**DAILY ASSESSMENT FORMAT**

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| **Date:** | **29-06-2020** | **Name:** | **Dhanya Shetty** |
| **Course:** | **IIRS OUTREACH PROGRAMME** | **USN:** | **4AL17EC026** |
| **Topic:** | **Satellite Photogrammetry**  **and its Application** | **Semester & Section:** | **6th A** |
| **Github Repository:** | **Dhanya Shetty\_026** |  |  |

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| **FORENOON SESSION DETAILS** |
| C:\Users\Hp\Desktop\report\Screenshot_20200629-161248.png  C:\Users\Hp\Desktop\report\Screenshot_20200629-162450.png  **C:\Users\Hp\Desktop\report\Screenshot_20200629-162536.png**  **C:\Users\Hp\Desktop\report\Screenshot_20200629-163037.png**  **C:\Users\Hp\Desktop\report\Screenshot_20200629-163234.png**  **C:\Users\Hp\Desktop\report\Screenshot_20200629-163412.png**  The 3D coordinates define the locations of object points in the 3D space. The image coordinates define the locations of the object points' images on the film or an electronic Imaging device. The exterior orientation [6] of a camera defines its location in space and its view Direction. The inner orientation defines the geometric parameters of the imaging process. This is Primarily the focal length of the lens, but can also include the description of lens distortions. Further additional observations play an important role: With scale bars, basically a known distance of two points in space, or known fix points, the connection to the basic measuring units is created. Each of the four main variables can be an input or an output of a photogrammetric method. Algorithms for photogrammetry typically attempt to minimize the sum of the squares of errors over the coordinates and relative displacements of the reference points. This minimization is known as bundle adjustment and is often performed using the Levenberg–Marquardt algorithm.  Stereo photogrammetry Edit "Stereo photogrammetry" redirects here. It is not to be confused with Roentgen stereophotogrammetry.Main article: 3D reconstruction from multiple images Main  category: Stereo photogrammetry See also: Computer stereo vision A special case, called  Stereo photogrammetry, involves estimating the three-dimensional coordinates of points on an object employing measurements made in two or more photographic images taken from different positions (see stereoscopy). Common points are identified on each image. A line of sight (or ray) can be constructed from the camera location to the point on the object. It is the intersection of these rays (triangulation) that determines the three-dimensional location of the point. More sophisticated algorithms can exploit other information about the scene that is known a priori, for example symmetries, in some cases allowing reconstructions of 3D coordinates from only one camera position.  Stereo photogrammetry is emerging as a robust non-contacting measurement technique to determine dynamic characteristics and mode shapes of non-rotating and rotating  Structures. Integration Edit Photogrammetric data with a dense range data in which scanners  Complement each other. Photogrammetry is more accurate in the x and y direction while range data are generally more accurate in the z direction [citation needed]. This range data can be supplied by techniques like LiDAR, laser scanners (using time of flight, triangulation or interferometry), white-light digitizers and any other technique that scans an area and returns x, y, z coordinates for multiple discrete points (commonly called "point clouds"). Photos can clearly define the edges of buildings when the point cloud footprint cannot. It is beneficial to incorporate the advantages of both systems and integrate them to create a better product.  A 3D visualization can be created by dereferencing the aerial photos and LiDAR data in the same reference frame, orthorectifying the aerial photos, and then draping the orthorectified images on top of the LiDAR grid. It is also possible to create digital terrain models and thus 3D visualisations using pairs (or multiples) of aerial photographs or satellite (e.g. SPOT satellite imagery). Techniques such as adaptive least squares stereo matching are then used to produce a dense array of correspondences which are transformed through a camera model to produce a dense array of x, y, z data which can be used to produce digital terrain model and orthoimage products. Systems which use these techniques, e.g. the ITG system, were developed in the 1980s and 1990s but have since been supplanted by LiDAR and radar-based approaches, although these techniques may still be useful in deriving elevation models from old aerial photographs or satellite images. Applications Edit Play media Video of a 3D model of Horatio Nelson bust in Monmouth Museum, produced using photogrammetry Play media Gibraltar 1 Neanderthal skull 3D wireframe model, created with 123d Catch Photogrammetry is used in fields such as topographic mapping, architecture, engineering, manufacturing, quality control, police investigation, cultural heritage, and  Geology.  Archaeologists use it to quickly produce plans of large or complex sites, and meteorologists use it to determine the wind speed of tornados when objective weather data cannot be obtained. Photograph of person using controller to explore a 3D Photogrammetry experience, Future Cities by DERIVE, recreating Tokyo. It is also used to combine live action with computer-generated imagery in movies post-production; The Matrix is a good example of the use of photogrammetry in film (details are given in the DVD extras). Photogrammetry was used extensively to create photorealistic environmental assets for video games including The Vanishing of Ethan Carter as well as EA DICE's Star Wars Battlefront.[13] The main character of the game Hell blade: Sauna’s Sacrifice was derived from photogrammetric motion capture models taken of actress Melina Juergens.[14] Photogrammetry is also commonly employed in collision engineering, especially with automobiles. When litigation for accidents occurs and engineers need to determine the exact deformation present in the vehicle, it is common for several years to have passed and the only evidence that remains is accident scene photographs taken by the police. Photogrammetry is used to determine how much the car in question was deformed, which relates to the amount of energy required to produce that deformation. The energy can then be used to determine important information about the crash (such as the velocity at time of impact). Mapping Edit Learn more This article contains too many quotations for an encyclopaedic entry. Photomapping is the process of making a map with "cartographic enhancements"[15] that have been drawn from a photomosaic [16] that is "a composite photographic image of the ground" or more precisely as a controlled photomosaic where "individual photographs are rectified for tilt and brought to a common scale (at least at certain control points)."  **Webinar on “Campus2Corporate” hosted by K S Soumya, Senior Reconciliation Analyst at State Street on Monday, June 29,2020.**  **C:\Users\Hp\Desktop\report\web222.PNG**  **C:\Users\Hp\Desktop\report\web111.PNG** |

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