# Table of Contents

## Volume 1

### Highways

#### Cooperative Vehicle-Infrastructure Technology and Application

- **Multi-Resolution Traffic Simulation Modeling Based on Object-Oriented Design Pattern by UML**
  - Jian Ma, Liyan Zhang, Keping Li, and Congkun Zhu
  - Page 1

- **Research on Traffic Flow Simulation Model with Multi-Agent Based in Vehicular Sensor Network**
  - Zhao-Sheng Yang, Yao Yu, and Xiang-Lun Mo
  - Page 7

- **Traffic Signal Control Method for Single Intersection Based on Cooperated Vehicle Infrastructure System**
  - Cunbao Zhang, Bin Ran, Xinping Yan, Zhaohui Mei, and Yang Cheng
  - Page 13

- **DGPS-Based Vehicle State Estimation in V2I Cooperative System**
  - Boyuan Xie, Sifa Zheng, Xiaohui Qin, and Xijun Zhou
  - Page 23

- **Intelligent Vehicle Platform and Signal Processing Method Applied to Cooperative Vehicle Infrastructure**
  - Sibo Tian, Sifa Zheng, Boyuan Xie, and Xiaohui Qin
  - Page 33

- **A High-Level Architecture SimIVC for Simulating the Traffic Network**
  - Xiaowei Xu, Tao Jiang, Pengfei Li, Tony Qiu, and Yu Hu
  - Page 40

- **An Integrated Testing Scheme and Its Optimization for Cooperative Vehicle Infrastructure System**
  - Min Liu, Tian-ji Feng, Xiao-hua Cao, and Duan-feng Chu
  - Page 49

- **Traffic Congestion Detection and Notification in the Urban Expressway System Using VANETs**
  - Quan Yuan, Zhihan Liu, and Fangchun Yang
  - Page 58

- **Vehicle Cooperative Control Framework in Transportation Cyber-Physical Systems**
  - Yongfu Li, Hao Zhu, Penghua Li, Min Cen, Yinguo Li, and Dihua Sun
  - Page 64

- **Summary of Magnetic Induction Technology**
  - Zhiyong Lv, Muming Li, and Chenghao Hu
  - Page 70

- **A Formulation Method of Control Protocol for Intersection Signal Based on Wireless Communication Technologies**
  - Zhiyong Lu, Qinlan Zhang, and Xiang Liu
  - Page 78

- **Road-Side Units Based Data Forwarding Framework in Vehicular Ad Hoc Networks**
  - Hui Duan and Ye Li
  - Page 84

- **Assessment System Construction for Cooperative Vehicle Infrastructure System Based on Fuzzy Analytic Hierarchy Process**
  - Duanfeng Chu, Wei Huang, and Chaozhong Wu
  - Page 91
Design of Traffic Scenes in Intersections for Verification of Cooperative Vehicle Infrastructure System
Duanfeng Chu, Jiansen Yang, Shaodan Chai, and Chaozhong Wu

Driving Behaviors Research in the Environment of the Internet of Things

A SEM-based Study on Resident’s Traffic Mode Choice Behavior in Beijing
Hua Liu, Yanyan Chen, Yamei Hou, Jianhui Lai, Weiwei Zhang, and Kehan Wu

Driving Behavior Recognition Based on Sensors in Mobile Phone
Jianxin Lu, Zhengzheng Jiang, and Dandan Wang

A Recognition Model for Lane Change Intention Based on Neural Network
Chaozhong Wu, Yaqiu Li, Xiaofeng Ma, Hui Zhang, and Haoran Li

Innovations of Safety-Oriented Traffic Engineering including Road Design and Behavioral Issues

On the Crossing Contribute to Traffic Congestion Problem Analysis and Countermeasure Research
Fei Li

Research on the Impact Test Conditions of Safety Barriers on Mountain Rural Roads
Xiaoyi Mi, Jingmei Wu, and Yu Chen

Correlations of Speed Standard Deviation and Traffic Conflict for Two-lane Highways
Dehua Wu

Design of Emergency Accident Handling System for Expressways
Lin Mao and Juan Yao

Study on Quantitative Evaluation of Control Information of Expressway Guide Sign Based on Network Toll Collection Data Analysis
Yucai Song, Huixue Liu, and Shufang Ge

Motor Vehicle Running-Speed Monitoring and Controlling System for Freeway Network
Aifen Fang and Changjun Wang

Piezoresistivity of Cement-based Composites Containing Copper-coated Steel Fiber and Graphite
Tao Liu, Mingqing Sun, Jun Li, Yingjun Wang, and Wenming Sun

Study on Risk Evaluation Methods of Road Work Zone on Urban Expressway
Feng Lu, Shaowu Qian, and Yunlong Wang

A Study on the Method of Highway Hi-Pass Lane Arrangement
Joon-Beom Lim, Soo-Beom Lee, Ji-Yeon Hong, and Sung-Kab Joo

Prediction of Settlement of Pile Groups
Guo-liang Dai, Chao Yang, and Wei-ming Gong

A Real-Time Simulator for the Behavior of Large-Scale Crowd over City-Wide Maps using CUDA

101
112
119
125
131
139
145
152
159
166
172
178
185
191
199
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analysis of Conflicts between Right-Turn Vehicles and Pedestrians under Different Right-Turn Control Schemes: A Comparative Study</td>
<td>206</td>
</tr>
<tr>
<td>Ziwen Ling, Ying Ni, and Keping Li</td>
<td></td>
</tr>
<tr>
<td>Study of Double W-Beam Barrier Simulation Crash Performance</td>
<td>215</td>
</tr>
<tr>
<td>Chenghu Wang, Hui Chen, Chao Jiang, and Zhiwei Zhou</td>
<td></td>
</tr>
<tr>
<td>Establishment of Navigation Environment Safety Index of Changjiang River Based on Bayesian Network with GeNIE</td>
<td>223</td>
</tr>
<tr>
<td>Hao Li, Qizhi Hu, and Qingnian Zhang</td>
<td></td>
</tr>
<tr>
<td>A Study on Security Monitoring and Dynamic Assessment of Highway Based on Remote Sensing</td>
<td>231</td>
</tr>
<tr>
<td>Jianfeng Liu, Ying Cai, Yu Ge, and Jianling Huang</td>
<td></td>
</tr>
<tr>
<td>Application of Multi-source Information Fusion Technology in the Construction of a Secure and Emergent Transportation Platform</td>
<td>237</td>
</tr>
<tr>
<td>Liu Jianfeng, Wang Haifeng, Ge Yu, and Huang Jianling</td>
<td></td>
</tr>
<tr>
<td>Method of Traffic Safety Evaluation of Newly Designed Highway Based on Driving Simulation</td>
<td>244</td>
</tr>
<tr>
<td>Quan Min, Ying Zhou, Nengchao Lyu, and Meng Wu</td>
<td></td>
</tr>
<tr>
<td><strong>Intelligent Vehicles and Equipment</strong></td>
<td></td>
</tr>
<tr>
<td>Lane Departure Warning System Design for Mountainous Freeways</td>
<td>252</td>
</tr>
<tr>
<td>Ting Xu, Zhuanglin Ma, and Da-wei Hu</td>
<td></td>
</tr>
<tr>
<td>Development and Application of Container Automated Guided Vehicle System</td>
<td>258</td>
</tr>
<tr>
<td>Haibo Li, Yunfei Zou, and Guangyu Li</td>
<td></td>
</tr>
<tr>
<td>Model Predictive Control for Intelligent Vehicle Lane Change</td>
<td>265</td>
</tr>
<tr>
<td>Huarong Zheng, Zhen Huang, Chaozhong Wu, and R. R. Negenborn</td>
<td></td>
</tr>
<tr>
<td>An Improved Hough Transform Applied to Lane Lines Extracting</td>
<td>277</td>
</tr>
<tr>
<td>Yi-shu Yang, Yi-xin Su, and Dan-hong Zhang</td>
<td></td>
</tr>
<tr>
<td><strong>Internet of Things and Transportation Safety</strong></td>
<td></td>
</tr>
<tr>
<td>Security Research on Reporting Data of Remote Monitoring Device</td>
<td>283</td>
</tr>
<tr>
<td>Shunda Li</td>
<td></td>
</tr>
<tr>
<td>Risk Warning System for Complex Operating Environment Sections of Expressway</td>
<td>289</td>
</tr>
<tr>
<td>Yong Fang and Zhongyin Guo</td>
<td></td>
</tr>
<tr>
<td>Research of Safety Monitoring System for the Operating Vehicles Inter-connection and Inter-surveillance Based on Internet of Things</td>
<td>296</td>
</tr>
<tr>
<td>Jinping Shang, Yanhong Li, Xiaonian Sun, and Haiyang Wang</td>
<td></td>
</tr>
<tr>
<td>Study on Speed and Speed Limits of Expressway Work Zones</td>
<td>302</td>
</tr>
<tr>
<td>Xianghai Meng, Yongyi Shi, and Hanqing Xu</td>
<td></td>
</tr>
<tr>
<td>The Application Based on Internet of Things in Road Traffic Weather</td>
<td>309</td>
</tr>
</tbody>
</table>
Liying Sui, Zhihong Chen, and Yongguang He

**Total Framework and Operation Mechanism Research Based on Internet of Things of Maintaining Traffic Smooth in Bad Weather**
Zhihong Chen, Liying Sui, and Xiaoliang Zhang

**Transportation Process Monitoring of Car-Carrier in IOT Environment**
Pengge Zhang, Yu Zhang, Le Wang, Chunmeng Zhou, and Wenfeng Li

### ITS Demonstrations and Applications

**Contribution to a Terminology Related to Dependability for the Qualification of an On-board Satellite-based System**
Olimpia Hoinaru, Julie Beugin, and Juliette Marais

**Study on Collision Warning of Non-Motorized Traffic Unit Crossing Based on Cooperative Vehicles Infrastructure**
Zhaosheng Yang, Xianglun Mo, and Yao Yu

**The Multidimensional Displaying and Analyzing of Taxi Meter Data Based on BI**
Jun Li

**Development of Freeway Active Traffic Control System**
Jie Fang, Md. Hadiuzzaman, Xu Wang, and Tony Z. Qiu

**Research on the In-Vehicle ITS Technology on Improving Road Safety in China**
Wenfeng Liu, Bin Li, and Liang Hao

**A Model of Arterial Roadway Corridor with Multiple Intersections Near Highway-Rail Grade Crossings**
Yifeng Chen and Laurence R. Rilett

**Microscopic Simulation of Freeway Traffic Flow Based on Cellular Automata**
Youwei Fan and Hailin Zhang

**Transit Signal Priority Control for Multi-Conflicted Routes under Headway-Based Service**
Yongjie Lin, Xianfeng Yang, and Zou Zou

**A MANOVA of Historical and Unhistorical Factors for Traffic Volume Forecasting**
Zhenyu Shan, Renbo Qiu, and Yingjie Xia

**New Sustainable Transportation Solution in Urban Areas, S.A.T. Project: Towards a Simulation Modelling Approach**
Y. Liang, J. Serrano, N. A. Pecorari, and V. Serrano

### Other Highway Topics

**A Bi-Layer Cooperative Model of Pedestrian Behaviors in Complex Topological Environments**
Weiping Tong and Cheng Lin

**Study on the Layout and the Site Selection Methods of Comprehensive Passenger Hub Based on Dual-Constrained Model**
Guang Yang, Dong Wang, and Xiaonian Sun
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dynamic Congestion Pricing Model Based on Stackelberg Games</td>
<td>427</td>
</tr>
<tr>
<td>Lili Ding, Zhengwei Wang, and Luyan Li</td>
<td></td>
</tr>
<tr>
<td>An Interactive Approach to Active Learning of English in the Transportation English Context</td>
<td>434</td>
</tr>
<tr>
<td>Jiang Yan</td>
<td></td>
</tr>
<tr>
<td>A Prediction Model of Trip Attraction Based on Clustering of Land Utilization</td>
<td>441</td>
</tr>
<tr>
<td>Guangyuan Dai, Wei Wang, and De Zhao</td>
<td></td>
</tr>
<tr>
<td>Rural Road Network Layout Based on FCM Clustering Algorithm and Traffic Location Method</td>
<td>449</td>
</tr>
<tr>
<td>Shuang Zhang, Yulin Chang, Zhenhong Wu, and Dabing Shi</td>
<td></td>
</tr>
<tr>
<td>The Layout Planning Method and the Process Analysis of Expressway</td>
<td>455</td>
</tr>
<tr>
<td>Yang Guang, Bu Lin, and Sun Xiaonian</td>
<td></td>
</tr>
<tr>
<td>Research about Data Processing for Tunnel Deformation Monitoring Based on GPS Monitoring Technique</td>
<td>462</td>
</tr>
<tr>
<td>Ji-hong Song, Min Huang, Si-ran Shen, and Shen Zhong</td>
<td></td>
</tr>
<tr>
<td>Cause and Countermeasure of Structure Disease of Bridge</td>
<td>470</td>
</tr>
<tr>
<td>Ruiwei Fang and Xiuzhi Yang</td>
<td></td>
</tr>
<tr>
<td>Conceive of Integrative Transportation of Xia-Zhang-Quan Metropolitan Area</td>
<td>476</td>
</tr>
<tr>
<td>Boqiang Zhu, Qing Liu, and Zhifeng Li</td>
<td></td>
</tr>
<tr>
<td>Research on Strengthening T-Beam Transverse Connection in the Highway Bridge Reinforcement Design</td>
<td>482</td>
</tr>
<tr>
<td>Liu Yang and Zhida Li</td>
<td></td>
</tr>
<tr>
<td>The Case Analysis of Tobacco Distribution Vehicle Scheduling of Hua Zhong Logistics Company</td>
<td>489</td>
</tr>
<tr>
<td>Ya Xu and Min Wang</td>
<td></td>
</tr>
<tr>
<td>Design and Application of Network-level Decision Support System for Urban Road</td>
<td>498</td>
</tr>
<tr>
<td>Tingting Ding, Lijun Sun, and Zhang Chen</td>
<td></td>
</tr>
<tr>
<td>The Study on Language Variation of Mobile Phone Short Messages (SMS) of University Students in Wuhan District</td>
<td>505</td>
</tr>
<tr>
<td>Xiaoxi Zheng</td>
<td></td>
</tr>
<tr>
<td>Research on the Allocation of Passenger Transport Structure in Transport Channel Based on Fuzzy Comprehensive Evaluation</td>
<td>512</td>
</tr>
<tr>
<td>Xiaonian Sun, Yanhong Li, and Zhenzhou Yuan</td>
<td></td>
</tr>
<tr>
<td>Analysis on Transfer from Electric Bike to Public Transportation Based on SP Data and RP Data</td>
<td>527</td>
</tr>
<tr>
<td>Jiajia Liu, Hongzhi Guan, Huanmei Qin, Yunqiang Xue, and Yazhou Ni</td>
<td></td>
</tr>
<tr>
<td>Research of the Test for Complete-Vehicle Emission of the Bus by Chassis-Dynamometer</td>
<td>536</td>
</tr>
<tr>
<td>Shuangxi Liu, Zhang Gao, Huazhi Mai, and Chunling Wu</td>
<td></td>
</tr>
<tr>
<td>Analysis of Road Traffic Accident Caused by Human Error</td>
<td>547</td>
</tr>
<tr>
<td>Yu-Hui Ren</td>
<td></td>
</tr>
</tbody>
</table>
Real-Time Monitoring Technology of Material Transportation to Dam and Its Application in Core Rockfill Dam
Bo Cui and Rui Wang

Analysis of Energy Utilization of a Diesel Engine
Zhimin Yao and Zuoqin Qian

Effect of Traffic Volume on Headways at a Single-Lane Roundabout Based on VISSIM Simulation
Zhaowei Qu, Yuzhou Duan, Xianmin Song, Yan Xing, and Tingting Chai

Analysis of Land Use Extraction through Morphological Analysis Using Geographic and Remotely Sensed Data
Seyed Ahad Beykaei, Ming Zhong, and Yun Zhang

Max-Min Ant System for Dynamic Vehicle Routing Problem with Time Window
Xia Liu

Performance Comparison of Different Highway Snow-Melting Agents
Yuhui Wu

A Departure Time Choice Model with Bounded Rationality
Wenyun Tang, Lin Cheng, and Zhaoming Chu

Solving the Vehicle Routing Problems with Time Window Using Hybrid Genetic Algorithm
Changfeng Zhou

Analysis and Discussion on Limits of Dimensions, Axle Load, and Masses for Road Vehicles
Xueli Zhang, Hao Zhang, Chengqiang Zong, and Hongwei Zhang

The Design of the Multisource Remote Real-time Monitoring System for Structure Safety of Dashanpo Tunnel
Run Yuan, Ran Shao, Jian Huang, and Enjun Wang

Research on Vibration Serviceability of Over-Track Buildings
Huajie Zhou, Wei He, and Weiping Xie

Comparison Between Traditional Four-Step and Activity-Based Travel Demand Modeling—A Case Study of Tampa, Florida
Rong Shan, Ming Zhong, and Chunyu Lu

Analysis on the Influence of Logistics Park Development to Regional Economic
Qian Dai

A Nonparametric Approach to Road Safety Analysis—Does It Make a Difference?
Lalita Thakali, Liping Fu, Tao Chen, and Taimur Usman

Analysis of the Traffic Operating Efficiency in China after the Economic Stimulus Plan
Weiqing Zhong and Zan Yang

Safety Driving Assistance Technology under the Internet of Things

Driver Fatigue Detection System Based on Eye Movements

553
558
565
576
583
590
596
602
608
614
621
627
634
640
649
657
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Simulation Study on Night Vision Enhancement Systems</td>
<td>664</td>
</tr>
<tr>
<td>Linzhen Nie and R. Mourant</td>
<td></td>
</tr>
<tr>
<td>A Coordinate Transformation Method for Video and Radar-Based Driver Assistance System</td>
<td>671</td>
</tr>
<tr>
<td>Enjun Wang, Jinyu Lei, Juan Zeng, and Xiaohui Yang</td>
<td></td>
</tr>
<tr>
<td>Traffic Information Distribution Methods and Applications</td>
<td></td>
</tr>
<tr>
<td>Shanghai Traffic Information Management and Evaluation System</td>
<td>680</td>
</tr>
<tr>
<td>Min-hua Shao, Yan-jin Liu, and Li-jun Sun</td>
<td></td>
</tr>
<tr>
<td>MTISS: A Novel Mobile Transportation Information Service System Based on SOA</td>
<td>687</td>
</tr>
<tr>
<td>Weilong Cui, Yu Huang, Yong Gao, and Xiaowen Dai</td>
<td></td>
</tr>
<tr>
<td>Impact of Variable Message Sign Text Layout on Recognition Time</td>
<td>694</td>
</tr>
<tr>
<td>Er-hui Chen, Jing Liu, and Hongzheng Zhao</td>
<td></td>
</tr>
<tr>
<td>Research on Design of Urban Expressway Exit Sign Numbering</td>
<td>702</td>
</tr>
<tr>
<td>Jiangqiang Wang, Yongchang Zu, Jian Lu, and Jingang Gu</td>
<td></td>
</tr>
<tr>
<td>The Error Distinguishing of Automatic Identification System Based on Improved Evidence Similarity</td>
<td>715</td>
</tr>
<tr>
<td>Feng Ma, Xiumin Chu, and Chenguang Liu</td>
<td></td>
</tr>
<tr>
<td>Research on Data Model of the Real-time Parking Information</td>
<td>723</td>
</tr>
<tr>
<td>Yuejun Luo, Zheng Li, and Wang Peng</td>
<td></td>
</tr>
<tr>
<td>Traffic Information Technology Based on IOT</td>
<td></td>
</tr>
<tr>
<td>Integrating Real-Time Traffic Data and Mobile Health Diagnosis for the Mobile User First Aid</td>
<td>732</td>
</tr>
<tr>
<td>Alfio Costanzo, Alberto Faro, Daniela Giordano, and Roberta Rappazzo</td>
<td></td>
</tr>
<tr>
<td>Highway Traffic Accident Identification and Emergency Response Technology Based on the Internet of Things</td>
<td>739</td>
</tr>
<tr>
<td>Wanli Dong, Ting Lv, and Hongzhen Lv</td>
<td></td>
</tr>
<tr>
<td>Performance Analysis of Vehicular Cooperative Network with Network Coding</td>
<td>745</td>
</tr>
<tr>
<td>Huixian Wang, Jian Liu, Hongjiang Zheng, and Wei Chen</td>
<td></td>
</tr>
<tr>
<td>Bluetooth Signal Collector Research and Its Application in Pedestrian Traffic Survey</td>
<td>754</td>
</tr>
<tr>
<td>Zhongwei Hu, Xiaoyong Deng, Huimin Wen, and Jifu Gu</td>
<td></td>
</tr>
<tr>
<td>Research on Internet in Vehicles System Based on the OBD Technology and Android Platform</td>
<td>760</td>
</tr>
<tr>
<td>Fuwu Yan, Kai Cao, and Jie Hu</td>
<td></td>
</tr>
<tr>
<td>Research on the Traffic Information System Based on the Internet of Things</td>
<td>767</td>
</tr>
<tr>
<td>Yuanli Wang, Zhenjun Xiao, and Jiajia Lv</td>
<td></td>
</tr>
<tr>
<td>Bus Arrival Time Prediction Based on Probe Bus Fleet</td>
<td>773</td>
</tr>
<tr>
<td>He Gao, JingLin Li, and Fangchun Yang</td>
<td></td>
</tr>
</tbody>
</table>
Performance Analysis of Non-cooperative Joint Channel and Bandwidth Allocations in Vehicular Ad-hoc Network
Jian Liu, Huixian Wang, Hongjiang Zheng, and Wei Feng

Research and Development of Road Maintenance Management System Based on WebGIS
Caixia Yu and Xiao Feng

A Design and Realization of Traffic Information Security Scheme Based on GPS
Bingzhong Ren, Junqiang Guo, and Wenhuan Kong

Modeling and Analysis for IOT-based Intelligent Transportation System Based on IDEF Methods
Biao Wu, Meng Yang, and Tuo Liu

The Research of the Urban Parking Guidance System Based on RFID
Chenguang Wang, Qingyong Zhang, and Xuefeng Wu

Traffic Monitoring Technology

Research on New Method of Collision Warning of Bridge
Zhengbao Lei, Zhu Chen, and Muxi Lei

Highway Tunnel Fire Automatic Detection System Based on Double Detectors and BP Neural Network
Chengzan Chu, Lei Wang, Ran Na, and Cheng Wang

Research on Static Parking Demand Prediction Model in Urban Centers Located in the Frigid Zone
Xu Yao and Yaping Zhang

A Hierarchical Approach to License Plate Detection on Distant Multi-Lane Vehicles
Chen-Chiung Hsieh and Yu-Chieh Chang

Volume 2

A Novel Median and Switching-based Method Used to Remove the Impulse Noise from the Traffic Video
Changcheng Wu, Dongbo Liu, Jianxin Miao, and Zhenyi Lu

Research about Using the Retinex-Based Method to Remove the Fog from the Road Traffic Video
Keng Zhang, Changcheng Wu, Jianxin Miao, and Luzhen Yi

A Hybrid Control Delay Model Combining Control Delay and Queuing Profile at Uncongested Signalized Intersections
Pengfei Li and Zhi-jun Qiu

Bluetooth-Based Road Traffic Information Collection System Design
Qiaoying Ma, Xiucheng Guo, and Ning Zhang

Implementing a Minimum Path Finder to Favor Right Driving Behaviors in the City: Integrating Prolog Rules on the Web Server to Flash Builder Action Scripts on the Mobiles
Alfio Costanzo and Carmelo Pino

Traffic Monitoring: British Columbia Practice
Zongfan Luo and Ming Zhong
Method Study on Oil Transportation Electrostatic Detection Based on Optical Fiber Measurement
Rong He, Chenghao Hu, Sijun Huang, and Zhiyong Lu

Vehicle Class Recognition Based on Vehicle’s Sound Signal
Han Gao, Liang Xue, and Cuiling Zhang

Optimal Sensor Density for Freeway Travel Time Estimation with Multi-Class Traffic Flow
Jisheng Zhang and Maojing Jin

Short-Term Traffic Flow Forecasting Based on the Improved Non-Parametric Regression
Ying-hong Li, Xiao-qing Hao, and Le-min Liu

Design and Implementation of an Embedded Pedestrian Detector
Biao Yang and Yongqiang Ji

Coordination Control of Entrance Ramp Metering and Upstream Intersection Signal Based on CPN
Li Wang and Lili Zhang

Transportation Information Processing Theories and Methods

A Traffic State Estimation Method Based on the Road Traffic Information Templates
Dong-Wei Xu, Hong-Hui Dong, Li-Min Jia, and Yin Tian

Research on the Behavior of Travel Route Choice under Conditions of Real-Time Traffic Information Based on Cumulative Prospect Theory
Jufen Yang, Guiyan Jiang, and Qi Li

Application of Least Square Support Vector Machines Based on Wavelet Package in Link Travel Time Prediction
Qingfang Yang, Duo Mei, and Zhaosheng Yang

Short-Term Traffic Flow Prediction Based on Flocking Theory and RBF Neural Network
Jiazheng Zhu, Jinxin Cao, and Yan Fan

Research about the Effect that the Parking Surrounding the School Has on the Traffic Flow Based on the Swarm Theory
Jin Xin Cao and Yan Fan

Research on the Transfer Volume Forecasting Method Based on Time-Phase for Integrated Passenger Transport Hub
Hongfei Jia, Tianyu Ma, Sujuan Wang, and Siyuan Gong

Integrating Multi-source POIs and Road Networks Based on Geometric Data
Yunfei Zhang and Bisheng Yang

Experiment-based Accuracy Evaluation of Traffic Flow Detectors Data
Yaqiao Zhai

Estimation of Daily Traffic on Local Roads in Indiana State—A Mix of Heuristic Search Tool, GIS, and Visum Simulation
Andrzej Szarata

An Efficient Video-based Vehicle Trajectory Processing Approach
Traffic Signs Detection Based on Haar-Like Features and Adaboost Classifier
Zhijiang Li, Chuan Dong, Ling Zheng, and Long Liu

Research on Connectivity Reliability of Main Corridors Based on Theory of Complex Network
Pan Jiang and Jiaqi Yang

Evaluating the Feasibility of Data Collection via GPS-Enabled Mobile Phones for Passive Household Travel Surveys
Feng Mao and Minhe Ji

Comparison on PPCA, KPPCA, and MPPCA-Based Missing Data Imputing for Traffic Flow
Yuebiao Li, Zhiheng Li, Li Li, Yi Zhang, and Maojing Jin

Interrupted Flow Link Travel Time Estimation Based on Video Detector Data and Microwave Detector Data
Huibing Li, Pan Hu, and Xiaoguang Yang

Video-Based Efficient Measurement of Average Control Delay at Signalized Intersections
Yanlin Liu, Feifei Xu, Huizhao Tu, and Lijun Sun

Formalized Representation of Heterogeneous Multi-sensor Traffic Data
Ting Zhang, Yingjie Xia, and Xiumei Li

An Imbalanced Dataset-Based SVDD-AID Algorithm
Wenchang Zheng, Shuyan Chen, and Tiemin Wu

Effectiveness Analysis for Automatic Collection and Dynamic Transmission of Traffic Congestion Information Based on Vanet
Qi Zhang, Hao Zheng, and Jian-ping Zhang

A Regional Bus Scheduling Model Considering Environmental Factors
Jing Gong and Chaozhong Wu

A Constraint Optimization Algorithm for Automated Estimation of Turning Movement Counts at Signalized Intersections
Amir H. Ghods and Liping Fu

Transportation Safety Analysis under the IOT

Knowledge Mining Based on Applications of the Methods and Technologies of Risks Prediction
Andrey Kostogryzov, Vladimir Krylov, Andrey Nistratov, George Nistratov, and Vladimir Popov

Evaluation Method of Arterial Highway Traffic Safety Based on AHP Corresponding
Li Yuan and Mengqian Wu

Analysis of EOQ Model Based on Factor of Variable Price
Zhiqiang Zhao, Zhaodi Wang, and Feng Zhu

Study on Safety Risk Related to Fresh Agricultural Products Sale Logistics Based on ISM
Li Xiang and Jiang Huiyuan
Transportation Safety and Human Factors Engineering

A Study of Road Surface Ice Prediction Based on Highway Operations and Safety
Benmin Liu, Yaoyao Lv, and Zhongyin Guo

Analysis on Fixation Distribution Characteristics of Drivers in Long Freeway Tunnels
Zhigang Du, Faming Huang, and Xiaodong Pan

A Modified Social Force Model under Different Psychological Conditions for Room Evacuation
Hailin Zhang, Maojing Jin, and Hao Liu

Study on Impacts of Road Work on Traffic Based on Flock Theory
Wei Li Zhang, Jin Xin Cao, and Lei Wang

Cognitive Task Analysis and Human Performance Shaping Factors—A Reassessment from a Second Generation Model
Pedro Baziuk, Selva Rivera, and Jorge Nuñez Mc Leod

Research on In-Vehicle Secondary Task Analysis Model Based on Preview Theory
Hua-Cai Xian, Li-Sheng Jin, Qing-ning Niu, Mei-Jiao Xu, and Dong-mei Yang

Study on Driver Stress Response Ability on Rural Roads in China
Haoyi Bian, Lihua Wang, Weihua Zhao, and Haoxue Liu

Disaggregated Crash Prediction Models for Different Crash Types Using Joint Probability Model
Xin Pei, N. N. Sze, S. C. Wong, Ling Huang, and Danya Yao

Design of Rear-End Collision Warning System on Sharp Curved Highway Section under Adverse Weather Conditions
Xiangjuan Ma

Study on Traffic Safety Evaluation Based on Traffic Conflict Technique and Gray Clustering at Signalized Intersection
Ying Wang and Qian Chen

Framework for Highway Safety Mitigation: The Utah Experience
Grant G. Schultz, Steven C. Dudley, and Mitsuru Saito

Analysis on Performance of Driver Distance Recognition to Crossing Pedestrian at Night
Guo-zhu Cheng and Li-xin Wu

Construction and Application of Highway Safety Evaluation System Based on Traffic Ergonomics
Tingting Ding, Lijun Sun, and Zhang Chen

Driver's Intention Recognition on Roads without Crossings Using Sectional Hidden Markov Model
Liangli Zhang, Chaozhong Wu, Zhen Huang, and Bin Wang

Optimizing Hidden Markov Model with Baum-Welch Algorithm for Vehicle Driver's Intention Recognition
Liang-li Zhang, Chao-zhong Wu, Zhen Huang, and Bin Wang

Influence of Drowsiness on Driving Performance on Off-ramps: A Driving Simulator
Study
Xiaohua Zhao, Hongji Du, Jian Rong, and Xingjian Zhang

The Social Acceptability of Intelligent Transportation Systems
Carlos Silva and Jorge Santos

Ice-Melting Performance of Carbon Fiber—Glassgrid Anti-Ice Asphalt Pavement
Hong Li and Xiedong Zhang

Study on Driving Risk Value in Merging Area of Freeway Work Zone
Chengju Song, Biao Wu, and Huizhi Xu

A Simulation Study for Minimizing Operating Speed Variation of Multi-lane Highways by Controlling Access
Bing Huang, Yu Zhang, Jian Lu, and Linjun Lu

Driving Behaviors, the Brainwave Test, and the Distribution of Super Elevation and Side Friction Factors for the SMART Highway
Jaisung Choi, Sangyoup Kim, Seungwon Jeong, Dongmin Lee, and Minsu Jin

Using Data Mining Models to Identify Major Factors Contributing to the Severity of Traffic Collisions for Different Groups in Saskatchewan, Canada
Xuefei Zhang, Lisa Fan, and Andrew G. X. Liu

Modeling Crash Frequency of a Typical Mountainous Freeway
Yiwei Guo and Quanxin Sun

A Study on Driving Behavior Risk Assessment Method with Multi-Sensor Information
Fuxuan Ning, Jinglin Li, and Qibo Sun

Research on Traffic Accident Morphological Analysis Based on the Improved Grey Relational Method
Juan Zeng, Huilan Wu, and Xiaorong Shi

Traffic Safety Characteristics of Expressways in China
Jianjun Zhang

A New Evaluation Method Combining Efficiency and Safety: Multimodal Comprehensive Level of Service of Signalized Intersections
Ying Ni, Ziwen Ling, and Keping Li

Design Method for the Dynamic Scale Model of a Pedestrian Footbridge
Wei Fan, Wenlong Zhang, Yingxing Xing, Yonglin Guan, and Hao Li

Characteristics of Fatal Road Accidents in China
Jianjun Zhang

The Evaluation of Safety Consciousness of Bus Drivers on the Highway
Weihua Zhao, Lihua Wang, Haoyi Bian, and Haoxue Liu

Risk Assessment of Navigation in Yangtze River Based on System Dynamics
Guopeng Chen and Qian Chen

Safety Evaluation for Drop and Pull Transport
Chengqiang Zong, Hongwei Zhang, and Zhengguo Yi

Running Safety Evaluation for Oil Transport Enterprises Based on Theory of F-ANP
YaLing Li, QingNian Zhang, and ZhiYou Cheng

**Study on the Relationship between Transport Safety Situation and Economy Development**
Chuanjiao Sun, Xiaojing Ban, and Ruyue Bai

**An Improved Car-Following Model by Considering Angry Driving with Fuzzy Inference**
Ping Wan, Chaozhong Wu, and Xiaofeng Ma

**Research on the Reasons and Countermeasures of Accidents in Road Transport of Dangerous Chemicals**
Quanmin Bu and Xing Tong

**Cellular Automaton Modeling with Timid and Aggressive Driving Behavior**
DongFan Xie and XiaoMei Zhao

**Study on the Reaction Time for Road Traffic Signs Information Volume**
Qiang Fu, Chaozhong Wu, and Nengchao Lv

**The Characteristic of Vehicle Speed Under Angry Driving in China**
Hu Lei, Xinping Yan, and Chaozhong Wu

**Effects of Bus Parking Positions on Waiting People's Safety at Bus Station**
Xiaofeng Ma, Jinshan Shi, Wei Zhang, Peng Chen, and Yaqiu Li

**Conflict between Environmental Performance and Human Safety**
HyungJu Kim, Stein Haugen, and Ingrid Bouwer Utne

**Comparison of Vulnerable Road Users Involved in Traffic Accidents in China and Developed Countries**
Dongbo Liu

**Honk Effect on Two-Lane Traffic Flow Considering Driver Behaviors**
Kun Xu, Qian Ruan, and Huachun Luo

**Ontology for Scenario Orchestration (OSO): A Standardized Scenario Description in Driving Simulation**
Zhitao Xiong, Hamish Jamson, Anthony G. Cohn, and Oliver Carsten

### Vehicle Safety Technology

**Research on SOC Estimation for Power Lithium Battery Based on Kalman Filter**
Xu Wang, Chunsheng Jiang, and Duanfeng Chu

**HIL Research of Vehicle Stability Control Algorithm Based on veDYNA**
Jiansen Yang, Zhanqi Li, Duanfeng Chu, Fei Li, and Tianji Feng

**Research and Realization of the Control Strategy for Pure Electric Mini-bus**
Wei Zhang, Zilong Wang, and Xu Wang

**Research on Pedestrian Movement Mechanism during Pedestrian-Vehicle Crashes Based on MADYMO**
Jingfen Song, Wenping Zhang, and Juan Zeng

**Collision Safety Analysis of the Eroded Semi-rigid Barrier Based on LS-DYNA**

Zhengbao Lei, Qingyu Peng, and Muxi Lei

**The Driving Resistance and Fuel Consumption Test Method Research of Transportation Coach**
Rongliang Liang, Mingqiu Gao, Lin Yuan, and Jinzhong Xie

**Analysis on the Crashworthiness of Taiwan PVC Barrier**
Zhengbao Lei and Lihong Li

**Research on Road Adhesion Conditions Recognition in Automotive ABS Control Process**
Zhanqi Li, Jiansen Yang, and Quanzhou Liu

**Research on Vehicle Turning Dynamic Simulation and Stability Analysis**
Hao Zhang and Hongwei Zhang

**Effects of Driver’s Unsafe Acceleration Behaviors on Passengers’ Comfort for Coach Buses**
Yi He, Xinping Yan, Chaozhong Wu, Duanfeng Chu, and Liqun Peng

**Study of Vehicle Video and CAN-Bus Data Synchronous Acquisition System**
Huijuan Han, Pan Zhang, Qiang Zhang, Yusheng Li, and Zengwen Li

**A Multi-sensor Approach for Comprehensive Detection and Warning of Vehicle Collision Risk**
Liqun Peng, Chaozhong Wu, Zhen Huang, and Yi He

**Research on Model-Based Testing of Lane Departure Warning System**
Da-xing Chen, Nan Li, Qiang Zhang, Zeng-qiang Li, and Yu-sheng Li

**Vibration Monitoring System of Transportation on Road Based on CAN Bus**
Enjun Wang, Jianbo Wu, Xiaohui Yang, and Jinyu Lei

**A New Battery Energy Management Strategy for Electric Vehicle Based on Fuzzy Control**
Wei Huang, Jianjie Zhang, and Xu Wang

---

**Volume 3**

**Analysis on Vehicle Motion Parameters of Distracted Driving**
Zhijun Chen, Zhen Huang, Chaozhong Wu, Nengchao Lv, and Jie Ma

**Traffic and Safety Implication of Adaptive Cruise Control for Two-Lane Two-Way Highways Traffic Operation**
Amir H. Ghods and Frank F. Saccomanno

**Design of Intelligent Vehicle Speed Adaption Based on Variable Road Geometry**
Rui Zhang, Xinping Yan, Jie Ma, Chaozhong Wu, and Yulin Ma

**Influence Analysis of Crosswind on Handling Stability of Tractor Semi-trailer in Double Lane Change Situation**
Qingfeng Lin, Zhiying Dou, Gang Zhou, Guangquan Lu, Yunpeng Wang, and Jinsong Dong

**Influence Analysis of Trailer Length on Turning Channel Width of B-Train**
Qingfeng Lin, Gang Zhou, Ziyang Chen, Guangquan Lu, Yunpeng Wang, and Jinsong Dong

**Design of a Multi-sensor Integrated Intelligent Micro-Vehicle for Platoon Simulation**
Zichao Huang, Qing Wu, Jie Ma, Weiliang Tian, and Jing Xiong

**Vehicle Steering Angle Estimation Using Off-the-Shelf Sensor Technologies**
Jie Ma, Zilong Wang, Xiao Lin, Pei Wang, and Duanfeng Chu
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vehicle Telematics System</strong></td>
<td></td>
</tr>
<tr>
<td><em>A Telematics Service System for Vehicle Safety Based on Vehicular Data Acquisition Module</em></td>
<td>1741</td>
</tr>
<tr>
<td>Lei Meng, Jie Luo, and Xiaoxu Wei</td>
<td></td>
</tr>
<tr>
<td><em>A Multi-Objective Path Planning Method for Electric Taxis with Energy-Constrained</em></td>
<td>1748</td>
</tr>
<tr>
<td>Jing Li, Zhihan Liu, and Fangchun Yang</td>
<td></td>
</tr>
<tr>
<td><em>Research on Vehicle Dedicated Short Range Communication Protocol</em></td>
<td>1754</td>
</tr>
<tr>
<td>Xun Guo, Kai Li, Juan Wan, and Lisha Yang</td>
<td></td>
</tr>
<tr>
<td><strong>Airways</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Aviation Safety Theory and Technology</strong></td>
<td></td>
</tr>
<tr>
<td><em>Numerical Method for Calculation of the PCN of Airport Pavement</em></td>
<td>1761</td>
</tr>
<tr>
<td>Feng Liu, Mingqing Sun, Yingjun Wang, and Wenming Sun</td>
<td></td>
</tr>
<tr>
<td><em>The Method of Real-Time Control of Positioning Quality for the Transportation Applications</em></td>
<td>1768</td>
</tr>
<tr>
<td>Vladislav Demyanov, Roman Likhota, and Yury Yasyukevich</td>
<td></td>
</tr>
<tr>
<td><em>The Formation Mechanism of the Unexpected Events of the Civil Aviation Transportation System in the Theory of Dissipative Structure</em></td>
<td>1774</td>
</tr>
<tr>
<td>Xiaoping Liu and Fan Luo</td>
<td></td>
</tr>
<tr>
<td><em>Design of an Air Traffic Collaborative Decision-making Process Based on Multi-agent System</em></td>
<td>1780</td>
</tr>
<tr>
<td>Wanle Wang</td>
<td></td>
</tr>
<tr>
<td><em>Research on Contribution Evaluation of Coupling Elements in Air Traffic Safety Risks</em></td>
<td>1786</td>
</tr>
<tr>
<td>Fan Luo, Chao Zhang, and Wei Wang</td>
<td></td>
</tr>
<tr>
<td><strong>Information Technology and Its Applications in Air Transport</strong></td>
<td></td>
</tr>
<tr>
<td><em>The Research and Design of Network IT Service Management System Based on the ITIL</em></td>
<td>1792</td>
</tr>
<tr>
<td>Zhe Fan and Yong Shen</td>
<td></td>
</tr>
<tr>
<td><strong>Traffic Information Distribution Methods and Applications</strong></td>
<td></td>
</tr>
<tr>
<td><em>Interactive Evaluation Methodology of Transferring Terminal Design</em></td>
<td>1800</td>
</tr>
<tr>
<td>Liang Yin and Jun Lin</td>
<td></td>
</tr>
<tr>
<td><strong>Transportation Safety and Human Factors Engineering</strong></td>
<td></td>
</tr>
<tr>
<td><em>Analysis of Human Errors Affect Factors Based on Job Stress for Air Traffic Controllers</em></td>
<td>1810</td>
</tr>
<tr>
<td>Ting Feng and Fan Luo</td>
<td></td>
</tr>
<tr>
<td><em>Ergonomics Model of Aviation Maintenance Human Error Analysis and Control</em></td>
<td>1817</td>
</tr>
</tbody>
</table>
### Railways

#### Other Railway Topics

- **Analysis of the Railway Crossing Traffic in Jinzhou Urban District**  
  Xin Chen, Zhaohua Xu, Xuewen Chen, and Yuanyuan Zhang  
  1823

- **Rail Traffic Informatization Based on the IOT**
  1830

  - **Commodity Spatial Added Value Influence Factors Research to Transport**  
    Xiaodan Ma, Liyan Cao, and Xiaomei Xia

    Xueyu Zhao and Jiaqi Yang  
    1836

  - **Rail Traffic Informatization Applications Based on the IOT**  
    Hong Xu  
    1843

#### Safety Considerations in Railway Operation and Management

- **Effect of Worn Wheel Profile and Primary Stiffness Change on Railway Vehicle Nonlinear Stability**  
  Yan Li and Weihua Zhang  
  1850

- **Dispatching Rules: Track Utilization Scheduling Problem in Railway Passenger Stations**  
  Yinggui Zhang, Dingyou Lei, Mengjun Wang, and Qiongfang Zeng  
  1857

- **Study on the Evaluation Index System of High-Speed Railway Train Operation Plan**  
  Zixi Bai, Leishan Zhou, Bin Guo, Jin Wang, and Jingjing Shao  
  1870

- **Research on Automatic Monitoring System of Track Real-Time Condition of Urban Rail Transit**  
  Yu Zhou, Guodong Sui, Jie Zhang, and Shaofeng Wang  
  1877

- **A Calculation Method on the Capacity of High-Speed Railroad Line under Ice and Snow Disaster**  
  Jie Xu, Yashu Kang, Limin Jia, Yong Qin, Li Wang, and Peng Li  
  1894

- **Railreader-"MT" Multi-RFID-System Supports High Availability and Safety in Railway Networks**  
  Martin Novak, Alexander Chloupek, and Gerhard Ankerl  
  1900

- **Risk Analysis and Management of Second Railway Line Construction Adjacent to the Existing Lines**  
  Haifeng Li, Wanqing Zhang, and Yude Xu  
  1907

- **Rail Tunnel Safety Analysis Using Crowd Evacuation Simulation Models: On a Review and Comparative Study of the Scientific Literature**  
  Sajjad Boroumand Azad and Morteza Bagheri  
  1915
Modeling Train Traffic Flow Using Cellular Automata 1926
Zahra Bahramian and Morteza Bagheri

Comparison Models Evaluating Countermeasures at Highway-Railway Grade Crossings 1932
Reza Ghafouri and Morteza Bagheri

The Characteristic Analysis of Vibration for Coupling System of High-Speed Train-Ballastless Track-Bridge System 1944
Wenjun Luo and Songliang Lian

Traffic Information Technology Based on IOT 1950
Safe Operation and Management Research of Urban Rail Transit Based on Real-time Passenger Flow Detection
Yu Ge, Chunfeng Liu, Yuxing Sun, and Wei Liu

Design of a High Speed Sine Signal Generator 1958
Mingliang Hu

Traffic Monitoring Technology 1966
Radar Sensors for Hump Yard and Rail Crossing Applications
Gennadiy Ermak, Alexandr Vasilyev, Anton Varavin, Noskov Vladislav, and Ignatkov Kiril

Transportation Information Processing Theories and Methods 1972
A Route-Planning Algorithm Based on Subway Passenger Routes Choice Behavior Analysis
Yongsheng Zhang, Enjian Yao, and Yang Yang

Waterways 1979

Internet of Things and Transportation Safety 1985
The Application Research of RFID in Container Terminal Security
Xin Lu

The Application of Internet of Things Technology to Water Transport Safety
Li Wu and Jiaqi Yang

Applied Research of the Internet of Things Management System for Waterway Vessels Based on RFID Technology
Jinping Shang, Yanhong Li, Xiaonian Sun, and Haiyang Wang

Exploring Maritime Emergency Resource Allocation for Vessel Traffic Accidents Based on Robust Optimization under the Condition of Dynamic Demand 1991
Wenfen Zhang and Jiaqi Yang

Ziyu Zhang, Kezhong Liu, Shaolong Zhou, and Xing Yang
Maritime Patrol Ship Site Location Optimization in Yangtze River Based on Genetic Algorithm
Shoucheng Deng, Qing Wu, and Yang Wang

Navigation Digitization and Maritime Informatization

Quality Control of Chang Jiang Inland ENC 2.0 Source Data
Li Li, Baocen Yang, Guannan Zhou, and Shuo Xu

Study on 3-D Stereo of Marine Features on UAV High Resolution Remote Sensing Images
Jing Bai, Jun Sun, Bolin Zhu, Weiwei Ma, Guixiang Zheng, and Fang Wu

Preprocessing Method of Changjiang ENC Data
Guannan Zhou, Li Li, Shuo Xu, Le Xu, and Lin Lv

Discussion on the Application of Beidou Navigation System in Inland Waterway Transport
Weiwei Zhu

Inland Waterway AtoN Simulation Based on Virtual Reality
Chengguo Song, Qing Wu, Xiumin Chu, and Xin Li

The Framework Research on Short-term Water Level Forecasting Model of Chang Jiang
Tao Guo, Huaihan Liu, and Xiumin Chu

Positioning System Design of Aids to Inland Navigation Based on ZigBee and DGPS
Zhenyi Chen, Xiumin Chu, Zhe Mao, Yichen Li, and Tong Liu

Speed Control Simulation System of Bulk Terminal Conveyor Belts
Fei Zeng, Qing Wu, and Chaolei Dai

Assessment Mode for Enhancing the Objectivity of Scoring of Marine Engineer Actual Operation Assessment
Ailong Fan, Qizhi Yin, Zhe Mao, and Chenguang Liu

The Research on the Key Section Emergency Decision Support System in Changjiang Waterway
Xianqiao Chen and Wenjun Shen

An Investigation of Fog Water Droplet Structure Characteristics Based on Image Definition
Xianqiao Chen, Wenjing Kong, Xiumin Chu, and Chengmin Zou

Design and Implementation of Ocean-Going Ship Typhoon Avoidance System Based on Shore Support
Feixiang Zhu, Peitin Sun, Xingwang Yue, Zongjiang Gao, and Yingjun Zhang

Exploration on Complicacy of the Maritime Informatization
Fucai Jiang, Qunpeng Wang, and Shaolong Zhou

A Global Path Planning Algorithm of Unmanned Vessel in Inland Waterway
Man Zhu, Yang Wang, and Yuanqiao Wen

The Design and Realization of ECDIS for Yangtze River Based on S57 Standard
Pinfu Yang, Xianqiao Chen, and Xiumin Chu
Research of Unmanned Surface Vessel (USV) Path-Planning Algorithm Based on ArcGIS 2125
Bo Wu, Yuanqiao Wen, Yamin Huang, and Man Zhu

Navigation Marks Collision Detection Based on Millimeter Wave Radar and Accelerometer 2135
Qi Zhi Yin, Gang Huang, Zhe Mao, Chen Zhou, and Jianglong Wan

Preliminary Study on the System of Information Services Capability Index for Public Information Needs of the Inland Shipping 2141
Kezhong Liu, Shaolong Zhou, Wen Hang, and Mengyuan Xu

Other Waterway Topics

Evaluating the Capabilities of Port Logistics Based on Structural Equation Modeling 2148
Ping Deng, Shiqing Lu, and Hanbin Xiao

Condition Assessment of Marine Electric Propulsion System Using Support Vector Machine 2156
Menglian Wang and Shutian Liang

Study on Division Method of Inland Waterway Development Stage 2164
Huaihan Liu, Qing Liu, Dafu Cai, Xuexiang Li, Huihui Xuan, and Xuhong Zeng

From the Point of View of the Philosophy, Discuss the Scientific Connotation of the Yangtze River’s Safety Culture 2173
Jin Liu and Bing Xiong

Emergency Evacuation Bottleneck of Passengers in the Seaport Station 2179
Di Cui and Hua Zhang

The Danger Goods Safety Transportation Problems by Waterway in China 2185
Guo-Qing Sun

The Research of Ship Diesel Generating Set with Coordinated Control 2191
Fabin Hu, Lan Gao, Hongping Dai, Keyong Deng, and Shen Hu

Discussion on Functions, Facilities, and Location of a Retrofitted Safety Cabin in a Cargo Ship 2199
Xinying Yang and Dangli Wang

A Study on the Yangtze River Trunk Line Waterway’s Capacity Based on Traffic Flow Theory 2205
Fan Su and Jiaqi Yang

Study on the Imbalance of Shipping Demand and Supply of Inland Water Transportation of Yangtze River 2211
Xiaolan Luo and Jiaqi Yang

Shipping and Ocean Environment Engineering and Safety

A Research on Tension Determination and Morphological Simulation Model of Mooring Lines 2219
Shengli Li, Zhengwei He, Jia Shi, Youqin Zheng, Xiaoqiao Geng, and Zhenghao Wu

Research on the Lateral Load Capacity of Offshore Platform Piles under Scour Conditions 2226
<table>
<thead>
<tr>
<th>Authors</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fen Li, Dan Hu, and Renjun Yan</td>
<td>Experiment Research of the Influence of Water on Ship Collision</td>
<td>2233</td>
</tr>
<tr>
<td>Huaqin Zhang, Weiguo Wu, Zhonghua Tan, and ZhiYou Cheng</td>
<td>Research on Xiangjiang Water Traffic Safety Forewarning Evaluation</td>
<td>2242</td>
</tr>
<tr>
<td>Zhao Chen, Qing-Nian Zhang, Jia-Li Wang, Qian Chen, and Jie Yang</td>
<td>Determining the Width of Bend Channel for Very Large Vessels Based on Simulation Trials</td>
<td>2250</td>
</tr>
<tr>
<td>Xiaoli Bian and Qingxin Yan</td>
<td>Research on Influence of Dam Seal Structure on Performance of Marine Mechanical Seal</td>
<td>2257</td>
</tr>
<tr>
<td>Bo Qin, Zhenglin Liu, Xinping Yan, Shengdong Zhang, and Xuhui Zhou</td>
<td>Public Security Management and Control Systems for Maritime Ship Based on AIS and BEIDOU System</td>
<td>2263</td>
</tr>
<tr>
<td>Yufeng Yang, Mingkui Feng, and Jinlei Pang</td>
<td>Risk Analysis Research on Coal Marine Transportation</td>
<td>2269</td>
</tr>
<tr>
<td>Chen Liu, Junfeng Chen, Yun Li, and Rongchang Chen</td>
<td>Safety Analysis of Typhoon Anchorage in Haikou Bay and its Countermeasures</td>
<td>2276</td>
</tr>
<tr>
<td>Shanshan Du and Houzhong Chen</td>
<td>Analysis of Risk Factors and Safety Countermeasures of Collision between Seaplanes and Vessels Based on ISM Theory</td>
<td>2282</td>
</tr>
<tr>
<td>Jianjun Weng and Yang Zhou</td>
<td>Feasibility Analysis of Promoting Form of New Energy in Certain Inland Waterways</td>
<td>2289</td>
</tr>
<tr>
<td>Xichen Lin, Ruiping Zhou, Jie Liu, and Yongchao Cheng</td>
<td>The Application of the Whole Oil Film Elliptic Extension Model in the Continuity of Oil Spill</td>
<td>2295</td>
</tr>
<tr>
<td>Zhengwei He, Dongwen Zhan, Tianhao Wu, and Shaolong Zhou</td>
<td>Research on the Energy Efficiency Improvement for Existing Ships</td>
<td>2301</td>
</tr>
<tr>
<td>Xing Sun, Xinping Yan, and Bing Wu</td>
<td>Research on Collision Probability Model Based on Ship Domain</td>
<td>2307</td>
</tr>
<tr>
<td>Chenggang Tang, Zhouchua Xu, Zhao Liu, and Jingxian Liu</td>
<td>On the Connected Ships for Fleet Technical Management System</td>
<td>2314</td>
</tr>
<tr>
<td>Dongzhi Ma, Jiangbin Zhao, Xiaoqian Xu, Tao Zhang, and Xuan Zhang</td>
<td>A Game-Theoretic Analysis on Dividing the Limited Budget between Building Emergency Facilities and Preparing Resources</td>
<td>2321</td>
</tr>
<tr>
<td>Bing Shi, Wei Yang, and Xianqiao Chen</td>
<td>Study on the Index of Crew Evaluation Influencing on the Shipping Safety of the Yangtze River</td>
<td>2328</td>
</tr>
<tr>
<td>Jiali Wang, Wenfeng Ji, and Qingnian Zhnag</td>
<td>Prediction for Ship Emissions Based on Non-Equigap Grey Model</td>
<td>2335</td>
</tr>
<tr>
<td>Shuhua Mao and Mingyun Gao</td>
<td>Model of Prediction and Statistics on Time Pattern of Traffic Flow</td>
<td>2341</td>
</tr>
</tbody>
</table>
Zhao Liu, Jingxian Liu, Yuxia Liu, and Kai Wang

**The Studies on Carbon Emission Evaluation of Inland Vessel**
Die Wang and Dangli Wang

**A Quantificational Description Method of Vessel Track Based on AIS Data**
Lingzhi Sang, Zhe Mao, Xinping Yan, and Xiumin Chu

**Fault Model Study on Primary System of Civil Nuclear-Powered Ship**
Chu Xu, Xin-Ping Yan, Zhang Di, Li Xu, and Jin-hua Hong

**An Application of Cloud Focus Theory in Assessment for Ship Oil-Spill Risk**
Ming Huang and Weidong Gan

**Measurement and Calculation of Dirty Oil Amount in Bilge Water Treated by Oily Water Separator**
Chenguang Liu, Qizhi Yin, Jianglong Wan, Xiumin Chu, and Xinping Yan

**Special Session: Flexible Risk Assessment and Decision Science (EU funded Marie Curie Research Network)**

**Consequence Analysis of LNG Leakage Accident Based on Numerical Simulation**
Shanshan Fu, Xinping Yan, Di Zhang, Zhiyong Lu, and Chengpeng Wan

**Traffic Information Distribution Methods and Applications**

**Leading Indicator for the Foreign Trade Container Throughput in China Water Transport**
Jishuang Zhu and Yujun Tian

**Rule for Vessel Distribution in Continuous Bridge Area of the Yangtze River**
Yicheng Li, Xiumin Chu, Lingzhi Sang, and Zhenyi Chen

**Traffic Information Technology Based on IOT**

**AIS and VTS Information Fusion in the Internet of Inland Ships**
Junyi Yu, Wei Chen, Yishui Shui, and Zhoulong Liu

**Research on Transmission Quality of the Internet of Inland Ships with Heterogeneous Network Structure**
Yishui Shui, Wei Chen, Di Wu, and Fang Li

**Use of Internet of Things for Ship Management of Inland Rivers**
Yuan Zhuang and Shaoqiao Song

**Traffic Monitoring Technology**

**Routes Generating Based on the Navigational Expert System**
Yaojie Chen, Huan Fan, Li Chen, and Xiaolong Zhang

**A Method of Ship Detection in Optical Satellite Image Based on Saliency Map**
Zehui Li, Xiaofang Xie, Weihua Zhao, and Yong Liu
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reviewing Geo-Information Science for Port Information Management in China</td>
<td>2448</td>
</tr>
<tr>
<td>Fang Wu, Jing Bai, Bolin Zhu, Weiwei Ma, Jun Sun, and Guixiang Zheng</td>
<td></td>
</tr>
<tr>
<td>Early Warning Method of Vessel Yaw Risk in Inland Waterways</td>
<td>2455</td>
</tr>
<tr>
<td>Wenjuan Zhang, Qing Wu, Zhe Mao, and Lingzhi Sang</td>
<td></td>
</tr>
<tr>
<td>Research of Kalman Filtering in Ship Track</td>
<td>2462</td>
</tr>
<tr>
<td>Jing Chen and Lei Xie</td>
<td></td>
</tr>
<tr>
<td>Design of Remote Monitoring System for Inland Water Tanker Hold Based on AIS</td>
<td>2468</td>
</tr>
<tr>
<td>Qizhi Yin, Chen Zhou, Zhe Mao, Chenguang Liu, and Jianglong Wan</td>
<td></td>
</tr>
<tr>
<td>Transportation Safety Analysis under the IOT</td>
<td>2473</td>
</tr>
<tr>
<td>Analysis the Safety Characters of the Ship Container Logistics Networks of China</td>
<td></td>
</tr>
<tr>
<td>Di Cui and Hua Zhang</td>
<td></td>
</tr>
<tr>
<td>Transportation Safety and Human Factors Engineering</td>
<td>2479</td>
</tr>
<tr>
<td>Analysis and Prevention of Accident in Nantong Jurisdiction of Yangtze River</td>
<td></td>
</tr>
<tr>
<td>Liguang Zhang, Chao Han, and Tao Sun</td>
<td></td>
</tr>
<tr>
<td>Cause Mechanism of the Human Factors in Maritime Accidents Based on Complex System Britteness</td>
<td>2485</td>
</tr>
<tr>
<td>Haiyan Wang, Hui Jiang, and Liang Yin</td>
<td></td>
</tr>
<tr>
<td>Inland Waterway Transportation Safety Management Performance Assessment Based on Belief Rule-Base Technology</td>
<td>2491</td>
</tr>
<tr>
<td>Jinfen Zhang, Xinping Yan, Di Zhang, and Stein Haugen</td>
<td></td>
</tr>
<tr>
<td>Navigation Environment Factors for the Investigation and Evaluation of Water Traffic Safety in the Yangtze River</td>
<td>2504</td>
</tr>
<tr>
<td>Bing Wu, Xinping Yan, Xing Sun, and Guoping Guo</td>
<td></td>
</tr>
<tr>
<td>Study on Waterway Traffic Risk Assessment and Countermeasure of Guangxi Reservoir Area</td>
<td>2511</td>
</tr>
<tr>
<td>Songyin Yan, Huiyuan Jiang, and Chengpeng Wan</td>
<td></td>
</tr>
</tbody>
</table>

**Author Index**