



Alexandre Marinho

Education

- Master's in Mining Engineering, McGill (COSMO - Stochastic Mine Planning Laboratory), Montreal/Canada, 2012.
- Computational Mathematics, UFMG (Federal University of Minas Gerais), 2004.

Specialties

- Advanced geostatistics.
- Mine planning (conventional and under uncertainty).
- Risk analysis.
- Operations research applied to mining.
- Project coordination.

Qualifications

- Software: SGeMS; Micromine; MineSight; Gemcom; Whittle; Datamine; Geopit.
- Programming: C++, C, VB, Delphi, Python, Pascal, FORTRAN, SQL and MatLab.
- Social skills: great ability to train and manage teams.
- Leadership, marketing and sales (more than 300h of lectures).

Publications

- Marinho, A. and Martinez, L. (2015) Traditional versus stochastic mine planning under material type and grade uncertainties. Accepted in the 37th Application of Computers and Operations Research in the Mineral Industry.
- Marinho, A. and Dimitrakopoulos, R. (2015) A surface constrained stochastic mine production scheduling method and its application at a copper deposit. Accepted in the 37th Application of Computers and Operations Research in the Mineral Industry.
- Beretta, F. and Marinho, A. (2015) The impacts of slope angle approximations on open pit mining production scheduling. Accepted in the 37th Application of Computers and Operations Research in the Mineral Industry.
- Morales, N., Marinho, A. and Guimarães, O. (2015) A Comparison of Conventional and Direct Block Scheduling Methods for Open Pit Mine Production Scheduling. Accepted in the 37th Application of Computers and Operations Research in the Mineral Industry.
- Beretta, F., Marinho, A. (2014). Impacts of Slope Angle Approximations on Pit Optimization. 8th Brazilian Congress of Surface Mining.
- Guimarães, O., Marinho, A. (2014) Sequenciamento direto de blocos. 8th Brazilian Congress of Surface Mining.
- Gonçalves, J., Ribeiro, D.T., Marinho, A., Arroyo, C.E. (2014) Análise de risco dos teores de ferro em planos de lavra mensais e anual de uma mina em operação. 8th Brazilian Congress of Surface Mining.
- Marinho, A. (2013) Surface Constrained Stochastic Life-of-Mine Production Scheduling. MSc. Thesis, McGill University, Montreal, Qc, 119 p.
- Marinho, A., Souza, A.C., Subtil, R.F. (2010) Metodologia para Avaliação de Desempenho da Alocação Dinâmica de Equipamentos de Mina. 6th Brazilian Congress of Surface Mining. - Brasil Mineral (Nov. 2010).

LinkedIn Profile

- <https://br.linkedin.com/in/alexmarinho/pt>
- <https://www.linkedin.com/in/alexmarinho/?success=true>



Languages

- Native Portuguese. Fluent English. Spanish: reading and listening (advanced); speaking and writing (basic). French: reading and listening (intermediate); speaking (basic).

Professional Experience

2013 – Present: UFMG - Mining Engineering Department

Faculty member of the specialization course in open pit mine planning. Courses: "Simulation Methods" and "Open Pit Stochastic Mine Planning" (www.ceermin.demin.ufmg.br/ementas.php).

2008 – Present: MiningMath Associates

Founding partner and president of the company. Consulting services for the following clients in Brazil, Suriname, Jamaica and Portugal: Alcoa, Contecmina, Devex and Mtransminas. The services involved the following activities:

- Projects coordination.
- Statistical and computational support in selection of representative samples for metallurgical tests.
- Database analysis and validation.
- Optimal drilling grid pattern studies.
- Multivariate regression, cluster analysis and variability studies.
- Compatibility studies between samples obtained from different sampling methods.
- Lithological contacts definition applying cluster analysis.
- Sampling studies.
- Resources and reserves estimation (variography, cross validation, kriging and parameterization).
- Long term mine plans and reconciliation.
- Implementing MineSight software.
- Definition of routines and procedures for geology and short term mine planning.
- Scripts creation for routines and software integration, from the geology/laboratory up to the port.
- Mine team training, including software usage.
- Homogenization methodology studies and definition.
- Dilution and loss studies.
- Mining method selection.
- Mine fleet sizing.
- Economic analysis.
- Third party services supervision.
- Monte Carlo's Method applied to the variability estimation of the mine plans.
- Reports and presentations to national and international teams.
- Definition of methodology, including neural networks, to quantify the percent of earnings using the optimization module of the fleet dispatch system.
- Application of the methodology to the mine Mina do Pico from Vale.
- Identification of the necessary adjustments to increase the financial return of the dispatch system.
- Evaluation of historical data, quantifying the evolution of performance indicators for Usiminas.
- Mine sequencing and pit/waste dump design.
- Cost definitions, CAPEX and OPEX.

2011 – 2012: COSMO Lab - McGill

- Research assistant during Master's, producing thesis and two papers, under supervision of Prof. Roussos Dimitrakopoulos.
- Advanced courses and projects on Geostatistics, Mine Planning, Optimization and Statistics.



2008 – 2008: Prominas - MineSight Provider

- Start MineSight Operations business in Brazil's market.
- Collection of support material about Python programming.
- Study of necessary functions to grant access of MineSight objects through script.
- Hiring and training of programming team.
- Final project reports technical revision.

2005 – 2008: SRK Consulting

Consulting services for the following clients: Vale, Alcoa, Minerconsult, Votorantim, Caemi, Cimento Tupi, BML, Ferrous, Mirabela, Caraiba and MSOL. The services involved the following activities:

- Database validation.
- Drillhole import and composite generation.
- Geological modeling.
- Resources and reserves estimation (variography, cross validation, kriging and parametrization).
- Block model manipulation.
- Mining benefit function.
- Pit optimization.
- Mine sequencing.
- Pit design.
- Mine transportation roads profiles.
- Mine Fleet selection and sizing.
- Specific routines development.
- Analysis of mining services technical proposals.
- Third party project auditing.
- Elaboration of technical and commercial proposals.
- Project team supervision.
- Elaboration of presentations, reports and manuals.

2004 – 2004: Softmine and Gemcom

- Trainee (20h/week in each company) mining and programming area.