

# **Post-doctoral positions in Machine Learning and/or Operations Research**

**COSMO Stochastic Mine Planning laboratory, McGill University**

<http://cosmo.mcgill.ca>

Post-doctoral research positions are available at the COSMO research group at McGill University (<http://cosmo.mcgill.ca>). COSMO is a collaborative laboratory dedicated to the development of new simultaneous stochastic optimization frameworks for production planning needed to create value across the entire mining-mineral value chain. The related industrial environment requires particular focus on adaptive responses, machine learning methods, and real-time optimization. Research is funded by the National Sciences and Engineering Research Council of Canada (NSERC) and a consortium of major mining companies: AngloGold Ashanti, Barrick Gold, BHP, De Beers, Kinross Gold, Newmont Mining, and Vale.

## **Job description**

Successful candidates will work on one (or more) of related research areas:

- Adaptive responses and decision-making processes under uncertainty through machine learning techniques such as such as reinforcement learning
- Development of efficient algorithms for large-scale stochastic optimization problems, including approaches based on hyper-heuristics
- Integrated optimization – machine learning frameworks for large scale problems, big data and related analytics

Candidates will have the opportunity to apply their developments at mine sites worldwide, thus learn about mining complexes and mineral value chains, test newly developed methods on real-life applications and gain substantial experience with advanced digital technologies in industrial environments.

In conjunction with their research, candidates are also expected to interact with graduate students and mining professionals, and be involved in diverse projects led by the COSMO Laboratory, including global knowledge mobilization activities.

The position is based in the Department of Mining and Materials Engineering at McGill University, in close collaboration with related research groups such as GERAD, IVADO and McGill's CIM.

## **Building future career opportunities**

Post-docs from our lab develop major career opportunities; for example, our last tree moved on to: DeepMind research engineer, faculty at University of Calgary, BHP principal scientist.

## **Requirements**

Candidates are required to have completed (or being close to completion) a PhD in areas including: Computer science & machine learning, operations research, industrial engineering, electrical engineering, or a related discipline. They should have excellent programming skills (C/C++) and a strong background in one of the following areas: machine learning, stochastic optimization, development of algorithms for large-scale optimization, artificial intelligence, or big data and analytics. Knowledge in mine planning is desirable but not required.

## **Terms and conditions**

This postdoc position is a full-time employed position for one year with possible extension. Salary is commensurate to qualifications.

## **Application**

The position is available immediately. The application procedure will remain open until the position is filled. If interested, please contact Roussos Dimitrakopoulos at e-mail: [roussos.dimitrakopoulos@mcgill.ca](mailto:roussos.dimitrakopoulos@mcgill.ca) or tel. 514 398-4986, and forward a detailed CV, including a list of publications, research interests, and the names of three referees.