MATCHING BETWEEN DIFFERENT IMAGE DOMAINS

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ABSTRACT:

Most of the image registration/matching methods are applicable to images acquired by either identical or similar sensors from various positions. Simpler techniques assume some object space relationship between sensor reference points, such as near parallel image planes, certain overlap and comparable radiometric characteristics. More robust methods allow for larger variations in image orientation and texture, such as the Scale-Invariant Feature Transformation (SIFT), a highly robust technique widely used in computer vision. The use of SIFT, however, is quite limited in mapping so far, mainly, because most of the imagery are acquired from airborne/spaceborne platforms, and, consequently, the image orientation is better known, presenting a less general case for matching. The motivation for this study is to look at the feasibility of a particular case of matching between different image domains. In this investigation, the co-registration of satellite imagery and LiDAR intensity data is addressed.