ALPEN-ADRIA UNIVERSITÄT KLAGENFURT

Invitation to the Doctoral Seminar

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"Decomposition of the Vehicle Routing Problem with Time Windows on the Time Dimension"

HS2 | Wednesday, 17 November 2021 | 11:00 a.m.

Abstract

The Vehicle Routing Problem with Time Windows (VRPTW) asks for the optimal set of routes to be performed by a fleet of vehicles to serve a set of customers within their assigned time windows. In this talk, I propose a matheuristic for the VRPTW which utilizes the sub-problem constituted by optimizing only a selected time window of the VRPTW while all other time windows are fixed. We call this problem the Single Time Window Vehicle Routing Problem (STWVRP). For applying the STWVRP, we must assume that several customers are assigned to the same time window, i.e., the number of time windows is much smaller than the number of customers. This relatively mild assumption easily holds for most applications of the VRPTW. An exact problem description of the STWVRP is given in the form of a Mixed-Integer Linear Programming formulation. We apply this exact formulation within a matheuristic for the VRPTW. The talk concludes with extensive computational experiments.

Philipp Hungerländer and the Department of Mathematics look forward to seeing you at the talk!