

FRANKLIN DJEUMOU FOMENI, ESG UQAM



MULTI-PERIOD BIN PACKING MODEL AND EFFECTIVE CONSTRUCTIVE HEURISTICS FOR CORRIDOR-BASED LOGISTICS CAPACITY PLANNING

Abstract: The bin packing problem is one of the most studied combinatorial optimization problems. This talk will present two recent bin packing problem settings with many practical applications, in particular in logistics capacity planning. Both problems explicitly consider, besides the classical bin-selection costs, the item and bin-specific item-to-bin assignment costs. These assignment costs depend not only on the physical, e.g., item and bin size, and economic, e.g., bin selection fixed cost and the cost of item "transport" by the bin, but also on the temporal attributes of items and bins, e.g., availability of regular bins for selection and utilization and of items to be assigned to such a regular bin. Special, item-specific in terms of size, spot-market bins may be used at higher cost for the items that one cannot fit into the selected bins. Single and a multi-period formulations are proposed, both aiming to minimize the total cost of the system computed as the sum of the fixed costs of the selected bins and the total item-to-bin assignment cost using regular and spot-market bins. The multi-period formulation optimizes the cost over all the time periods considered.

Bio : Franklin Djeumou Fomeni is currently an Assistant Professor in Operations Research at ESG-UQAM. He received a PhD in Management Sciences from Lancaster University in the UK, an MSc in Applied Mathematics from the University of the Witwatersrand in South Africa and a Postgraduate Diploma from the African Institute for Mathematical Science (AIMS South Africa). His research interests span the theory and the application of operations research methods to problems in transportations, logistics, production planning and sustainability. He has worked on projects from the European organization for the safety of air navigation (EUROCONTROL), as well as on projects from companies in the tea, sugar and mining industries.

* **INSCRIPTION** pour présence / * In-person **REGISTRATION:** ortmann.janosch@uqam.ca

Zoom : <https://uqam.zoom.us/j/88214941485> / ID réunion : 882 1494 1485

VENDREDI / FRIDAY

13 mai 2022 10h30
May 13th, 2022, 10:30

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Martin Trépanier