ISPRS Benchmark on Urban Object Detection and 3D Building Reconstruction

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One of the major topics in photogrammetry is the automated extraction of urban objects from data acquired by airborne sensors. What makes this task challenging is the very heterogeneous appearance of objects like buildings, streets, trees and cars, in particular in data having a very high-resolution, which leads to high intra-class variance while the inter-class variance is low.

It turns out that in this context progress is hampered by the missing availability of state-of-the-art test data for research, either captured with aerial cameras or airborne laserscanners. Only few research groups have access to data of highest quality and resolution and usually these data sets are difficult to be shared between groups due to copyright regulations etc. Thus, as many groups do not have access to state-of-the-art data; the majority of scientific publications evaluate novel methods only on a very limited amount of data, and different groups use different data sets. Results are therefore hardly comparable, which, we believe, significantly slows down scientific progress.

The ISPRS WG III/4 benchmark on "Urban Object Detection and 3D Building Reconstruction" aims at resolving this problem. It offers state-of-the-art data sets which can be used by interested researchers in order to test their own methods and algorithms on urban object classification and building reconstruction. Results can be submitted at any time and are compared to manually annotated 2D and 3D reference data using a standard evaluation framework.

Despite significant efforts by the working group officials, the preparation of benchmark data is very expensive in terms of time and money. Although various data sets have been promised or made available to the WG officials, limited financial resources severely retard the release of new benchmark data. Funding through the ISPRS scientific initiative will allow us to heavily increase 2D and 3D reference data annotation efforts. We believe that this will enable us to at least double the amount of completely annotated benchmark data until summer 2015.