

# Publications of Paraskevi Machaira

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## Conference papers

- [1] Kontogiannis, S., Machaira, P.-M.-M., Paraskevopoulos, A., Zaroliagis, C., *REX: A Realistic Time-Dependent Model for Multimodal Public Transport*. In: *Algorithmic Approaches for Transportation Modelling, Optimization, and Systems (ATMOS)*, pp. 12:1–12:16, 2022.

We present the non-FIFO time-dependent graph model with REalistic vehicle eXchange times (REX) for schedule-based multimodal public transport, along with a novel query algorithm called TRIP-based LAbel-correction propagation (TRIPLA) algorithm that efficiently solves the realistic earliest-arrival routing problem. The REX model possesses all strong features of previous time-dependent graph models without suffering from their deficiencies. It handles non-negligible exchanges from one vehicle to another, as well as supports non-FIFO instances which are typical in public transport, without compromising space efficiency. We conduct a thorough experimental evaluation with real-world data which demonstrates that TRIPLA significantly outperforms all state-of-the-art query algorithms for multimodal earliest-arrival routing in schedule-based public transport.