

## Automatic generation of DTM in forested area using LiDAR remote sensing

Leila Taheriazad

Digital Terrain Model (DTM) is the 3D demonstration of the ground surface. Geometrically, DTM maps  $x, y$  coordinates as a function of terrain elevation  $z = f(x, y)$ . DTM is widely used in Global Positioning System (GPS), Geographical Information System (GIS), and forestry. Traditionally, data collection for DTM is carried out by field measurement and photogrammetry which are time-consuming and labor-intensive. As an alternative Light Detection and Ranging (LiDAR) technology is used. LiDAR is an active remote sensing system which is minimally affected by the external light conditions. Recently, LiDAR technology has been widely used in landscape and environmental assessment, forestry, road management, indoor modeling, urban mapping, urban street maintenance, and geology. The initial step in processing LiDAR data is separating ground and non-ground points. Many algorithms have been developed for LiDAR ground filtering during the past decade. Different filters for generating DTM are classified into four major classes. In this paper these algorithms for automatic DTM generation are studied and compared.