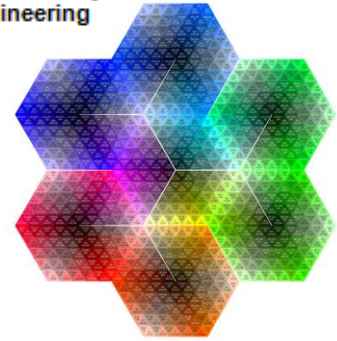


Photogrammetry II

Lecture 1: Introduction



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Geomatics Department



What you learn from this course

1. Be familiar with various Photogrammetric principles, analogue, analytical and digital Photogrammetry.
2. To know the theory of photogrammetry, photographic methods and other field considerations.
3. The Relationships of Photogrammetry with GPS/GNSS, Remote Sensing, Cartography and GIS.
4. Learn the types of coordinates systems and transformations in Photogrammetry.
5. Imagery measurements and refinements in Photogrammetry.
6. The Photogrammetric Orientation.
7. To demonstrate how to use various photogrammetry software.
8. How to plane and ortho rectification of imagery.



Course Contents 1ST Part:

- (Lec. 1) Introduction
- (Lec. 2) Principles of Photography and Imaging
- (Lec. 3) Image measurements and refinements
- (Lec. 4) Camera Calibration
- (Lec. 5) Coordinates systems
- (Lec. 6) Two-Dimensional Coordinates Transformation
- (Lec.7) Three-Dimensional Coordinates Transformation
- (Lec. 8) Mid-Term Exam



Weighting of Assessments:

Assessment	Weight
Mid-term Examination	20%
Semester work	20%
Final Examination	60%
Total	100%



What is Photogrammetry

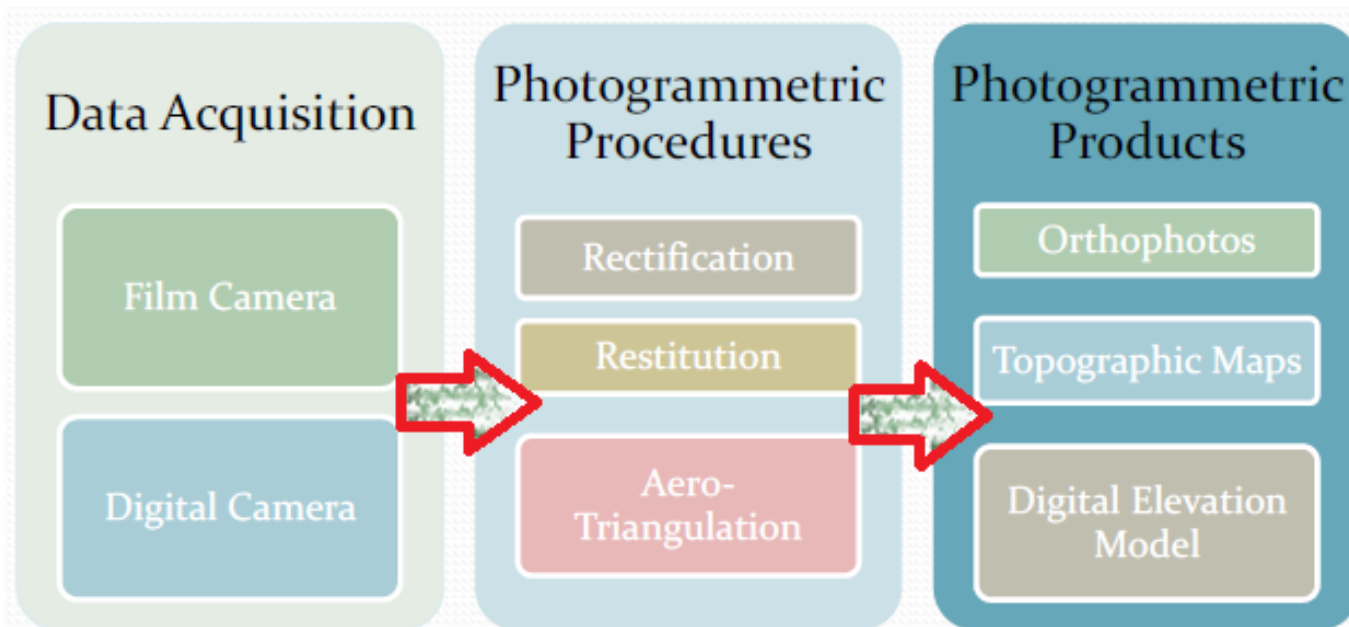
- The science of measuring from photographs which is composed of three Greek words.
- **Photos**: which means 'Light'.
- **Graphein** : which means 'Write'
- **Metron** : which means 'Measure'
- Definition: "art, science and technology of obtaining reliable information about physical objects and the environment through the process of recording, measuring and interpreting photographic images and patterns of electromagnetic radiant imagery and other phenomena"



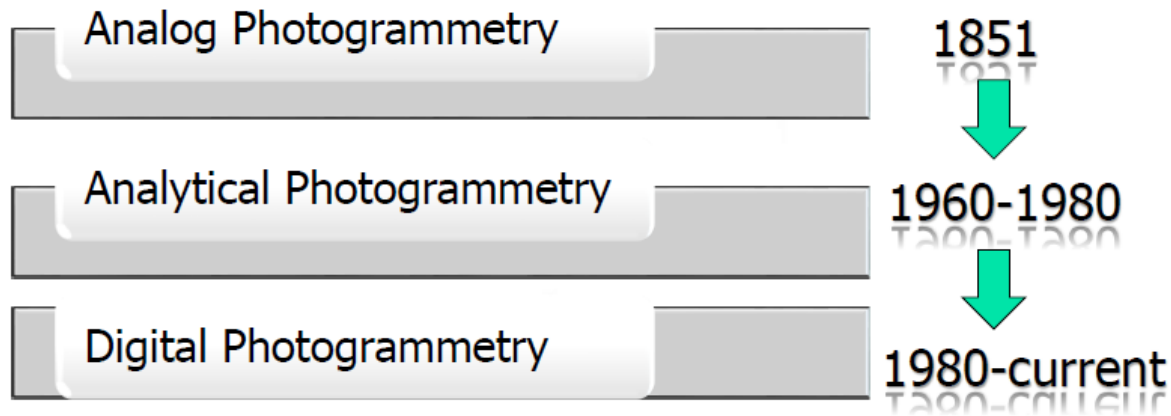


Photogrammetry Workflow

- Data Acquisition,
- Photogrammetric Procedures
- Photogrammetric Products.

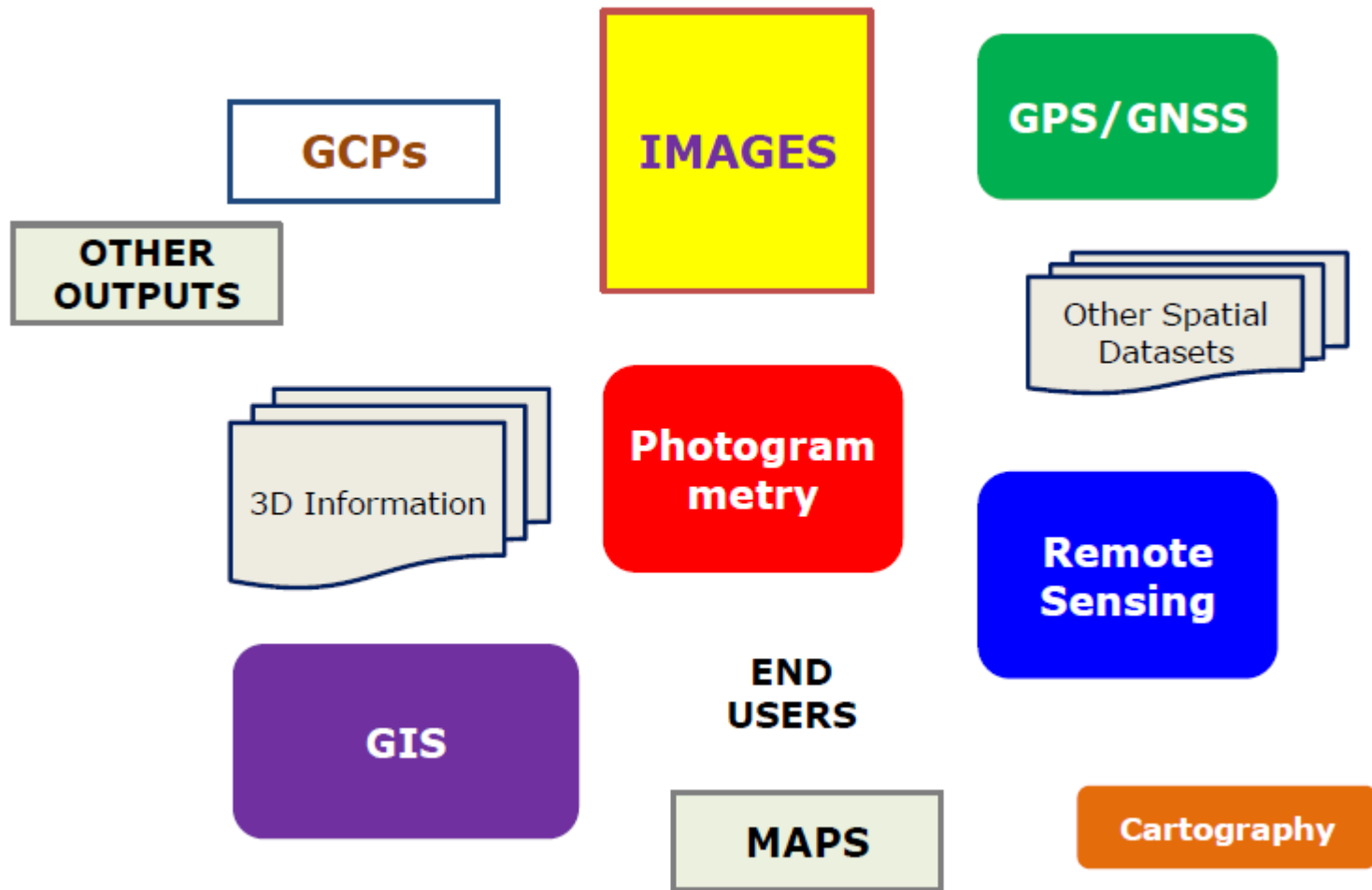


Branches of Photogrammetry

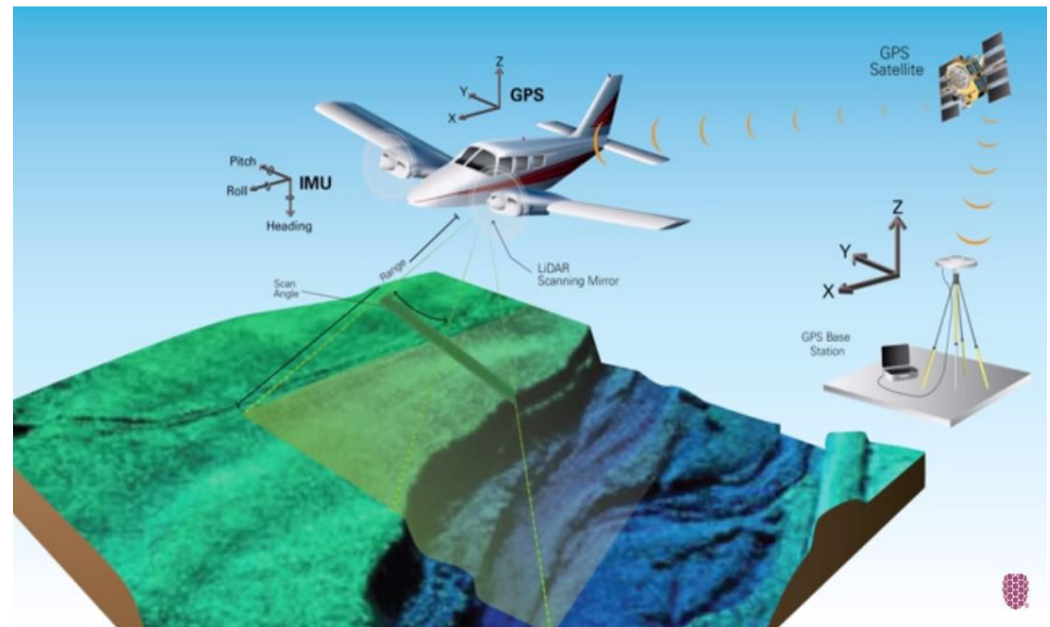
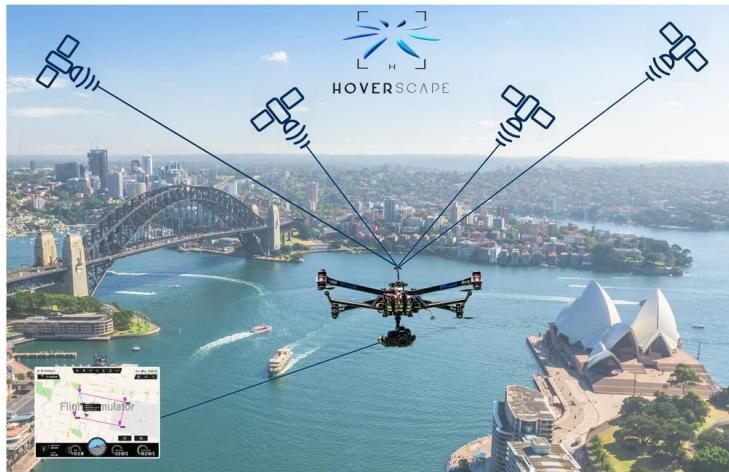




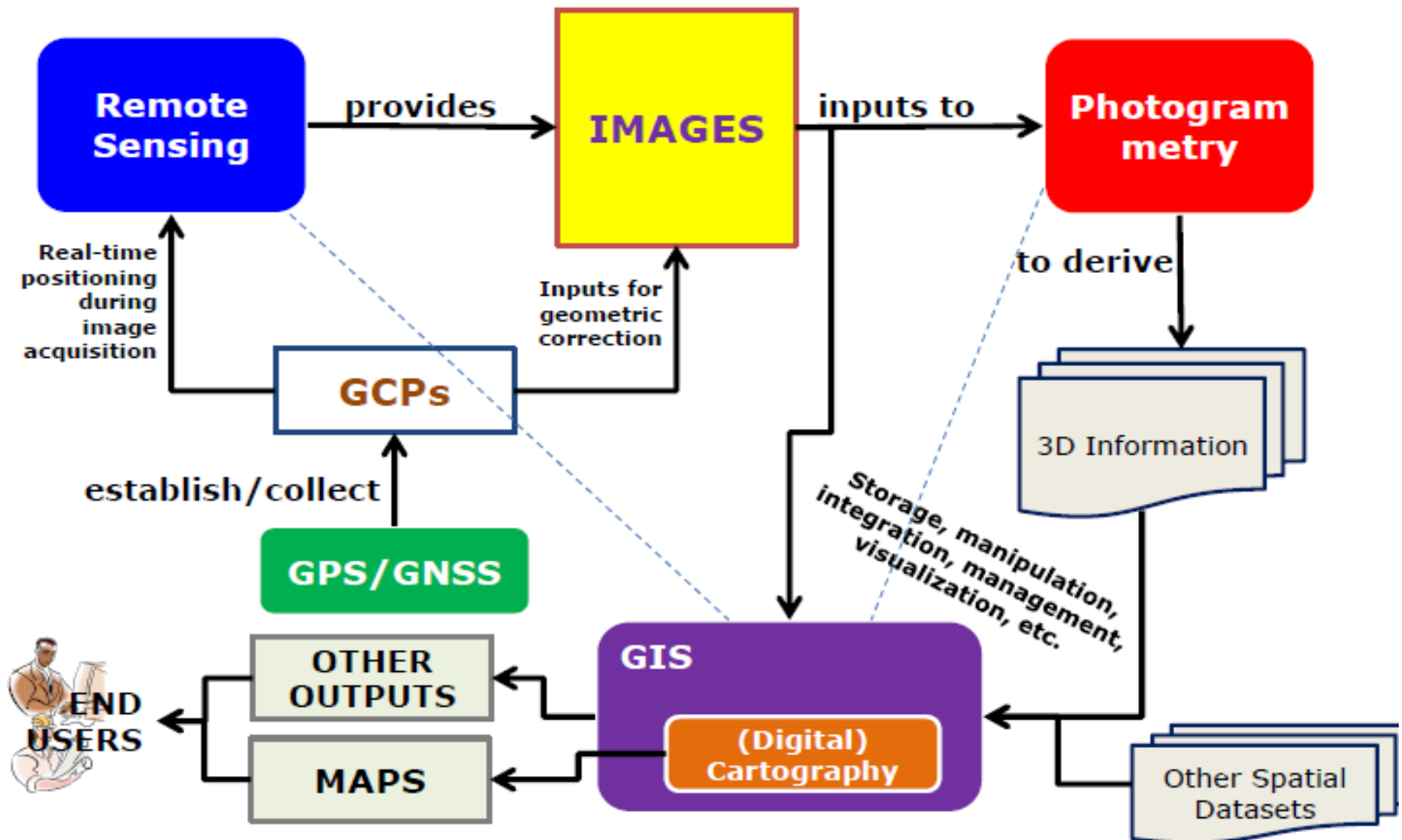
The relationships of Remote Sensing, GNSS, GIS & Photogrammetry



The relationships of Remote Sensing, GNSS, GIS & Photogrammetry



The relationships of Remote Sensing, GNSS, GIS & Photogrammetry





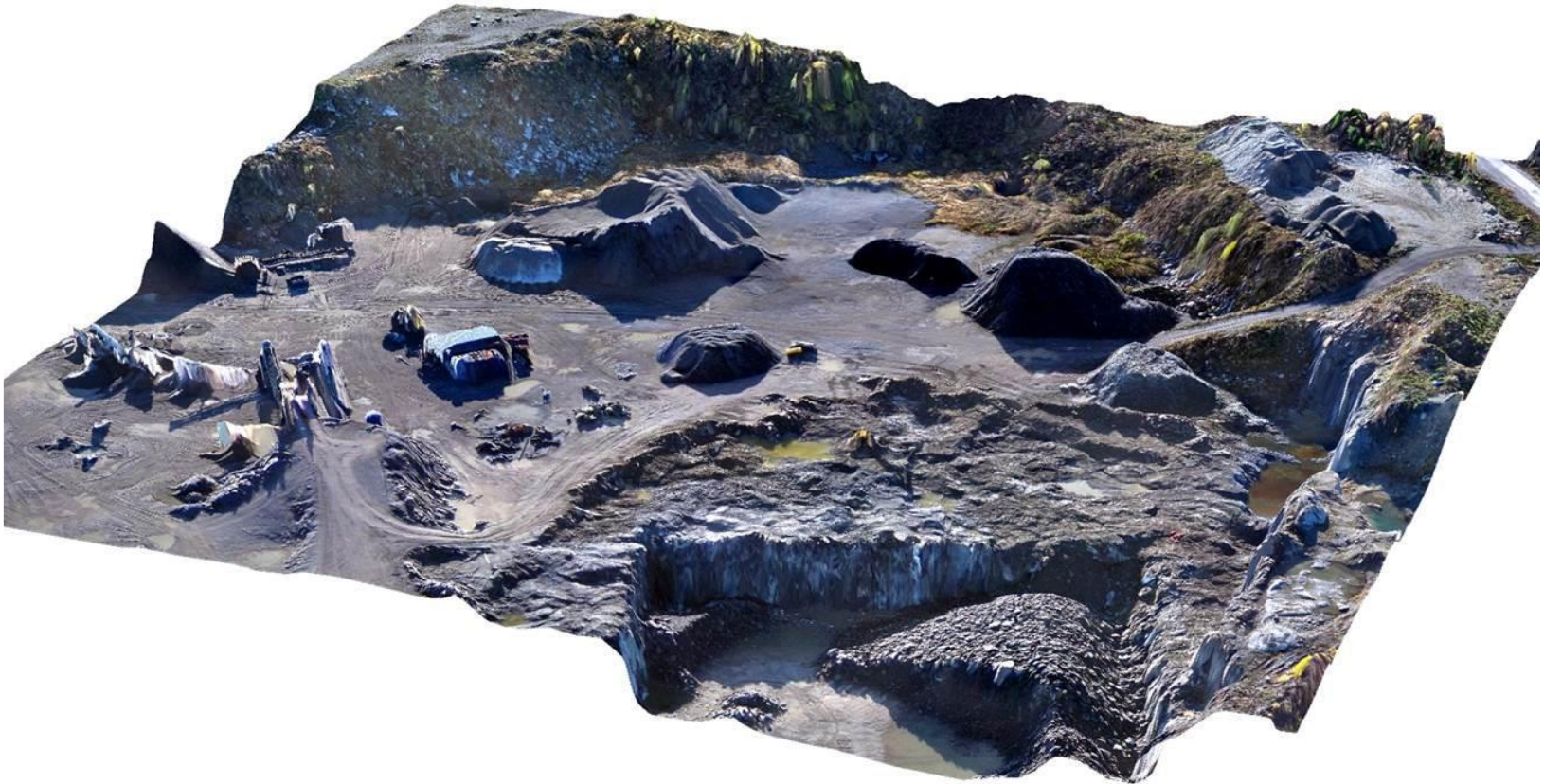
Applications of Photogrammetry

- Geology
- Forestry
- Agriculture Soil type
- Design and construction
- Planning of civil improvements.
- Cadastral problems
- Environmental Studies.
- Military intelligence.
- Miscellaneous: traffic studies.



Applications of Photogrammetry

- 3D models construction





Applications of Photogrammetry

- Archeological monitoring





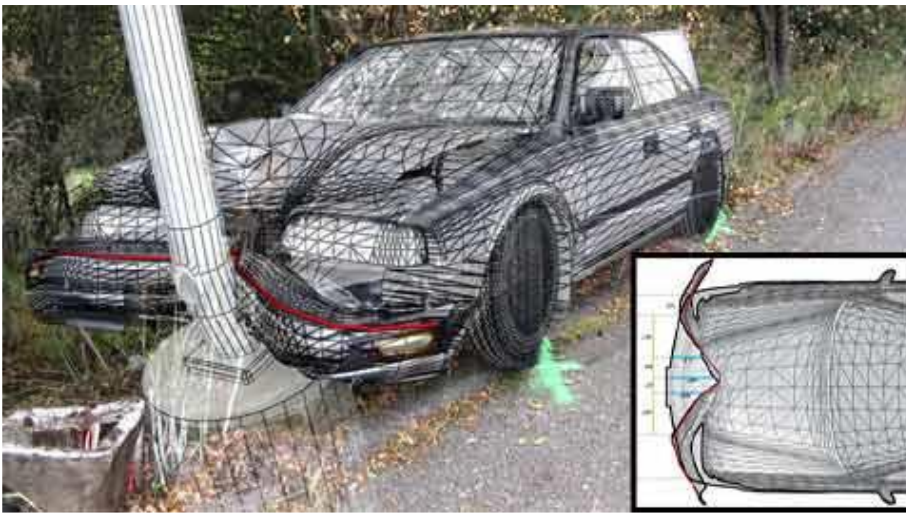
Applications of Photogrammetry

➤ Self Driving cars



Applications of Photogrammetry

➤ Accidents scene investigation





Supplementary files:

- <https://www.youtube.com/c/CyrillStachniss/videos>
- https://www.youtube.com/channel/UC_noeqplgT9Hp4kiCRNkvcA
- <https://www.youtube.com/c/VijayParmar/videos>

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Thanks

Dr.Eng. Hassan Mohamed