

University of Toronto
Faculty of Applied Science and Engineering
Mechanical and Industrial Engineering Department
JOB POSTING – POSTDOCTORAL FELLOW
Posting: June 21, 2021

Area: Operations Research, Machine Learning, Supply Chain

Description. The last decade has seen tremendous progress in the field of Artificial Intelligence (AI), particularly in Deep Learning (DL) and Reinforcement Learning (RL), with breakthroughs in fields as diverse as biology, translation, and image recognition. However, [a recent report by HMI and Deloitte](#) reveals that only 12% of the surveyed businesses are currently leveraging AI in their Supply Chain Management (SCM), despite the fact that 56% of them believe in its disruptive potential and competitive advantage. On the other hand, classical optimization tools from Operations Research (OR) are much more established and have long been used to solve routing, network design, and inventory management problems, among others. However, pure optimization approaches can often be inflexible and slow for real-time decision-making or complex, integrated supply chain problems.

Towards increasing the adoption of AI in supply chains and tapping into the ever-increasing amounts of data being collected across the value chain, the Scale AI Research Chair in “**Data-Driven Algorithms for Modern Supply Chains**”, held by [Prof. Elias B. Khalil](#), has been established at the University of Toronto. We see an immense opportunity for both boosting SCM algorithms, and enriching the fields of ML/RL, through research that melds the principled OR methods commonly used in SCM with the data-centric approach in modern ML/RL.

We are seeking candidates for a Post-Doctoral Fellow position focusing on topics such as:

- Machine Learning for Discrete Optimization (theory/algorithms);
- Reinforcement Learning for Supply Chain problems;
- Integration of predictive and prescriptive modeling.

For an overview of Prof. Khalil’s research, please refer to [these recent talks](#).

Required qualifications: We are seeking candidates with a PhD in either Operations Research or Computer Science and:

- Experience with integer programming modeling, algorithms, and computation;
- Experience/familiarity with machine learning, particularly deep learning and reinforcement learning;
- Experience and interest in computational implementation and evaluation;
- Publications in relevant OR/SCM journals or AI/ML/CS conferences.

Salary range: \$60,000 to \$70,000/year

Expected start date: August 1, 2021 or as soon as possible

Term: One-year term with a possible renewal

FTE: 100%

The normal hours of work are 40 hours per week for a full-time postdoctoral fellow (pro-rated for those holding a partial appointment) recognizing that the needs of the employees' research and training and the needs of the supervisor's research program may require flexibility in the performance of the employee's duties and hours of work.

Application instructions. Applications must be submitted via email to Prof. Khalil at khalil@mie.utoronto.ca with subject title "Postdoc application". Please include:

- an updated CV;
- two of your papers;
- desired start date;
- contact information of two references.

Closing date: July 30, 2021

Employment as a Postdoctoral Fellow at the University of Toronto is covered by the terms of the CUPE 3902 Unit 5 Collective Agreement.

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The University of Toronto is strongly committed to diversity within its community and especially welcomes applications from racialized persons / persons of colour, women, Indigenous / Aboriginal People of North America, persons with disabilities, LGBTQ persons, and others who may contribute to the further diversification of ideas.