Basics of Digital Photogrammetry

Photogrammetry as a science is among the earliest techniques of remote sensing. The word photogrammetry is the combination of three distinct Greek words 'Photo', 'Gram' and 'metry' which translated in English literally means, light, drawing and measurement respectively. For the laymen, photogrammetry is the technological ability of determining the measurement of any object by means of photography. To better understand the workings or the scope of photogrammetry, it is imperative to know the basic definition of remote sensing described as the process of determining desired information about a situation or an object from a distance; this essentially means without any physical contact with the object.

There are two types digital photogrammetry

For starters, there are 2 distinctive types of digital photogrammetry, 'close-range' and 'aerial'. As the name suggests, close range digital photogrammetry involves the use of a camera mounted on a tripod stand of vehicle or a hand held devise. In this case, the individual images captured by the camera in order to create a 3D picture of the object. This type of photogrammetry technique called 3D Texturing which can be used to create building facades (3D textured building) or any such physical objects those can be viewed from the ground level.

Aerial photogrammetry is done by mounting the camera in an aircraft and subsequently taking photographs of the ground. It is typically done in a straight-down manner. The shutter of the camera is put in to action every few moments as the aerial vehicle moves along the flight path. Previously, film cameras were deployed to capture the images however with the advent of digital technology, digital camera are used in a more efficient manner. These cameras come in very handy when it comes to manipulating the captured images in to something more useful. No matter what type of camera is utilized the captured frames are overlapped with the subsequent chain of frames. These chains of images are then metaphorically 'stitched together' in to a seamless order to make a wholesome picture of the object in interest. Typically, aerial photogrammetry is deployed for mapping terrain, Planimetric data creation, and 3D layer capturing

Photogrammetry for 3D Imagery

A valuable and novel application of photogrammetry is the creation of 3D models. This is sometimes also known as stereo-photogrammetry. This involves the combination of two imagery captured of the same object but from slightly varying angles of having overlap of 60%. Digital photogrammetry helps in producing DEM, DTM , DSM generation, stereo compilation, topographic and Planimetric feature extraction(2D and 3D), Ortho generation and True Ortho generation etc. These

models provide the on-looker with 3D pictographic evidence of the object on the ground.

Photogrammetry can also be used in combination with other technologies such as **Light detection and Ranging (LiDAR)** to create more precise information for city planners, mining experts, geologists, archaeologists, engineers and to anyone else who has a vested interest in visual map of an area.

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