



Mathilde Excoffier

Étudiante au doctorat / Ph.D. Student
Laboratoire de Recherche en Informatique
Université Paris-Sud Orsay, France

Stochastic Programming Approaches for Staffing and Scheduling Call Centers with Uncertain Demand Forecasts

Abstract: We consider a workforce management problem arising in call centers, namely a staffing and shift-scheduling problem. It consists in determining the minimum-cost number of agents to be assigned to each shift of the scheduling horizon so as to reach the required customer quality of service. We assume that the mean call arrival rates are subject to uncertainty. We propose various stochastic optimization problem models in order to deal with this uncertainty in several ways: first, the arrival rates in each period are supposed to be independent and following a normal distribution, then we focus on a distributionally robust approach in order to deal with unknown distributions and finally we present our ongoing work: a model including correlations between periods of time. We model the resulting optimization problems as stochastic programs involving joint probabilistic constraints considering continuous distributions. Finally we propose a solution approach based on linear approximations.

Note: Mathilde Excoffier effectue présentement un séjour de recherche au département d'informatique et de recherche opérationnelle de l'Université de Montréal, sous la supervision du professeur Pierre L'Écuyer. / Mathilde Excoffier is currently doing an internship at the Department of Computer Science of Université de Montréal, under the supervision of Professor Pierre L'Écuyer.
mathilde.excoffier@lri.fr and <https://www.lri.fr/membre.php?mb=1745>

VENDREDI / FRIDAY

19 décembre 2014 /
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10h30

Salle / Room 5441
Pavillon André-Aisenstadt
Université de Montréal

Ouvert à tous / Open to all

Organisateur / Organizer
Pierre L'Écuyer