



CIRRELT

HEC
MONTRÉAL

Séminaire conjoint CIRRELT-HEC Joint Seminar

Département de la gestion des opérations et de la logistique

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Optimizing Ryanair Flight Schedules



Abstract: The airline industry plays a key role by allowing economic growth, cultural exchange and global connectivity. Among all airlines, Ryanair stands out as Europe's leading low-cost carrier, focused on cost efficiency and accessibility. Ryanair is operating more than 21,000 flights per week using more than 500 aircraft, which results in 185 million passengers moving through 2300 routes between 225 airports in 36 countries. The scheduling process plays a pivotal role as it involves the coordination of aircraft, crew and airport resources. In order to enhance scheduling efficiency and maximize resource utilization, optimization models are used in the process of building the schedule. This research pushes for innovative approaches to address the complexities of scheduling in the dynamic airline environment. This presentation focuses on the core aspect of building the Ryanair flight schedule. We go from a conventional linear programming approach where commercial solvers only handle a limited portion of the problem, to more crafted solutions employing metaheuristics based on the initial formulation. Additionally, a column generation solution approach will be introduced. The research also includes a model designed not to construct schedules from scratch, but to enhance the resilience of an existing schedule.

Bio: Sergio Vivó is an Optimization Engineer at Ryanair and second-year Industrial PhD student specializing in Operations Research at the University of Seville. In Ryanair, he is engaged in crafting solutions towards optimizing airline operations, with a primary focus on schedule optimization, the central theme of his PhD. Prior to joining Ryanair, he contributed as a Data Scientist at Prodevelop. He holds a MSc in Data Science and Analytics at University of Cardiff and a BSc in Industrial Engineering at the Polytechnic University of Valencia.

MARDI / TUESDAY

3 décembre 2024, 10 h 30
December 3, 2024, 10:30

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Ouvert à tous / Open to all

Responsable / Organizer
Jean-François Cordeau