

Leveraging Deep Learning to Improve UAV Image Matching for On-Demand Mapping

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Key words: Photogrammetry; Remote sensing

SUMMARY

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Summary

Unmanned Aerial Vehicles (UAV) offered mapping professionals the opportunities to acquire high spatial, temporal and spectral resolution imageries on demand at low cost. However due to its peculiarities: low weight, altitudes and small field of view drones they capture large amount of images with deformation, large non-uniformity of scales and illumination, large rotations, occlusion and low-texture among others. These problems present challenges for image matching. Numerous Models were created for image matching but are not specifically for UAV data processing. Deep learning-based models for UAV remote sensing tasks, provides an opportunity for remote sensing big data. The research objectives are: to review of existing deep learning models, analyse their relevance to drone-based image matching and achievable mapping accuracies and the improvements required to fits those models to UAV-based images. Machine learning and UAV remote sensing literatures were utilized for this study. The result expected outcome of the study is the solution for fitting deep learning model in to remote sensing data. Finally, discussion on technical challenges in using deep-learning-based applications for remote sensing big data.

Keywords

Leveraging Deep learning, UAV, Image matching On-demand mapping

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