

**Mining / Geotechnical Engineering**

<b>Expertise</b>	Mining Engineering, Rock and Soil Mechanics, Numerical Modeling
<b>Education</b>	Ph.D., Mining Engineering, 2010 University of Queensland, Brisbane, Australia M.Sc. (Mining Engineering), 1997 B.Sc. (Geotechnical Engineering), 1995 Queen's University, Canada
<b>Registration</b>	Registered Professional Engineer, Canada
<b>Honors</b>	R. Samuel McLaughlin Fellowship, Queen's University, 1995 Medal in Geological Engineering, Queen's University, 1995 O'Connor Associates Award, Geotechnical Engineering, Queen's University, 1995 Gartner Lee Scholarship, Geological Engineering, Queen's University, 1993 NSERC Undergraduate Research Award, Queen's University, 1993

**Professional Experience**

	<i>Itasca Consulting Group, Inc., Minneapolis, Minnesota</i>
2008 - Present	<i>Principal Engineer</i>
1998 - Present	<i>Mining/Geotechnical Engineer</i>
1995 – 1997	<i>Bawden Engineering Ltd., Kingston, Ontario, Canada, Mining Engineer</i>
1995 – 1997	<i>Queen's University, Kingston, Ontario, Canada</i> <i>Teaching/Research Assistant</i>

**Project Experience**

**Geomechanical Mine Design:** Two- and three-dimensional continuum and discontinuum numerical methods have been used extensively along with empirical and analytical techniques to conduct geomechanical analyses of underground and open-pit mines. Project experience with open-stope, cut-and-fill, room-and-pillar and longwall operations has involved sequencing and dimensioning of excavations and pillars, support design, backfill design and seismic risk assessment. Project experience with sublevel, block and panel caving operations has involved undercut and extraction-level design, draw scheduling and the prediction of caveability, fragmentation, recovery, infrastructure stability and surface subsidence. Project experience with open-pit mining has involved core logging, scanline mapping and slope design.

**Geomechanics Research:** Research experience in geomechanics has involved probabilistic empirical analysis of stope wall stability, laboratory and numerical analysis of the strength and deformation behavior of paste backfill, numerical prediction of rock-mass caveability, extraction-level support design, gravity-flow behavior of caved rock and the development of Synthetic Rock Mass (SRM) models for strength characterization of jointed rock masses.