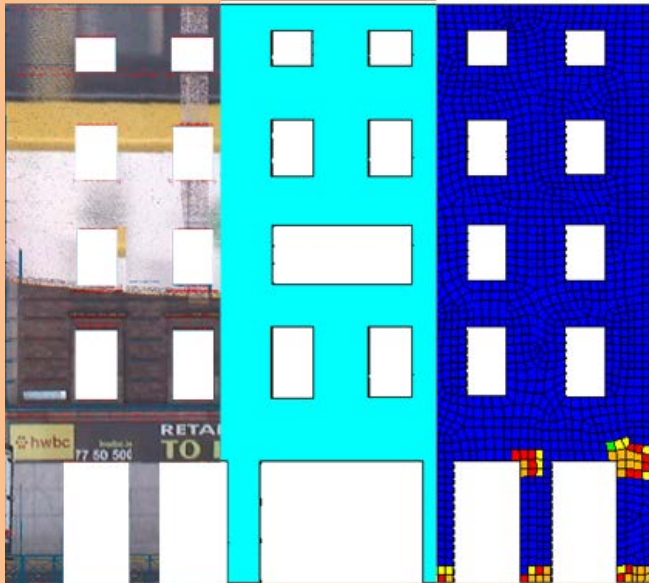


Open Seminar Series

Geoscience & Remote Sensing

OPPORTUNITY OF LASER SCANNING FOR INFRASTRUCTURE ASSESSMENT

Dr. Linh Truong-Hong,
University College Dublin
February 18, 2016
12:40-13:30
CiTG room G



Automatic reconstruction of building models from a point cloud for finite element analysis.

Laser scanning, also known as Light Detection And Ranging (LiDAR) has been used to acquire three dimensional (3D) topographic data points. LiDAR data are widely used in a large range of applications, such as forestry management, 3D city modelling, road detection, disaster management, and 3D building reconstruction for build information modelling. This presentation will discuss an opportunity of laser scanning for infrastructure assessment, which will cover three sub-topics.

1. *Reconstruct building models for computational modeling.* This sub-topic introduced a method through the combination of an angle criterion and voxelisation in automatically reconstructing 3D building façade models compatible for computation modeling. The geometric building models based the proposed method is highly agreement with the benchmark one.
2. *Estimate surface loss due to corrosion.* The method based on angle criterion and 2D cell grid will presented to determine a hole due to corrosion. The automated surface loss procedure was shown to differ less than 10% from manual extraction from the same point cloud.
3. *Measure displacements due to moving load.* The point-surface based method is proposed to calculate vertical displacements of a bridge girder at unloaded and loaded conditions . The scanning time is also determined based on analysing scanning pattern.