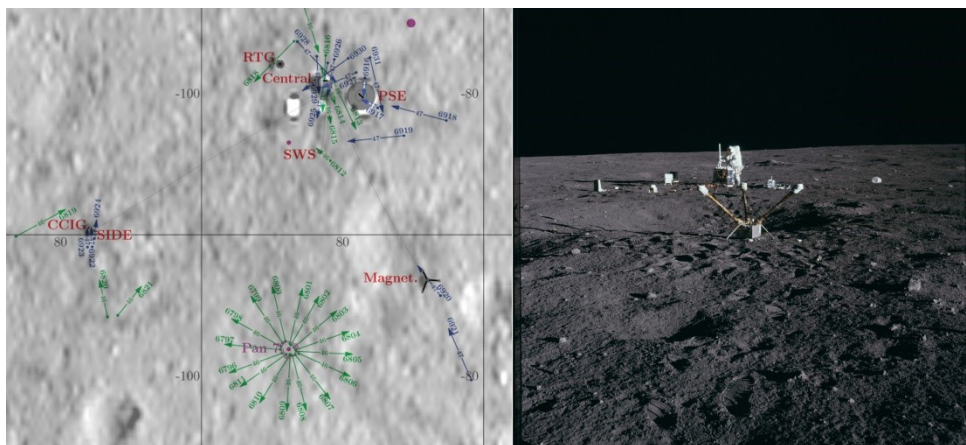


Topic	Photogrammetry of Apollo landing sites
Topic is suitable for	<ul style="list-style-type: none"> • graduation thesis of bachelor students • graduation thesis of master students
Contact	Vladislav-Veniamin Pustönski (vlad.pustynski@gmail.com)
Annotation	<p>In the era of Apollo expeditions (1969-1973), 12 astronauts worked on the surface of the Moon. They performed geological studies, set instruments, visited objects of interest both on foot and by electric rover. They also made thousands of photographs that represent Lunar Modules, flags, antennas, instruments, as well as craters, rocks etc. A high-end photographic equipment was used. These photographs may be used for accurate photogrammetry, i.e. building of a 3D scene from 2D photographic projections.</p> <p>The suggested study is aimed to perform a photogrammetric analysis of a selected landing site. Using a dedicated software, relative positions and orientations of artificial and natural objects will be found. Camera stations (places, from which photographs were taken) will also be discovered.</p> <p>An accurate map of the landing site will be the final outcome of this study. Artificial and natural objects and camera stations will be identified and represented in this map. To verify the accuracy of the map, photogrammetric measurements and comparison with orbital images will be performed. Natural features of interest will be measured if possible (for instance, diameters and depths of craters etc.)</p> <p>An example of a similar study may be found at https://www.hq.nasa.gov/alsj/a11/a11Photogrammetry.html</p>



Left: location of instruments left on the lunar surface by Apollo 12 expedition. Photogrammetric map is overlaid onto the orbital image. The map represents instruments of Apollo Lunar Surface Experiments Package and camera stations with camera azimuths (arrows). Right: view of the same location from the lunar surface (camera station 6921).