

DAILY ASSESSMENT FORMAT

Date:	30 th June 2020	Name:	Sushmitha R Naik
Course:	Satellite Photometry And Its Courses	USN:	4AL17EC090
Topic:	Steriophotogrammetry	Semester & Section:	6 th sem & B sec
Github Repository:	Sushmitha_naik		

FORENOON SESSION DETAILS

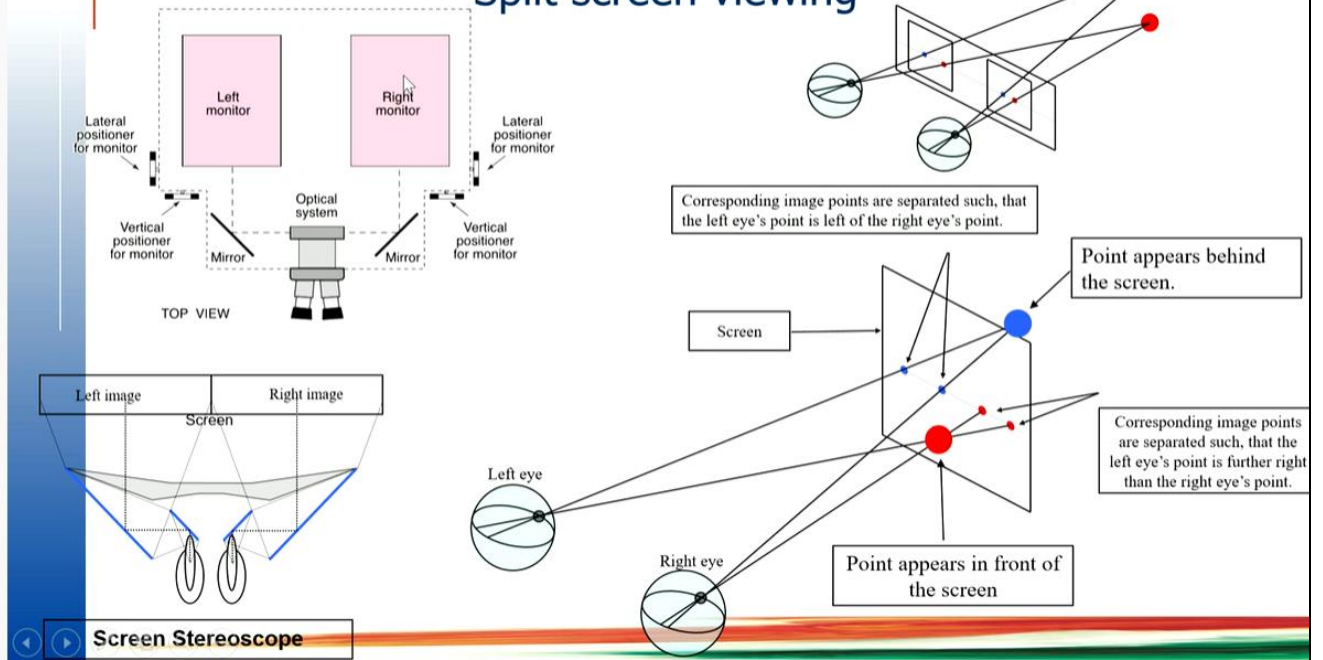
Image of session

The screenshot shows a YouTube video player. At the top, the YouTube logo and a search bar are visible. The video title is "Parallax" in large red letters. Below the title, there are two side-by-side illustrations. The left illustration shows a hand holding a finger up, with the text "Seen by left eye" above it. The right illustration shows the same hand holding the finger up, but from a different perspective, with the text "Seen by right eye" above it. To the right of these illustrations, there is a text box that says "Apparent shift in the position of object due to shift in the position of observation". Below the illustrations, there is a list of bullet points: "Pencil is more displaced because it is close to observer" and "Church is less displaced because it is further away". To the right of the bullet points, there are two more illustrations. The left one shows a pencil and a church, with the text "What your right eye sees" below it. The right one shows the same pencil and church, but from a different perspective, with the text "What your left eye sees" below it. At the bottom of the video player, there is a timestamp "30 June 2020_Concepts of Stereophotogrammetry by Dr. Poonam S. Tiwari" and a view count "5,114 watching now • Started streaming 7 minutes ago". There are also icons for likes, comments, shares, and a subscribe button.



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Split screen viewing



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Understanding the Rotation Matrix

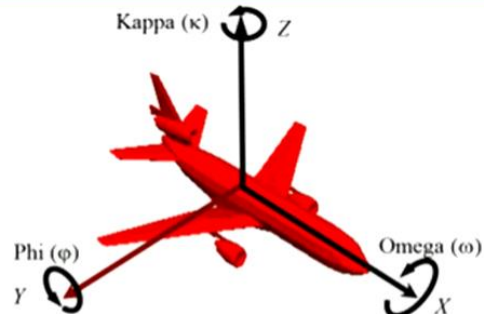
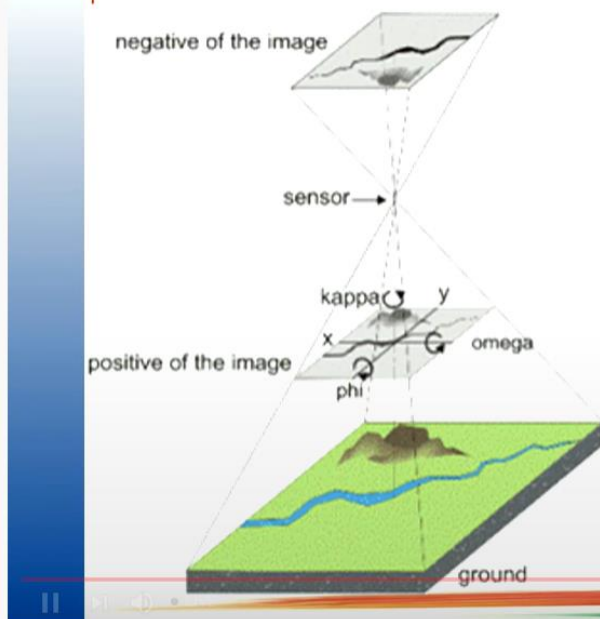


Fig. 1. Aircraft tilt angles: roll (κ), pitch (ϕ), yaw (ω)

$$M = \begin{bmatrix} m_{11} & m_{12} & m_{13} \\ m_{21} & m_{22} & m_{23} \\ m_{31} & m_{32} & m_{33} \end{bmatrix}$$

30 June 2020_Concepts of Stereophotogrammetry by Dr. Poonam S. Tiwari

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Report:

- Methods that allow for the objective assessment of facial form are becoming increasingly important for research in dysmorphology, genetics, orthodontics and surgical disciplines among others.
- Such methods also have the potential to enhance clinical care by facilitating surgical planning, improving outcome assessment, and aiding in syndrome delineation. Non-contact 3D surface imaging systems are rapidly replacing traditional "hands-on" anthropometry as the preferred method for capturing quantitative information about the facial soft-tissues.
- advantages: minimal invasiveness, quick capture speeds (often under one second), and the ability to archive images for subsequent analyses. In addition, a number of independent studies have demonstrated a high degree of precision and accuracy across a wide variety of 3D surface platforms.
- The safety, speed and reliability of data acquisition that these systems offer are particularly helpful when working with young children, for whom quantification of facial features can be challenging.
- The most common class of 3D surface imaging system is based on digital stereophotogrammetric technology. These systems are capable of accurately reproducing the surface geometry of the face, and map realistic color and texture data onto the geometric shape resulting in a lifelike rendering.
- The mathematical and optical engineering principles involved in the creation of 3D photogrammetric surface images have been thoroughly described.

- The combination of fast acquisition speed and expanded surface coverage (up to 360 degrees) offer distinct advantages over older surface imaging modalities like laser scanning. With decreasing cost, 3D stereophotogrammetric imaging systems are becoming increasingly common in clinical and research settings .
- With any new technology, a number of factors must be considered in order to achieve optimal performance.
- Though camera manufacturers provide suggestions for device set up and calibration, limited information is available on the practical issues that will inevitably confront new users of this technology.
- However, such issues can adversely impact the reliability of data collection, and consequently, influence the clinical and research study results. In
- order to ensure optimal interpretation of the study results, all aspects of data collection should be rigorously evaluated .
- The name photogrammetry comes from two Greek words, phos 'light' and gramma 'writing'; it has been defined as the art, science and technology of obtaining reliable quantitative information about physical objects and the environment through the process of recording, measuring and interpreting images and patterns of radiant or transmitted energy derived from sensor systems.

Comparison of collinearity and coplanarity condition:

- The present work emphasizes on using collinearity condition, coplanarity condition and DLT method for determining the camera exterior orientation parameters.
- The derivation of the mathematical formulation based on each suggested methods is explained. The comparison of the results of the methods was performed based on accuracy aspects using mathematical and actual photogrammetric data.
- The used data shows that the suggested methods are suitable for camera exterior orientation parameters determination for a block of photographs of any size.
- The results of this investigation prove that the accuracy of using coplanarity equations is slightly better than using collinearity equations or DLT method.
- Although the results of the DLT method are less accurate than those of using collinearity or coplanarity equation, DLT method is essential when the necessary information for the collinearity or coplanarity model is not available.