

Manh-Huy TRAN

Geotechnical and Tunnel Engineer

- Expertise*** Geotechnical engineering, rock behaviour, tunnelling and underground space, numerical modelling, C++ and Python development.
- Education*** Ph.D. in Geotechnical Engineering, 2014, *École Nationale des Ponts et Chaussées, Université Paris-Est, France*
M.Sc. in Civil Engineering, 2011, *École Centrale de Paris, France*
B.Sc. in Civil Engineering, 2009, *University of Civil Engineering, Vietnam.*
- Professional Affiliations*** Member, French Tunnelling and Underground Space Association (AFTES), French Committee for Rock Mechanics (CFMR)
- Honors*** Pierre Londe prize awarded by French Committee for Rock Mechanics (CFMR)
- Professional Experience***
- 2016 - Present *Itasca Consultants S.A.S., Ecully, France, Geotechnical engineer*
- 2015 - 2016 *Lab. Navier/ Geotechnics Group, Marne-la-Vallée, France, Associate researcher*
- 2011 – 2014 *Tunnel Study Centre (CETU), Bron, France, Associate researcher.*
- Project Experience***
- Numerical investigations for Tunnelling:*
- Stability analysis for deep tunnels through the Alps (Saint-Martin-la-Porte access adit for the Lyon-Turin project, safety gallery of the Fréjus Tunnel, France) (***FLAC3D***);
 - Dynamic analysis in tunnels under explosion load, Stockholm, Sweden (***3DEC***).
- Numerical analysis for Nuclear Waste Disposal:*
- Design verification for the tunnels of the Underground Research Laboratory at Bure, France (***FLAC3D***);
 - Improvement and calibration of a constitutive law for use in safety calculations, France (***FLAC3D+3DEC***);
 - Assessment of the effect of an earthquake on the behaviour of a repository tunnel, Finland (***PFC3D+FLAC3D***);
 - Structural stability analyses of the disposal silo, Ljubljana, Slovenia (***FLAC3D***).
- Numerical modelling for Maritime projects:*

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- Stability of blocky underwater structures under various loads, construction of the new ports of Safi and Tangiers-Med, Morocco (*3DEC*).

Numerical analysis for Mining:

- Study of superposed underground excavations (room and pillar iron mines), and of the effect of pillar mis-alignment on long-term stability, France (*FLAC3D*).

Research and development:

- Development of a 1D finite element code in C++ for analysing the coupled hydro-mechanical behaviour of a saturated/ unsaturated medium, with application to simulate tunnel excavations and the pressuremeter test;
- Implementation of constitutive models (rock and joint models) in *FLAC3D* and *3DEC*;
- Implementation of C++ Fish intrinsic Plug-ins in Itasca Codes:
 - coupled *FLAC3D/PFC3D* environment,
 - automatic structured mesh generation for tunnel support at tunnel intersections,
 - stress resultants computation in tunnel support, for structured and unstructured support meshes,
 - etc;