

CEE 595F – Geotechnical Engineering Seminar

Friday, September 20, 2019 | 11:00 AM, Newmark Lab 3310

A discussion on the formulation and execution of geotechnical exploration programs for tunneling projects, and a case study of a difficult microtunnel project in Louisiana



Shih-Han Su, (BSCE '12 NCTU, MSCE '13 UIUC)

Adrian Naranjo, (BSCE '09 UCR, MSCE '15 UIUC)

Mott MacDonald

Abstract: As with most civil engineering projects, tunneling projects also start with the formulation and execution of a geotechnical exploration program. A full exploration program normally includes a desktop study, planning and performance of field testing, sampling, selection and performance of laboratory tests, data processing, and engineering evaluation. The first half of this presentation will cover the basics of these different stages of a geotechnical exploration program, as well as some lessons learned from several deep/shallow tunnels, shafts, and near-surface structures.

The second half of the talk presents a case study. Design of tunnel projects is not always as streamlined as gathering and processing field and laboratory data; sometimes these projects contain external and political requirements that make design significantly more challenging. The case study covers a microtunneling project located in Louisiana. The tunnel itself is only 670 ft long and 50" in diameter; however, a perfect storm of technical and non-technical requirements has demanded a detailed and iterative design process, showing that sometimes projects may look simpler than what they really are.