A Dynamic Programming Approach for Efficient Implementation of Accessibility Computation in an Evolving Transportation Network

Working Paper

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Abstract

Computation of accessibilities via a transportation network requires the knowledge of network shortest paths, what can rapidly become a computationnal obstacle in the case of a network evolving at a fast rate. Indeed, implementing a classic shortest path algorithm at each network change implies a complete recomputation of all paths although most of them remain unchanged. We propose a dynamic programming approach that, as a compromise between computation time and amount of memory used, allows a faster update of network paths and distances after a change in network topology.

1 Context

2 Algorithm

3 Application to Accessibility Online Computation