

论文

基于Multi-agent 协商的 出行信息个性化服务策略

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摘要:

为了满足个体出行者的信息服务需求、均衡分配路网系统交通量,采用效用理论和multi-agent 建模技术,将驾驶员、信息发布单元以及路网管理者分别作为不同的Agent 建立模型,提出了基于multi-agent 协商的个性化信息服务策略,期望通过Agent 之间的协商实现个体出行者与路网管理者之间的利益均衡. 应用Starlogo 仿真技术,针对5 种路网饱和度和6 种服务供应接受比例组合成的30 种服务供给模式,分析了该信息服务策略对出行个体和整体路网的影响. 仿真结果表明:协商服务最佳适用路况的流量饱和度为0. 95,最佳的服务供应比例为60%.

关键词: 个性化信息服务;路径选择 multi-agent 协商 Starlogo 仿真

Personalized Service Strategy of Travel Information Based on Multi-agent Negotiation

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Abstract:

In order to satisfy the travel information service demand of individual users and solve the road network equilibrium assignment problem, a personalized information service strategy based on multi-agent negotiation was proposed using utility theory and multi-agent modeling technology. In this model, individual users, information issue units, and the traffic system manager are treated as different agents, and the benefit equilibrium between the individual users and the traffic system manager is attempted to be realized through negotiation among the agents. Then, the influences of the information service strategy on the individual users-travel time and the whole network performance were analyzed through Starlogo simulation under 30 negotiation service modes, designed with 5 road network saturations and 6 service acceptance ratios. The simulation results showed that the optimal flow saturation of road network for negotiation service was 0. 95, and the optimal service ratio was 60%.

Keywords: personalized travel information service route choice multi-agent negotiation Starlogo simulation

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