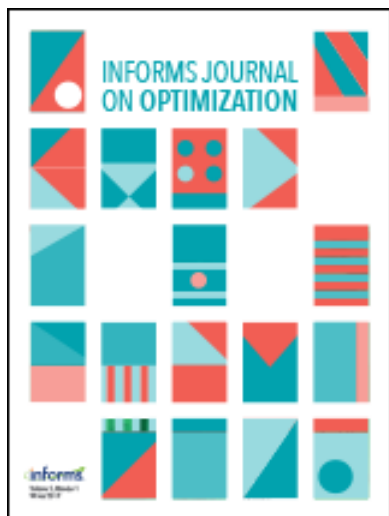




INFORMS Journal on Optimization

Publication details, including instructions for authors and subscription information:
<http://pubsonline.informs.org>

Introduction to the Issue

Dimitris Bertsimas

To cite this article:

Dimitris Bertsimas (2019) Introduction to the Issue. INFORMS Journal on Optimization 1(4):265-266. <https://doi.org/10.1287/ijoo.2019.0028>

Full terms and conditions of use: <https://pubsonline.informs.org/Publications/Librarians-Portal/PubsOnLine-Terms-and-Conditions>

This article may be used only for the purposes of research, teaching, and/or private study. Commercial use or systematic downloading (by robots or other automatic processes) is prohibited without explicit Publisher approval, unless otherwise noted. For more information, contact permissions@informs.org.

The Publisher does not warrant or guarantee the article's accuracy, completeness, merchantability, fitness for a particular purpose, or non-infringement. Descriptions of, or references to, products or publications, or inclusion of an advertisement in this article, neither constitutes nor implies a guarantee, endorsement, or support of claims made of that product, publication, or service.

Copyright © 2019, INFORMS

Please scroll down for article—it is on subsequent pages



With 12,500 members from nearly 90 countries, INFORMS is the largest international association of operations research (O.R.) and analytics professionals and students. INFORMS provides unique networking and learning opportunities for individual professionals, and organizations of all types and sizes, to better understand and use O.R. and analytics tools and methods to transform strategic visions and achieve better outcomes. For more information on INFORMS, its publications, membership, or meetings visit <http://www.informs.org>

Introduction to the Issue

Dimitris Bertsimas^a

^a Sloan School of Management and Operations Research Center, Massachusetts Institute of Technology, Cambridge, Massachusetts 02139

Contact: dbertsim@mit.edu,  <https://orcid.org/0000-0002-1985-1003> (DB)

<https://doi.org/10.1287/ijoo.2019.0028>

Copyright: © 2019 INFORMS

Keywords: introduction • optimization • multi-class queueing systems • non-Lipschitz nonsmooth convex optimization • weighted target set selection problem • three-dimensional bin packing

1. Data-Driven Percentile Optimization for Multi-Class Queueing Systems with Model Ambiguity: Theory and Application

Soroush Saghafian, Austin Bren

This paper is part of Austin Bren's PhD dissertation, chaired by Soroush Saghafian. The paper's ideas were formed after various collaborations with the Emergency Department of the Mayo Clinic. Data were collected from the Mayo Clinic, and the initial data analyses revealed the important need to develop new data-driven robust optimization methods that can advance current patient flow designs. Austin Bren is a PhD candidate at the School of Computing, Informatics, and Decision Systems Engineering, Arizona State University. His dissertation is on developing and applying data-driven robust optimization methods in healthcare. Soroush Saghafian, Assistant Professor of Public Policy (Management, Leadership, and Decision Making) at Harvard University, is interested in using and developing operations research and management science techniques that can have significant public level benefits. His current research focuses on the application and development of operations research methods in studying stochastic systems with specific applications in healthcare and operations management. He has been collaborating with a variety of hospitals in improving their operational efficiency, patient flow, medical decision making, and, more broadly, healthcare delivery policies. He also serves as a faculty affiliate of Harvard University's PhD Program in Health Policy as well as the Harvard Center for Health Decision Science.

2. “Relative Continuity” for Non-Lipschitz Nonsmooth Convex Optimization Using Stochastic (or Deterministic) Mirror Descent

Haihao Lu

The paper is part of Haihao Lu's doctoral dissertation in operations research and applied mathematics at MIT under the supervision of Professor Robert Freund. The paper extends first-order methods for nonsmooth (stochastic or deterministic) convex optimization to the case that the objective function is not uniformly Lipschitz continuous. This includes (i) the classical support vector machine (SVM) problem, (ii) the problem of minimizing the maximum of convex quadratic functions, and even (iii) the univariate setting with $f(x) = \max(0, x) + x^2$.

3. A Branch-and-Cut Approach for the Weighted Target Set Selection Problem on Social Networks

S. Raghavan, Rui Zhang

This paper is part of Rui Zhang's dissertation supervised by Professor S. Raghavan at the Robert Smith School of Business at the University of Maryland. Motivated by the desire to develop a better understanding of the fundamental problems in social network analytics, the paper develops optimization approaches to solve the weighted target set selection problem in the context of viral marketing strategies on social networks. The paper presents tight and compact extended formulation for the problem on directed acyclic graphs and

extends it to arbitrary graphs. The paper develops and implements a branch-and-cut approach that is shown to be very effective in computational experiments in large instances.

4. Three-Dimensional Bin Packing and Mixed-Case Palletization

Samir Elhedhli, Fatma Gzara, Burak Yildiz

The paper is part of a study with an industrial partner. It has two main novelties: an efficient solution methodology that is capable of handling industry-size problems and a new realistic benchmark data set that is trained on industrial data. The work is part of Burak Yıldız's doctoral dissertation, supervised by Professors Samir Elhedhli and Fatma Gzara in the Department of Management Sciences at the University of Waterloo.