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TRACTABLE MODELS FOR SATISFICING UNDER UNCERTAINTY

Abstract: Satisficing is an alternative objective to classical minimization or maximization of performance measures. It aims at attaining feasibility in an uncertain environment to ensure that solutions can be executed as planned. Inspired by robust optimization and the probability maximizing P-model, we develop a framework to solve satisficing problems with uncertain input data. Our satisficing approach adjusts the uncertainty sets by selecting only those outcomes that are feasible in the original problem. We present several computationally tractable implementations, including the cases of stochastic optimization for known probability distributions and sampling based optimization when distributions are unavailable. Computational experiments using a general purpose solver on a maximum coverage problem show that the proposed models are highly scalable and outperform traditional sampling approaches regarding computing time and performance measures: the P-model and expected value objectives. Ultimately, it reduces what we call the price of satisficing - the investment necessary to ensure a certain level of system performance.

Note: Dr. Sanjay Dominik Jena est présentement stagiaire postdoctoral au MIT, dans le cadre de l'entente Singapore-MIT Alliance for Research and Technology (SMART). Il a obtenu son doctorat à l'Université de Montréal, sous la supervision des professeurs Bernard Gendron et Jean-François Cordeau. / Sanjay Dominik Jena is currently a post-doctoral associate at MIT, within the SMART program. He has received his Ph.D from the Université de Montréal under the supervision of Professors Bernard Gendron and Jean-François Cordeau.

<http://w1.cirrelt.ca/~jena/>

MERCREDI / WEDNESDAY

9 décembre 2015 /
December 9th, 2015
10h30

Salle / Room 5441
Pavillon André-Aisenstadt
Université de Montréal

Ouvert à tous / Open to all

**Organisateur / Organizer
Bernard Gendron**

