

An Analytic Computational Solver for Integer Programming

Initiative: "Experiment!" (beendet)

Ausschreibung: Explorative Phase

Bewilligung: 27.11.2018

Laufzeit: 1 Jahre 6 Monate

Integer programming is an important framework to model and solve mathematical optimization tasks in various fields. It is of outstanding relevance for practical applications because it provides a flexible framework for making better decisions in many real-world questions as diverse as planning a bus schedule, building an aircraft or assigning organ donations. Being also theoretically challenging, integer programming has been in the focus of researchers for six decades. The research on mathematical analysis by famous 18th-century mathematicians Euler and Cauchy is a classic in pure mathematics, but is considered to be of no relevance for integer programming. Combining both fields for the first time, the project's key objective is the implementation of an all-new solution method for integer programming that brings 200-year old theoretical work to life in a 21st-century computer algorithm with potential to impact the techniques used in mathematical optimization.

Projektbeteiligte

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