



OPTiMA

ARC TRAINING CENTRE IN
OPTIMISATION TECHNOLOGIES
INTEGRATED METHODOLOGIES
AND APPLICATIONS

OPTiMA SEMINAR SERIES

BB_EVAC: A FAST LOCATION-SENSITIVE ALGORITHM FOR PROBABILISTIC BEHAVIOR-BASED BUILDING EVACUATION

Past work on evacuation planning assumes that evacuees will follow the instructions given to them. However, there is ample evidence that this is not always the case. While some people will follow instructions, others will follow their own desires. In this talk, we will give a formal definition of a behavior-based evacuation problem (BBEP), in which a probabilistic human behavior model is taken into account, when planning an evacuation. We show that a specific form of constraints can be used to express such behaviors. We show that BBEPs can be solved exactly via an integer program called BB_IP, and approximately by a much faster algorithm that we call BB_Evac. We conducted a detailed experimental evaluation of both algorithms applied to building graphs (though in principle, the algorithms can be applied to any graphs), and show that the latter is an order of magnitude faster than BB_IP, while producing results that are almost as good on one real-world building graph and on several synthetically generated building graphs.



WED 15 DEC 4PM - 5PM AEST

ZOOM MEETING ID: 873 1557 5255; PASSWORD: 778635

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