

Demonstration on UAV-based remote sensing data acquisition and integration in 3D models

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3D Photogrammetric triangulation

- 3D Photogrammetry is the science and technology of obtaining reliable information about physical objects and the environment through the process of recording, measuring and interpreting photographic images.
- Patterns of electromagnetic radiant imagery and other phenomena can be uses during photogrammetric modeling.
- There are many variants of photogrammetry:
 - Three-dimensional measurements,
 - Two-dimensional,
 - Representation of accurate color ranges and values (albedo, specular reflection, metallicity, or ambient occlusion).



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3D Photogrammetric triangulation



Source: https://blog.codecentric.de/



Source: https://astrolabe.gr/



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Data collection with cameras



Source: https://www.canon.ge/



Source: http://photogrammetry.irc.umbc.edu/



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Source: https://www.canon.ge/



Data collection with cameras





Data collection with drones





Data collection with the UX-series robots



Data collection with the UX-series robots

The "conical" arrangement of photos taken resulted in a

helical pattern from a single camera.



Georeferencing the point clouds

- For the model in the previous video, a new topographic survey was made on the visible polygons.
- Marker points were put on the joints of survey polygon system in order to georeference the images and 3D model.
- The zero point of the Molnar Janos Cave polygon system is the "csavar" on the metal jetty in the Kessler Chamber.
- The starting point "csavar" was used e\as follows:







A34D



Thank you!

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