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Application of Close-Range Sensing in Forestry

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Message from the Guest Editor

Close-range sensing techniques include but are not limited to sensors employing laser scanning (light detection and ranging, LiDAR) or digital photogrammetry, attached to static or mobile, terrestrial, or airborne platforms aiming to provide detailed 3D reconstruction of trees and forests. The use of terrestrial point clouds acquired using terrestrial laser scanning (TLS) or close-range photogrammetry has brought new approaches to detailed characterization of individual trees. Compared to conventional forest mensuration techniques, terrestrial point clouds enable non-destructive approaches to directly measure such attributes that have previously required destructive sampling or modeling. Attached to mobile platforms or using wearable sensors while employing simultaneous localization and mapping (SLAM) techniques, detailed terrestrial point clouds can be acquired on the move, which improves the cost-efficiency of point cloud data acquisition. Altogether, state-of-the-art sensor technology accompanied with different point cloud processing methods enables feasible observation tools for improving understanding of the functioning of trees and forests in general.



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