

Mining & Mineral Resources

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| Expertise | Rock Mechanics Engineering, Advanced Numerical Modeling |
| Education | Ph.D. Candidate, University of British Columbia, Canada M.A.Sc.(Mineral Resource Engineering), 2005 B.Eng. (Mining Engineering), 1998 Laurentian University, Canada |
| Registration | Registered Professional Engineer in the province of Ontario, Canada |

Professional Experience

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| 2002 – Present | <i>Itasca Consulting Canada Inc., Sudbury, Ontario, Canada Senior Geomechanics Engineer</i> |
| 2001 - 2002 | <i>Laurentian University, Mining Automation Laboratory, Sudbury, Ontario, Canada, Project Engineer</i> |
| 2001 - 2002 | <i>Nikovag Ltd., Sudbury, Ontario, Canada, Software Interface Development</i> |
| 2000 - 2001 | <i>Dias Engineering, Sudbury, Ontario, Canada, Literature Reviewer (December-July)</i> |
| 1996 | <i>Battle Mountain Gold, Gold Giant Mine, Marathon, Ontario, Canada, Production Crew (Summer)</i> |
| 1994 | <i>Ministry of Transpiration Ontario, Sudbury, Ontario, Canada Student Placement (Summer)</i> |

Project Experience

Mining Engineering: Geomechanics support to mining industry clients, including incident investigations and quarterly operational reviews. Consulting on mining strategies and sequencing in deep operations to minimize rock mechanics issues such as pillar sizing and advancement configuration. Rock mechanics support for open-pit operations.

Numerical Modeling: Numerical modeling of mine design, backfill design and the behavior of different systems support systems. Numerical modeling of artificially frozen ground at depth. Modeling of pillar dimensions, crown pillar stability, sill pillar behavior to determine critical dimensions. Modeling of an underhand drift and fill operation at depth. Developed a set of numerical routines to simulate the effect of block or panel caving operations on surface subsidence profiles.

Project Supervisor: Lead geomechanics engineer on several FEL II and FEL III studies with Vale INCO. Project manager for various project for clients including Rio Tinto, Cameco, Xstrata, FNX, and First Nickel.