



PHD POSITION

Urban Green-Blue Infrastructure for Urban Stormwater Runoff Mitigation

I am seeking a highly motivated student to pursue a PhD degree in the Urban Ecology & Analytics Lab, located in Department of Geography at Memorial University, St. John's, Newfoundland and Labrador, Canada. The successful applicant will contribute to a larger research program funded by an NSERC Discovery Grant aimed at improving the environmental functioning of Canadian cities by utilizing green and blue infrastructure.

The PhD student will examine how the spatial patterns of urban green and blue infrastructure (UGBI)—including their types and configurations—affect their ability to reduce stormwater runoff following rainfall events and mitigate flood risk across Canadian cities with diverse contexts. The first component of this research will involve close collaboration with another PhD student in the lab to generate high-resolution land cover maps for selected case studies, using remotely sensed data (e.g., Sentinel-2 optical imagery) and advanced classification methods, such as object-based, machine learning, and deep learning classifiers. Data fusion techniques will be applied by integrating additional sources, including Sentinel-1 Synthetic Aperture Radar and relevant remote sensing indices (e.g., NDVI).

To analyze this relationship, the student will primarily explore and employ process-based models and simulations, including sensitivity analyses to assess the relative importance of different UGBI attributes and site-specific conditions. A wide range of spatial analysis and geovisualization methods, along with machine learning and deep learning algorithms, will be applied to analyze the data.

Requirements:

A suitable candidate will have a strong academic background in a relevant field such as ecohydrology, civil engineering (with a focus on hydrology), urban ecology, urban climatology, physical geography, environmental science, or. A solid foundation in geomatics—particularly GIS and remote sensing—is essential, along with experience in GeoAI, including machine learning and deep learning algorithms. Proficiency in a programming language is required, with Python being highly desired. Experience using cloud computing platforms such as Google Earth Engine (GEE) for processing and analyzing data is considered an asset.

The ideal candidate will be capable of working independently and as part of a team, demonstrating strong project management and organizational skills. Effective communication abilities, especially in scientific writing for manuscripts and reports, are essential.

Application Instructions:

Interested candidates should submit the following documents as a single PDF file to Dr. Mahyar Masoudi at mahyar.masoudi@mun.ca:

1. A one-page cover letter outlining relevant experience and research interests
2. A current CV
3. Academic transcripts of previous degrees (unofficial transcripts are acceptable)
4. A writing sample (e.g., first-authored paper, thesis)
5. Contact information for two references

The position is expected to begin in January 2026. Review of applications will begin immediately and continue until a suitable candidate is found. Shortlisted candidates will be invited for an interview.

Compensation:

The successful candidate will receive a funding package of \$30,000 per year for four years, along with support to present research findings at two relevant conferences during the program. Additional funding opportunities, such as teaching and research assistantships and scholarships, may also be available.

Annual tuition fees for PhD students at Memorial University are \$4,497 for international students, \$3,462 for Canadian students, and \$2,664 for Newfoundland and Labrador students—among the most affordable tuition rates in Canada (<https://www.mun.ca/become/graduate/tuition-fees-and-funding/>).

About the Urban Ecology & Analytics Lab and Memorial University:

The Urban Ecology & Analytics Lab is an interdisciplinary research group composed of individuals with diverse academic backgrounds, interests, and lived experiences. We are united by a shared goal: to contribute to building communities that are sustainable, livable, resilient, healthy, and just in the face of the unprecedented challenges posed by urbanization and climate change.

We strive to foster an intellectually stimulating environment that welcomes individuals of all backgrounds, including differences in nationality, race, ethnicity, religion, creed, ability, gender, sexual orientation, and more. We believe that the diversity of lived experiences enriches our research by offering unique perspectives and creating opportunities for critical reflection on our research approaches. We promote an open yet respectful atmosphere where everyone feels welcome and safe to express their ideas.

Our lab is located at Memorial University. I acknowledge that the lands on which Memorial University's campuses are situated are the traditional territories of diverse Indigenous groups. I respectfully recognize the histories and cultures of the Beothuk, Mi'kmaq, Innu, and Inuit of this province.

Memorial University is the largest university in Atlantic Canada, with its main campus located in St. John's—the capital of Newfoundland and Labrador. St. John's is vibrant and colourful, rich in history and culture, and surrounded by mesmerizing natural beauty, including lush forests, extensive hiking trails, and breathtaking views of the Atlantic Ocean. As the easternmost city in North America, St. John's enjoys a favourable geographic position, with direct flights to Europe in the summer. It is also one of the most affordable cities in Canada.