



***PhD student call :***

**Establishing Performance Limits and Maximizing Transmission Performance in  
Integrated Satellite-Terrestrial Networks Towards 6G**

We are recruiting a graduate student to pursue research in the optimization of 6G networks through the use of emerging satellite mega-constellations. We invite applications for a PhD position at Polytechnique Montréal, located in Montréal, Canada.

**Short project description :**

The objective of the project is to establish a graph-theoretical framework enumerating paths and cut-sets of its graph representations for wireless channels to model the multi-connectivity of integrated satellite-terrestrial networks. The anticipated outcomes will not only provide a mean to quantify the performance for the emerging 6G networks but also provide tools to design new transmission strategies to extend the theoretical limits.

Approaches to be developed aim to unravel the potential of the satellite mega-constellations to connect ordinary user terminals to the LEO satellites. Hence it has the potential to pave the way to eliminate the digital divide on a global scale, even in rural, remote and northern communities.

The candidate will work with a diverse team of graduate students to integrate their respective research projects as to design secure space information networks.

**Program :** PhD.

**Academic units :** Department of Electrical Engineering, Polytechnique Montréal.

**Supervisors :** Prof. Gunes Karabulut Kurt and Prof. Antoine Lesage-Landry.

**Required profile :** The candidate should have an undergraduate and a Master's degree and in Electrical Engineering, applied mathematics or any other relevant field and have strong expertise in telecommunication, optimization, and programming (e.g., MATLAB, Python, C++, Julia).

**Funding :** \$23,000/year stipend.

**Starting date :** Summer 2023/Fall 2023.

**Application :**

If interested in this position, please send your CV, cover letter, and recent transcripts to Professors G. Karabulut Kurt and A. Lesage-Landry at : [gunes.kurt@polymtl.ca](mailto:gunes.kurt@polymtl.ca) & [antoine.lesage-landry@polymtl.ca](mailto:antoine.lesage-landry@polymtl.ca).

*We are committed to promoting equity, diversity, and inclusion. We encourage and welcome all people with the required profile to apply, including, but not limited to, women, visible minorities, and people with disabilities.*