

Chance Constrained Optimization for Targeted Internet Advertising

Antoine Deza, Kai Huang, Michael R. Metel



PII: S0305-0483(15)00002-X
DOI: <http://dx.doi.org/10.1016/j.omega.2014.12.007>
Reference: OME1470

To appear in: *Omega*

Received date: 10 January 2014
Accepted date: 28 December 2014

Cite this article as: Antoine Deza, Kai Huang, Michael R. Metel, Chance Constrained Optimization for Targeted Internet Advertising, *Omega*, <http://dx.doi.org/10.1016/j.omega.2014.12.007>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Chance Constrained Optimization for Targeted Internet Advertising

Antoine Deza^a, Kai Huang^b, Michael R. Metel^c

^a*Advanced Optimization Laboratory, Department of Computing and Software, McMaster University, Hamilton, Ontario, Canada*

^b*DeGroote School of Business, McMaster University, Hamilton, Ontario, Canada*

^c*School of Computational Science and Engineering, McMaster University, Hamilton, Ontario, Canada*

Abstract

We introduce a chance constrained optimization model for the fulfillment of guaranteed display Internet advertising campaigns. The proposed formulation for the allocation of display inventory takes into account the uncertainty of the supply of Internet viewers. We discuss and present theoretical and computational features of the model via Monte Carlo sampling and convex approximations. Theoretical upper and lower bounds are presented along with a numerical substantiation.

Keywords: Internet advertising, chance constrained programming, sample approximation, convex programming

1. Introduction

Internet advertising has witnessed growth of 15% in 2012, reaching \$36.6 billion in the United States [11]. This field is markedly different from traditional media used by advertisers such as radio, television and newspaper. Information such as a user's profile, data input and past Internet activity allow marketers to display their advertisements to targeted audiences, resulting in an efficient use of their advertising budget and an improved experience for users.

Email addresses: `deza@mcmaster.ca` (Antoine Deza), `khuang@mcmaster.ca` (Kai Huang), `metelm@mcmaster.ca` (Michael R. Metel)

Download English Version:

<https://daneshyari.com/en/article/7437012>

Download Persian Version:

<https://daneshyari.com/article/7437012>

[Daneshyari.com](https://daneshyari.com)