

Travel behavior modeling: taxonomy, challenges, and opportunities

ABSTRACT

Personal daily movement patterns have a longitudinal impact on the individual's decision-making in traveling. Recent observation on human travel raises concerns on the impact of travel behavior changes on many aspects. Many travel-related aspects like traffic congestion management and effective land-use were significantly affected by travel behavior changes. Existing travel behavior modeling (TBM) were focusing on assessing traffic trends and generate improvement insights for urban planning, infrastructure investment, and policymaking. However, literature indicates limited discussions on recent TBM adaptation towards future technological advances like the integration of autonomous vehicles and intelligent traveling. This survey paper aims to provide overview insights on recent advances of TBM including notable classifications, emerging challenges, and rising opportunities. In this survey, we reviewed and analyzed recently published works on TBM from high-quality publication sources. A taxonomy was devised based on notable characteristics of TBM to guide the classification and analysis of these works. The taxonomy classifies recent advances in TBM based on type of algorithms, applications, data sources, technologies, behavior analysis, and datasets. Furthermore, emerging research challenges and limitations encountered by recent TBM studies were characterized and discussed. Subsequently, this survey identified and highlights open issues and research opportunities arise from recent TBM advances for the future undertaking.