

Research seminar

The Institute of Production and Logistics Management of Johannes Kepler University Linz invites you to the following talk:

Routing Electric Vehicles on Congested Street Networks

Dominique Feillet
École des Mines de Saint-Étienne, France

Monday June 22 2020, 15:00

Online presentation: Zoom link available per request to fabien.tricoire@jku.at

Abstract: Freight distribution with electric vehicles (EVs) is a promising alternative to reduce the carbon footprint associated with city logistics. Algorithms for planning routes for EVs should take into account their relatively short driving range and the effects of traffic congestion on the battery consumption. This presentation presents a new methodology and illustrates how it can be applied to solve an electric vehicle routing problem with stochastic and time-dependent travel times, and with battery capacity chance-constraints. First, a new method for generating network-consistent (time and space correlated) and time-dependent speed scenarios is introduced. Secondly, a new technique for applying branch-and-price on instances defined on the real street network is developed. Computational experiments demonstrate the effectiveness of the approach for finding optimal or near-optimal solutions in instances with up to 133 customers and almost 1500 road links.

About the Speaker: Dominique Feillet works as a Professor of Operations Research at Mines Saint-Etienne. He received an engineering degree in Computer Sciences from ENSIMAG (Grenoble, France) and holds a PhD in Industrial Engineering from Ecole Centrale Paris (France). He joined Mines Saint-Etienne in 2008, where he is the head of the Center of Microelectronics of Provence since 2020. He joined the LIMOS laboratory, attached to the French National Center for Scientific Research (CNRS), in 2014 and is heading the research team on Decision-making tools for Production and Services since 2015. His primary research interest concerns the development of relevant discrete optimization models and methods with regards to new practices in transportation and distribution. He is particularly interested in vehicle routing optimization, but has also been involved in several collaborative projects with railway or shipping industries. His research has resulted in more than 60 publications in first-rank journals like Transportation Science, EURO Journal on Transportation and Logistics, EJOR, Networks or Computers & OR. He was finalist of the VEROLOG Solver challenge in 2014 and winner of the Scientific Prize of the EURO/ROADEF challenge in 2016. He is Editor in Chief of EURO Journal of Transportation and Logistics since September 2019 and member of the advisory board of Computers & OR. He is a former secretary of the French Operations Research association (ROADEF). He has been involved in the organization of several national and international events as ROADEF'2003, NOW'2006, ROADEF'2010 or Odysseus 2015.

Host: Fabien Tricoire and Prof. Sophie Parragh (PLM)