

Phd defense: 'Efficient Registration of Multi and Hyperspectral Remote Sensing Images on GPU'

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Lugar: CiTIUS Assembly Hall

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Idioma: Inglés

Streaming: Non



The advances in sensor development in the last few years allow obtaining multi and hyperspectral images at low cost. A previous fundamental task in many applications is the registration of images of the same scene which have been taken at different times from different viewpoints and which, furthermore, present changes in objects, in illumination, etc.

In this thesis, the problem of developing faster and more efficient automatic hyperspectral image registration was addressed. The focus was on designing and developing registration methods by producing good registration results in terms of accuracy and efficient computation in commodity hardware. A Fourier-based method and different feature-based methods were implemented to align hyperspectral remote sensing images with large and unknown initial transformations. To handle these extreme situations, the developed algorithms efficiently exploit the available spectral information and not only the spatial one as it is common in the literature. Furthermore, they are projected onto many-core GPUs enabling real-time applications even for large datasets.

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