

# 3D Imaging and Its Critical Role in Underground Construction

Dr. Matt Lato

Senior Engineer at BGC Engineering Inc.

**WEDNESDAY, November 18<sup>th</sup> at NOON in BB W210**  
 – Lunch Provided –



As tunneling projects become more complex and owners become increasingly risk adverse the need for better quality site specific data is critical. Over the past ten years an incredible amount of research and development into the engineering applications of 3D imaging in the geosciences has taken place. Specifically, LiDAR, photogrammetry and SONAR are changing the way geologists and engineers are able to examine the physical environment in which we work. This talk will present state-of-the-art applications of LiDAR, photogrammetry and SONAR

from projects in North America, South America, Europe and Australia; it will cover examples from hydro power tail and head race tunnels, access shafts, mining, and road / rail transportation. It will present a case study of how LiDAR was instrumental in assessing the stability of the Holmestrand Tunnel during excavation and construction; the Holmestrand Tunnel was the largest underground excavation Europe between 2012 and 2014.



Dr. Lato obtained a B.Sc. in Geological Engineering and a Ph.D. Eng. in Geotechnical Engineering from Queen's University. He has a diverse background in the field of geotechnical applications of 3D remote sensing technologies, specifically LiDAR, photogrammetry and SONAR as well as geohazard risk assessment for linear transportation corridors. He has been involved in projects in Canada, Europe, South America, and Australia. Dr. Lato has worked on various projects including tunneling (drill and blast and TBM excavation), mining (open pit and underground), and slopes along transportation corridors. His direct field of expertise is in the application of 3D data for geotechnical mapping and change detection monitoring and stability

assessment. Dr. Lato is a Senior Engineer at BGC Engineering Inc.

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