



SÉMINAIRE CONJOINT / JOINT SEMINAR

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«*SPATIAL FOREST OPTIMIZATION*»



Résumé / Abstract

Spatial forest optimization is concerned with the design of forest landscapes. Forest landscapes evolve along time under the action of opposing forces. Vegetation growth is counterbalanced by natural hazards such as fire and pests, or through human intervention, such as harvesting. In managed forests usually the main objective is to maximize the value of timber harvested. However, other objectives can be considered, such as soil preservation, aesthetic values, biodiversity and wildlife conservation. Landscapes can be intentionally modified in order to accomplish or help to achieve these goals. For modeling purposes, a forest landscape is a region in the plane, composed of a finite number of smaller management units. A finite horizon divided into periods may be considered. Main decisions are, for each unit, either to harvest in some specific period or not harvesting at all. A set of contiguous units with similar characteristics in some time period is called a patch of the forest. The aim of spatial forest optimization is to optimize an objective function while ensuring certain characteristics of some patches. In this talk we review a few combinatorial optimization problems that arise in the context of spatial forest optimization: One problem is the so-called "harvest scheduling subject to maximum area restrictions"- large harvested patches are forbidden, to prevent erosion and also for aesthetic reasons. Another one consists of selecting a "patch with a minimum required area." Such a patch may represent an old growth region suitable for wildlife habitat. A related problem consists of selecting a (nearly) convex region in the landscape. We introduce a simplified version of this problem and show it can be solved in polynomial time.

Note: Miguel Constantino est professeur au/is professor at the Departamento de Estatística e Investigação Operacional, Faculdade de Ciências, Universidade de Lisboa. Il est également chercheur au/He is also researcher at the Centro de Investigação Operacional. miguel.constantino@fu.ul.pt et/and http://www.deio.fc.ul.pt/EN/teaching_staff.php

LUNDI / MONDAY

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10h30

**Salle / Room 5441
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Université de Montréal**

Bienvenue à tous / Welcome to all

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