

A cordial invitation to the opening talk of the
Brown Bag Seminar
Recent Developments in Data Science:

Crowd-shipping under Uncertainty: Models, Solution Approaches, and Compensation Issues

By
Prof. Dr. Michel Gendreau

Date: 10.11.2022 (Thursday) at 12:00

Location: Room 017 (ITZ)

Link and further
information: Course 39740 Seminar: Doctoral Seminar "Recent
Developments in Data Science" in Stud.IP

Abstract:

E-commerce continues to grow all over the world. The recent pandemic caused by COVID-19 has increased this trend. Concurrently, crowd-shipping is emerging as a viable solution to fulfill last-mile deliveries, with AmazonFlex taking the lead in implementing such distribution models.

In this talk, we consider the situation of a crowd-shipping platform that must fulfill delivery requests from a central depot with a fleet of professional vehicles and a pool of crowd drivers. The supply (number) of crowd drivers is uncertain. We thus propose stochastic programming models for two variants of the problem: one in which we consider a single pool of drivers and one in which the territory served by the platform is divided into geographical sectors and drivers are characterized by their destination sector. Exact solution approaches are provided in each case.

We also examine drivers' compensation issues. We assume that drivers can accept or reject routes and that the probability of route acceptance is dependent on the compensation offered. We determine the market equilibrium when the stochastic route acceptance of crowd-drivers is considered.

Joint work with Fabian Torres (now at EPFL) and Walter Rei (ESG-UQÀM).

Speaker:



Prof. Dr. Michel
Gendreau

Michel Gendreau is Professor of Operations Research in the Department of Mathematics and Industrial Engineering of Polytechnique Montréal (Canada). His main research area is the application of operations research methods to transportation and logistics systems planning and operation, energy production and storage, healthcare, and related problems. Dr. Gendreau has published more than 380 papers in peer-reviewed journals and conference proceedings. He is also the co-editor of eight books.

Michel Gendreau was Editor-in-Chief of Transportation Science from 2009 to 2014 and has been a member of the editorial board of several other journals. He served as Vice-President of IFORS for 9 years between 2001 and 2015, as well as Vice-President, International Activities, of INFORMS from 2006 to 2009.

In 2001, he received the Merit Award of the Canadian Operational Research Society in recognition of his contributions to the development of O.R. in Canada. He was elected Fellow of INFORMS in 2010. In 2015, Dr. Gendreau received the prestigious Robert Herman Lifetime Achievement Award of the Transportation Science & Logistics Society of INFORMS.