



# Joint Webinar CIRRELT, MobilOpt and Canada research chair in integrated logistics

Maria Battarra

University of Bath, School of Management



Faculty of Business Administration  
MobilOpt: Mobility Optimization



Canada research chair  
in integrated logistics

## ROUTING A FLEET OF GLIDERS

**Abstract:** This talk will discuss routing algorithms for a fleet of gliders. Gliders are unmanned flying vehicles without a propulsion system, and they are most commonly deployed to take aerial pictures or collect information via sensors. The advantages and disadvantages of gliders will be discussed, and compared and contrasted with drones. Applications in surveillance and humanitarian settings will be presented. The underlying routing problem is modelled by explicitly accounting for flying dynamics, and alternative linearization techniques are tested to make the problem tractable. We propose a metaheuristic based on a novel sequential trajectory optimisation, which computes flyable trajectories for a given route, and a routing matheuristic, combining iterated local search and a set-partitioning-based integer programming formulation. Our computational results will showcase the strengths and weaknesses of this approach, as well as lessons learned while integrating complex system dynamics into a routing algorithm.

**About the speaker:** Maria Battarra is a Senior Lecturer in Management Science at the University of Bath, School of Management. In 2010, she obtained a PhD from the University of Bologna in Operational Research and she specialized in the study of combinatorial optimisation problems. She was previously appointed Lecturer at the School of Mathematics of the University of Southampton, and Assistant Professor in Industrial Engineering, at Kadir Has University (Turkey). Her research mainly focuses on developing innovative exact and metaheuristic algorithms for real world applications, including but not limited to vehicle routing problems, scheduling problems, disaster relief management, and maritime logistics.

<https://ulaval.zoom.us/j/62684837798?pwd=UXF2c1huRmhmSHY5cmdKTFFExNHhKdz09>

Meeting ID: 626 8483 7798 Passcode: 442574

MERCREDI / WEDNESDAY

27 octobre / October 27th

10h00

Ouvert à tous  
Open to all

Responsables / Organizers

Maryam Darvish - Leandro Coelho