

Urban Data Centre, School Of Cities
University of Toronto
Posting: March 8, 2023

Postdoctoral Fellow

Areas of Research:

This project focuses on the development of urban ontologies and their application for the creation of a City Knowledge Graph that models the City of Toronto (aka City Digital Twin) and answers questions in support of urban planning, mobility, social services, etc.

Description of Duties:

The University of Toronto (U of T)'s Urban Data Centre (UDC) at the School of Cities is looking for a postdoctoral fellow in the areas of ontology engineering and knowledge graph development, with experience in software engineering and applied artificial intelligence. The postdoctoral fellow will work on design, prototyping, and testing activities related to the design of urban ontologies and their application to the development of a City Knowledge Graph (aka City Digital Twin) for the City of Toronto.

The Postdoctoral Fellow will work under the supervision of Professor Mark Fox and Dr. Bart Gajderowicz in the Urban Data Centre to conduct applied research and training activities, work collaboratively with industrial and academic partners, author scientific publications and conference talks, prepare progress reports and technical presentations, develop research proposals and funding applications, and help supervise students on a day-to-day basis. The candidate will be expected to work independently, provide leadership to an interdisciplinary team of students, produce publishable results, and publish frequently.

This Postdoctoral Fellow position offers a unique opportunity to conduct research at the intersection of smart cities and data management in collaboration with a multidisciplinary team of academic researchers and engineers who are part of a broader university-industry initiative on information technologies at U of T Engineering and Social Sciences.

Requirements:

Education

- Doctoral (Ph.D., Sc.D.) degree in Computer Science, Industrial Engineering, Software Engineering, Electrical Engineering, or related fields with a focus on ontology engineering and knowledge graph design and development (obtain within the past 5 years).

Experience/Skills

- In-depth knowledge of ontology engineering and symbolic artificial intelligence.
- Working knowledge of various database management systems, including knowledge graphs, relations databases, and NoSQL databased.
- Experience with data management, including storing, merging, and indexing data as well as identifying and validating meta-data.

- Developing technical application implementation plans.
- Creating and maintaining complex and technical documentation.
- Customizing open-source software libraries.
- Strong technical and analytical skills with a solid understanding of applied research methodologies, with an outstanding record of peer-reviewed publications.
- Ability to identify research and collaboration opportunities with industry partners
- Knowledge of best practices in data storage and curation.

Other Skills

- Working knowledge of natural language understanding.
- Designing, building, testing, and modifying complex extract-transform-load software that integrates datasets in similar domains.
- Well-developed interpersonal, communication and analytical skills
- Strong communication abilities in English (writing, conversational, presentation)
- Ability to work effectively in a diverse team
- Ability to mentor effectively students and to exercise tact and judgement in working with personnel under their supervision
- Demonstrated initiative and technical ability
- Detail-oriented
- Ability to work independently, with minimal supervision

Salary: \$60,000

Expect start date: As soon as possible

Schedule: 100%FTE

Appointment Type: Two-Year term with possible renewal

To Apply: Application package (to be emailed to Professor Fox at msf@eil.utoronto.ca) should include a one-page letter describing relevant research experience and motivation, CV (including a list of 3 professional references), and copies of selected journal papers the candidate considers most relevant.

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Closing Date: April 30, 2023

The normal hours of work are 40 hours per week for a full-time postdoctoral fellow 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 employees' duties and hours of work.

Employment as a Postdoctoral Fellow at the University of Toronto is covered by the terms of the CUPE 3902 Unit 5 Collective Agreement. This job is posted in accordance with the CUPE 3902 Unit 5 Collective Agreement.

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