

Registration of high resolution SAR and optical satellite imagery using fully convolutional networks.

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Abstract

Multi-modal image registration is a crucial step when fusing images which show different physical/chemical properties of an object. Depending on the compared modalities and the used registration metric, this process exhibits varying reliability. We propose a deep metric based on a fully convolutional neural network (FCN). It is trained from scratch on SAR-optical image pairs to predict whether certain image areas are aligned or not. Tests on the affine registration of SAR and optical images showing suburban areas verify an enormous improvement of the registration accuracy in comparison to registration metrics that are based on mutual information (MI).

Involved units

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Leibniz-HKI-Authors



Stefan Hoffmann

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