

ISSN 1009-6744



9 771009 674202

# 交通运输系统工程与信息(双月刊)

(JIAOTONG YUNSHU XITONG GONGCHENG YU XINXI)

第 20 卷 第 5 期 2020 年 10 月

## 目 次

### 决策论坛

- 考虑收益管理的高铁平行车次动态差别定价 ..... 蔡鉴明, 欧阳姗(1)
- 停车许可证的动态最优供给策略 ..... 王鹏飞, 王安格, 关宏志, 赵 磊, 赵鹏飞(9)

### 综合交通运输体系论坛

- 产业转移背景下西部运输需求的完全分解模型 ..... 左大杰, 肖国胜, 王孟云(15)
- 站城融合模式下既有铁路车站城市功能开发体量预测研究 ..... 冯 涛, 彭其渊, 陶思宇, 陈昕梅(21)
- 基于出行特征的用地类型推断方法研究 ..... 张 政, 陈艳艳, 梁天闻(29)

### 智能交通系统与信息技术

- 智能网联车辆混合交通流中灯语意图识别模型研究 ..... 梁 军, 钱晨阳, 陈 龙, 王文斌, 赵彤阳(36)
- 山区公路驾驶视觉信息量计算方法研究 ..... 孟云伟, 陈 磊, 刘博航, 陈炳阳, 潘晓东(45)
- 基于信令数据的出行强度影响因素分析模型 ..... 雷方舒(51)
- 多源数据融合驱动的居民出行特征分析方法 ..... 苏跃江, 温惠英, 韦清波, 吴德馨(56)
- 平行流交叉口行人过街控制策略研究 ..... 安 实, 宋 浪, 王 健, 杨 璐(64)
- 基于强化学习的城轨信息发布策略研究 ..... 贾非凡, 蒋 熙, 李海鹰, 于雪娇(72)
- 基于可变车道的交叉口左转公交优先方法 ..... 陈永恒, 李婉宁, 吴场建(79)
- 基于网联数据的电动车快速充电影响因素分析 ..... 杨 烨, 谭忠富, 焦港欣(86)
- 基于对称残差U型网络的路网交通流量数据修复 ..... 代 亮, 梅 洋, 李曙光, 钱 超, 汪贵平(93)

### 系统工程理论与方法

- 基于多模型融合的电动汽车行驶里程预测 ..... 胡 杰, 翁灵隆, 覃雄臻, 杜玉峰, 高长斌(100)
- 动态管理模式下路侧停车泊位占有率预测方法 ..... 赵 聪, 朱逸凡, 李兴华, 杜豫川(107)
- 强制性换道的空间特征对分流区交通流的影响 ..... 钟异莹, 陈 坚, 邵毅明, 李 睿(114)
- 基于元胞自动机的轨道交通突发客流拥堵消散演化机理研究 ..... 蒋阳升, 刘纹滔, 姚志洪(121)
- 基于混合深度学习的地铁站进出客流量短时预测 ..... 赵建立, 石敬诗, 孙秋霞, 任 玲, 刘彩虹(128)
- 面向自组织平衡的共享电动汽车调度优化方法 ..... 姚恩建, 何媛媛, 金方磊, 卢天伟, 潘 龙(135)
- 考虑区间重叠的多运营商公交调度优化 ..... 宋现敏, 张明业, 姜景玲(142)
- 城市公交线网差异化计程票价多目标优化 ..... 李雪岩, 祝 歆, 李 静(148)
- 适用复杂劣化趋势的轨道不平顺鲁棒建模方法 ..... 杨雅琴, 徐 鹏, 李 晔, 孙全欣(156)
- 基于 Panel Data 的山地城市立交基本段通行能力影响因素研究 ..... 周约珥, 龚华凤, 赵聪霄, 徐小童, 黄博亚(163)
- 基于改进密度聚类算法的交通事故地点聚类研究 ..... 黄 钢, 瞿伟斌, 许卉莹(169)
- 日常动态货物列车开行方案优化研究 ..... 李晟东, 吕红霞, 吕苗苗, 徐长安, 倪少权(177)
- 面向航班延误的停机位实时指派优化模型 ..... 姜 雨, 胡志韬, 童 楚, 刘振宇, 陈丽丽, 张洪海(185)
- 需求响应的集装箱班列时刻表优化及 Benders 分解算法 ..... 江雨星, 牛惠民(191)
- 考虑游览船运营特征的航道通过能力评价方法 ..... 翁金贤, 廖诗管, 付珊珊, 王亚力(199)
- 基于多旅行商问题的应急设施服务区划分模型 ..... 赵 星, 吉 康, 申 珂(205)
- 基于订单拆分的线上到线下连锁门店配送优化模型 ..... 辛禹辰, 施胜男, 杨华龙(212)
- 时变交通下生鲜配送电动车辆路径优化方法 ..... 赵志学, 李夏苗(218)

### 案例分析

- 交通可达性与城市经济活动的空间特征分析:以北京市为例 ..... 朱宇婷, 刘 莹, 许 奇, 郭继孚, 程 颖(226)
- 中国城市网约车服务对公交使用量的影响 ..... 钟 军, 林 岩, 杭 宇(234)
- 车辆荷载特性影响下的碰撞时间分布规律 ..... 王 颖, 方志纯, 简注清, 涂辉招, 施能艺(240)

# TRANSPORTATION SYSTEMS ENGINEERING & INFORMATION TECHNOLOGY (BIMONTHLY)

Vol. 20 (October, 2020) No. 5

## CONTENTS

### Decisionmaking Forum

- Dynamic Differential Pricing of High-speed Railway Parallel Trains Considering Revenue Management ..... CAI Jian-ming, OUYANG Shan( 1 )  
Dynamic Optimal Supply Strategy of Parking Permits ... WANG Peng-fei, WANG An-ge, GUAN Hong-zhi, ZHAO Lei, ZHAO Peng-fei( 9 )

### Forum about Comprehensive Transportation System

- Complete Decomposition Model of Demand of Transportation System in West under Background of Industrial Transfer ..... ZUO Da-jie, XIAO Guo-sheng, WANG Meng-yun( 15 )  
Forecasting Volume of Urban Function Development of Existing Railway Station with Integrating Station-city Development ..... FENG Tao, PENG Qi-yuan, TAO Si-yu, CHEN Xin-mei( 21 )  
Inferring Land Use Characteristics Using Travel Patterns ..... ZHANG Zheng, CHEN Yan-yan, LIANG Tian-wen( 29 )

### Intelligent Transportation System and Information Technology

- Vehicle Headlights Intention Recognition Model for Connected and Automated Vehicles in Mixed Traffic Flow ..... LIANG Jun, QIAN Chen-yang, CHEN Long, WANG Wen-sa, ZHAO Tong-yang( 36 )  
Calculation Method of Visual Information for Driver in Mountainous Highway ..... MENG Yun-wei, CHEN Lei, LIU Bo-hang, CHEN Bing-yang, PAN Xiao-dong( 45 )  
Travel Intensity Influencing Factors Analysis Model Based on Signaling Data ..... LEI Fang-shu( 51 )  
Resident Travel Characteristics Analysis Method Based on Multi-source Data Fusion ..... SU Yue-jiang, WEN Hui-ying, WEI Qing-bo, WU De-xin( 56 )  
Pedestrian Crossing Control Strategy for Parallel Flow Intersection ..... AN Shi, SONG Lang, WANG Jian, YANG Lu( 64 )  
Information Release Strategy of Urban Rail Transit Based on Reinforcement Learning ..... JIA Fei-fan, JIANG Xi, LI Hai-ying, YU Xue-qiao( 72 )  
Method of Bus Left-turn Priority at Intersection Based on Variable Lane ..... CHEN Yong-heng, LI Wan-ning, WU Chang-jian( 79 )  
Analysis of Factors Influencing Fast Charging Behavior Based on Data of Connected Electric Vehicles ..... YANG Ye, TAN Zhong-fu, JIAO Gang-xin( 86 )  
Traffic Flow Data Imputation Method Based on Symmetrical Residual U-Net ..... DAI Liang, MEI Yang, LI Shu-guang, QIAN Chao, WANG Gui-ping( 93 )

### System Engineering Theory and Methods

- Mileage Prediction of Electric Vehicle Based on Multi Model Fusion ..... HU Jie, WENG Ling-long, QIN Xiong-zhen, DU Yu-feng, GAO Zhang-bin(100)  
A Real-time Prediction Method of Curbside Parking Occupancy Incorporating Dynamic Management Policies ..... ZHAO Cong, ZHU Yi-fan, LI Xing-hua, DU Yu-chuan(107)  
Spatial Feature of Mandatory Lane Changing and Its Impact on Traffic Flow at Diverging Area ..... ZHONG Yi-ying, CHEN Jian, SHAO Yi-ming, LI Rui(114)  
Evolution Mechanism of Congestion and Dissipation of Sudden Passenger Flow in Urban Rail Transit Based on Cellular Automaton ..... JIANG Yang-sheng, LIU Wen-tao, YAO Zhi-hong(121)  
Short-time Inflow and Outflow Prediction of Metro Stations Based on Hybrid Deep Learning ..... ZHAO Jian-li, SHI Jing-shi, SUN Qiu-xia, REN Ling, LIU Cai-hong(128)  
A Self-organized Equilibrium-oriented Relocation Optimization Method for Electric Vehicle Sharing ..... YAO En-jian, HE Yuan-yuan, JIN Fang-lei, LU Tian-wei, PAN Long(135)  
Bus Dispatching Optimization of Multi-operators Considering Overlapping Interval ..... SONG Xian-min, ZHANG Ming-ye, JIANG Jing-ling(142)  
Multi-objective Optimization of Urban Public Transportation Network Differentiated Fare ..... LI Xue-yan, ZHU Xin, LI Jing(148)  
Robust Modeling Method for Track Irregularity of Complicated Deterioration Trend ..... YANG Ya-qin, XU Peng, LI Ye, SUN Quan-xin(156)  
Interchange Basic Segment Capacity Impact Factor Analysis Based on Panel Data ..... ZHOU Yue-er, GONG Hua-feng, ZHAO Cong-xiao, XU Xiao-tong, HUANG Bo-ya(163)  
Traffic Accident Location Clustering Based on Improved DBSCAN Algorithm ..... HUANG Gang, QU Wei-bin, XU Hui-ying(169)  
Daily Dynamic Freight Train Service Optimization ..... LI Sheng-dong, LV Hong-xia, LV Miao-miao, XU Chang-an, NI Shao-quan(177)  
An Optimization Model for Gate Re-assignment under Flight Delays ..... JIANG Yu, HU Zhi-tao, TONG Chu, LIU Zhen-yu, CHEN Li-li, ZHANG Hong-hai(185)  
Optimization of Demand-response Container Train Timetables and Benders Decomposition ..... JIANG Yu-xing, NIU Hui-min(191)  
A Capacity Estimation Approach for Waterway Traffic Considering Operational Characteristics of Cruise Ships ..... WENG Jin-xian, LIAO Shi-guan, FU Shan-shan, WANG Ya-li(199)  
A Service Area Division Model for Emergency Facilities Based on Multiple Traveling Salesman Problem ..... ZHAO Xing, JI Kang, SHEN Ke(205)  
An Optimization Model for O2O Chain Stores Distribution Based on Order Splitting ..... XIN Yu-chen, SHI Sheng-nan, YANG Hua-long(212)  
Electric Vehicle Route Optimization for Fresh Logistics Distribution Based on Time-varying Traffic Congestion ..... ZHAO Zhi-xue, LI Xia-miao(218)

### Cases Analysis

- Spatial Characteristics Analysis of Traffic Accessibility and City Economic Activity: A Case Study of Beijing ..... ZHU Yu-ting, LIU Ying, XU Qi, GUO Ji-fu, CHEN Ying(226)  
Impact of Ride-hailing Service on Use of Public Transport in China's Cities ..... ZHONG Jun, LIN Yan, HANG Yu(234)  
Effects of Vehicle Load Characteristics on Distributions of Time-to-collision ..... WANG Ying, FANG Zhi-chun, JIAN Zhu-qing, TU Hui-zhao, SZE Nang-ngai(240)