DEPARTEMENT D'INFORMATIQUE DEPARTEMENT FÜR INFORMATIK

## INFORMATICS COLLOQUIUM

Speaker:

Prof. Nadia Lahrichi,

Polytechnique Montréal, Department of Mathematical and Industrial Engineering

## Integrating bed use and patient selection to the master surgical planning in the OR

## Abstract:

In this talk, I will introduce a novel approach to the master surgical planning in the operating room. Patient case mix is integrated to the problem to have a finer estimation of the use of resources. This problem consists of selecting patients (from the wait list) to be on the operating list for a selected horizon, and assigning a day, an operating room, and a time block to each specialty. Bed resources in the surgical wards and in the ICU are also considered. Two case studies will illustrate this approach. The first one focuses on clusters of patients to be scheduled to better use the beds in a deterministic setting. In the second one, I will show how the integration of the cancellation probability due to congestion in the intensive care unit can be done. The approach is based on integrating the graph derived from a Markov Decision Process that computes the probability of canceling cases on each day. We show that prioritizing patients based on wait times only increases the quality of the schedule without decreasing the occupancy rate of the OR.

## **Bio:**

Holding a PhD in Applied Mathematics from Polytechnique Montreal, Nadia Lahrichi is a professor in the department of mathematics and industrial engineering since 2011. Her area of interest is mainly focused towards applying modelling and operational research tools in healthcare. Patient flow (scheduling, sequencing, ...) and resource optimization (space requirements, nurse scheduling, ...) problems are especially targeted.

Date and time: Location : Contact person: Thursday January 26th, 2023, 04.15 pm Pérolles 21, room C130, Bd de Pérolles 90, Fribourg Prof. Marino Widmer

The colloquium is free and open to the public.