

Dear ALL

We are pleased to invite you to the **CEE Distinguished Speaker Series 2026** by **Professor Mike MOONEY** from **Colorado School of Mines, USA** on **8 Sep 2026 (Tue) 2pm at LT 15**.

Please register via the link or QR code below. Thank you.

CEE Distinguished Speaker Series 2026

Speaker : Professor Mike MOONEY from Colorado School of Mines, USA
Topic : Shield TBM – Ground Interaction: What Can We Learn From The Machine
Date : 8 September 2026 (Tuesday)
Time : 2:00 PM – 3:00 PM
Venue : Lecture Theatre 15 (LT 15: NS1-04-07, North Spine, Level 4) [Map](#)
Hosts : Professor CHU Jian, Associate Professor FEI Xunchang
Registration : [Please click here to register.](#)



College of Engineering

CEE Distinguished Speaker Series 2026



Professor Mike MOONEY

Grewcock Distinguished Chair Professor of Underground Construction & Tunneling
Professor, Civil and Environmental Engineering
Professor, Mechanical Engineering
Colorado School of Mines, USA

Shield TBM – Ground Interaction: What Can We Learn From The Machine Data?

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Abstract

This lecture presents recent advances in understanding the complex interaction between shield TBMs and the ground through which they are tunneling. There are three main drivers for advancing this understand, namely (1) to make shield TBMs operate more efficiently; (2) to characterize the as-encountered ground; and (3) to eliminate unacceptable ground deformation. It is conceptually intuitive that the ground influences a TBM's behavior and that a sensed machine provides information about the ground conditions and its behavior. In concept then, rich data from the shield TBM can tell us a lot about the ground conditions. However, the interaction between shield TBMs and the ground is fairly complex and in many ways lacks mechanistic understanding. Recent research has used machine learning techniques to characterize the ground. This presentation introduces this concept and examines the efficacy of ground characterization via exploitation of myriad forms of shield TBM data. At the same time, TBM's cause ground deformation. Estimating and controlling TBM-induced ground deformation is of paramount importance. The presentation examines the estimation of ground convergence and surface settlement via TBM data – associated with mechanistic modeling.

Biography

Professor Mike MOONEY is the founding Director of the university-wide Center for Underground and Director of the Underground Construction & Tunnel Engineering graduate degree program at the Colorado School of Mines, USA. His research and teaching focuses on planning, analysis, design, construction, monitoring and rehabilitation of tunnels, underground civil structures, and other transportation/energy/utility infrastructure systems.

Professor Mooney is a licensed Professional Engineer and, in addition to teaching and research, provides technical expertise to project owners, designers, contractors and equipment suppliers. He serves on project and agency expert panels and participates as an expert witness in project claims and litigation.

**Presented by
School of Civil and Environmental Engineering**

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Regards, School of Civil and Environmental Engineering

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