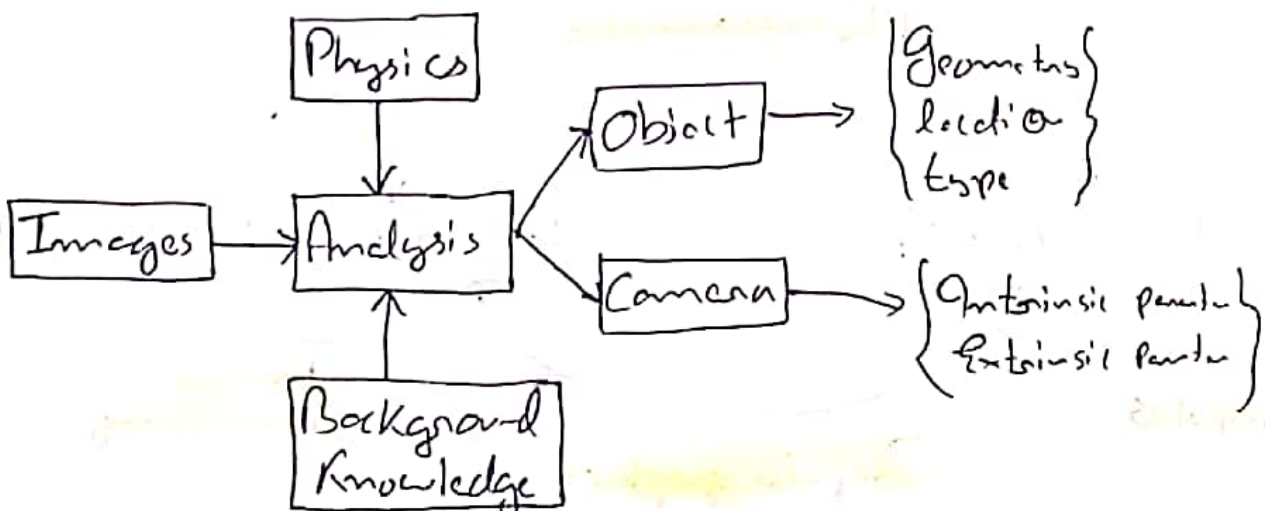Multiple observations from different directions allows for estimating the 3D location of points via triangulation.

* <u>Basic principles</u>

⇒ Camera gives <u>intensity of light</u> of a given wavelength (Photon density)

⇒ <u>Geometry</u>: Typical assumption is pinhole model.

$\begin{pmatrix} \text{Inverted} \\ \text{Image} \end{pmatrix}$ ⟵ $\begin{pmatrix} \text{Camera} \\ \text{Sensor plane} \end{pmatrix}$ (Pinhole)

* <u>The Inverted Mapping</u>

⇒ Typical Camera related problems:-
  o Camera calibration
  o Camera Orientation

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