

# **Classification of airborne laser scanning data using information about intensity and width of the recorded signal**

## **Abstract**

One of the basic tasks in analysing airborne laser scanning (ALS) data is filtration of mass 3D point cloud with purpose to create digital terrain model and digital surface model. New scanner generation (so called Full-waveform LiDAR) allows analysing the whole recorded signal. The recorded value of amplitude and signal width accordant with reflectance of different objects differs according to geometry of the objects.

Objective of this thesis is to create a methodology for classification of ALS data in settled areas. This methodology will be based on number of reflections, amplitude of reflected signal, recorded signal width and on spatial attributes. At the same time it will be analysed how the parameters of amplitude and signal width are affected by characteristics of estate surface. It means which radiometrical characteristics (e.g. different roof materials) and geometrical characteristics (e.g. different roof inclination) belong to which amplitude and signal width. Basic question of this thesis is if amplitude and signal width are good attributes to improve the quality of filtration of mass 3D point cloud in chosen area and if so, how.

**Key words:** classification, segmentation, LiDAR, eCognition, intensity of pulse, width of pulse