

Geotechnical Engineer

Expertise Geotechnical Engineering — rock mechanics, soil mechanics, numerical modeling, slope stability analysis

Education Ph.D. (Earth Science), 2009
Imperial College of London, London, U.K.
M.S. (Earth Science and Physics), 2005
Venezuelan Institute for Scientific Research, Caracas, Venezuela
B.S., Central University of Venezuela, 2001

2010 - Present *Itasca Consulting Group, Inc., Minneapolis, Minnesota*
Project Engineer

2007 - 2008 *Imperial College of London, London, U.K.*
Earth Sciences Department, Graduate Student/Teaching Assistant

2006 - 2007 *Simon Bolivar University, Caracas, Venezuela*
Physics Department, Teaching Associate

2005 - 2006 *Central University of Venezuela, Caracas, Venezuela*
Physics Department, Teaching/Research Assistant

2001 - 2004 *Venezuelan Institute for Scientific Research, Caracas, Venezuela*
Research Associate

Project Experience

Granular Materials: Basic research on the universal properties of granular materials: characteristics of the force network developed in a material under different construction paths; orientation evolution of force chains in response to changes of the external load; specific anisotropy measures related to the orientation of particle-particle contacts to differentiate between two components of a granular system

Mechanical Properties of Sands/Rocks: Numerical simulations to investigate the evolution of the elastic properties of porous materials subject to different stress paths and the effect of various cementation processes on the acoustic response of a material; investigation of ultrasonic logs of reservoir sands and comparison with the results from numerical simulations of commonly used theoretical models and empirical relations for sound propagation in sands; modifications to effective medium field formulae to improve the predictive properties of theoretical models.

Fluid Flow: Flow properties of model sands were investigated to address the level of detail at which numerical models must represent the solid skeleton (e.g., grain shape and shape of the grain size distribution) to produce an accurate estimation of the hydraulic permeability of reservoir sands, and to determine the efficiency and accuracy of cutting-edge technologies for fluid flow simulation.