

## **Geotechnical Engineering**

### ***Expertise***

Geotechnical Engineering and Numerical Modeling

### ***Education***

Diploma in Mining (Applied Geomechanics and Geotechnics), 2000  
Civil Engineering, 1988  
Universidad de Chile, Santiago de Chile

### ***Professional Experience***

2008 – Present

*Itasca S.A., Santiago de Chile, General Manager*

1993 - 2007

*Itasca S.A., Santiago de Chile, Geomechanics Engineer*

1988 - 1993

*Geotécnica Consultores, Geotechnical Engineering Division, Santiago de Chile, Project Engineer*

### ***Project Experience***

*Rock Mechanics Applied to Underground Mine Design:* Consulting and geomechanics modeling projects for diverse problems in underground mining, including assessment of mining methods and recommendation of mining sequences for block caving operations, stability analyses for underground chambers and ore-pass sectors. Evaluation of ground-support methods. Extensive application of two- and three-dimensional continuum and discontinuum numerical methods to various mine design problems, including analysis of rock mass degradation, caveability analyses and three-dimensional calibration of stress fields for large underground mines in Chile. Back analysis of the behavior of underground facilities in two and three dimensions.

*Rock Mechanics Applied to Surface Mining:* Consulting and geotechnical assessments for design of open-pit mines. Activities include development of field rock mass properties for design, application and calibration of finite-difference continuum and discontinuum numerical models in two and three dimensions to problems in slope-stability assessments and back-analysis of slope failures. Dynamic analysis of slopes under effects of earthquakes. Conceptual development of tools for bench scale design of open pits.

*Soil Mechanics Applied to Civil Engineering:* Consulting and numerical modeling assessments for a variety of civil engineering projects, including static and dynamic stability analyses of tailings dams, water reservoirs and waste dumps in highly active seismic areas. Extensive application of two- and three-dimensional numerical models for the analysis of liquefaction potential in saturated sands under seismic loading. Interpretation of laboratory test results to derive soil properties and calibration of numerical models to reproduce stress-strain curves.

*Geotechnical Engineering:* Field supervision of exploration campaigns, design and field inspection during construction of access roads and foundation earth fill for an oil derrick. Soil-structure interaction for facilities in a cellulose plant. Analysis and field work for assessment of a prototype filtered tailings plant. Structural analysis of tunnels and retaining walls, geotechnical characterization of soils, design of foundations.