Contents – Part II

Advanced Geospatial Model and Analysis for Understanding Ecological and Environmental Process

Spatial-Temporal Evolution Pattern and Future Scenario Analysis of Water Resources Carrying Capacity of Ningbo City .............................. 3
  Yanjuan Wu, Zhiming Feng, and Yanzhao Yang

Predict Port Throughput Based on Probabilistic Forecast Model ............. 13
  Yihan Chen, Zhonghua Jin, and Xuejun Liu

Principal Component Analysis of Building Cluster Factors ..................... 22
  Hua Ai, Qiang Liu, Zhen Wang, Zezhong Zheng, Yaosen Huang, and Zhiqin Huang

Progressive Network Transmission Method Research of Vector Data ........ 27
  Shengli Wang, Zezhong Zheng, Chengjun Pu, Mingcang Zhu, Yong He, Zhiqing Huang, Yicong Feng, Mengge Tian, and Jiang Li

Comparison of Different Remote Sensing Monitoring Methods for Land-Use Classification in Yunnan Plateau Lake Area ....................... 37
  Ce Wang, Shu Gan, Da Yi, and Yang Wu

Application of Different Composite Index Methods in the Evaluation of Soil Heavy Metal Pollution ...................................................... 43
  Yingchao Niu, Zhongfa Zhou, Denghong Huang, and Xu Yuan

Hyperspectral Image Denoising Based on Subspace Low Rank Representation ................................................................. 51
  Mengdi Wang, Jing Yu, Lijuan Niu, and Weidong Sun

A Least-Squares Ellipse Fitting Method Based on Boundary .................. 60
  Lei Liu and Xiangwei Meng

Training Convolutional Neural Networks Based on Ternary Optical Processor .......................................................... 67
  Ruifen Zhang and Shan Ouyang

An Improved Algorithm for Video Abstract ...................................... 76
  Jianlei Zhang, Qin Li, Wenfeng Shen, and Shengbo Chen

The Prediction of CTR Based on Model Fusion Theory .......................... 90
  Jiehao Chen, Shuliang Wang, Ziqian Zhao, and Jiyun Shi
An Improved Algorithm of LEACH Protocol Based on Node’s Trust Value and Residual Energy ............................................................... 101
Miaoyuan Huang, Enjian Bai, Xueqin Jiang, and Yun Wu

Red Preserving Algorithm for Underwater Imaging .......................... 110
Chunbo Ma and Jun Ao

Estimating Gas Source Location Based on Distributed Adaptive Deflection Projected Subgradient Method ....................................................... 117
Zhemin Zhuang, Fenlan Li, and Ye Yuan

System Locating License Plates with Shadow Based on Self-adaptive Window Size Technique ............................................................... 127
Jingyu Dun and Sanyuan Zhang

Xuecai Bao

Deep Convolution Neural Network Recognition Algorithm Based on Maximum Scatter Difference Criterion ....................................................... 146
Kunlun Li, Xuefei Geng, and Weiduan Li

Energy Efficient Routing Algorithm Using Software Defining Network for WSNs via Unequal Clustering ............................................................... 154
Hang Yu, Zhiping Jia, Lei Ju, Chunguang Liu, and Xianzhong Ding

An Energy Efficient and Secure Data Aggregation Method for WSNs Based on Dynamic Set ............................................................... 164
Jinsheng Zhu and Zhiping Jia

A Novel Quality Detection Approach for Non-mark Printing Image ....... 173
Qiong Zhang, Bin Li, Minfen Shen, and Haihong Shen

Passive Packet Reordering Measurement on Terrestrial-Based and Satellite-Based Internet ............................................................... 181
Zhengguo Xu and Hui Zheng

Research on the Description Method of the Atomic Services in Extensible Network Service Model ............................................................... 191
Jie Ren and Jun Shen

The Risk Assessment for Unmanned Vehicle Using Bayesian Network .... 200
Dapeng Li, Ting Liu, Tingting Cao, Pingke Deng, Ling-chuan Zeng, and Yi Qu
Ting Lu, Shan Chang, and Guohua Liu  

A Coarse to Fine Object Proposal Framework for Autonomous Driving Object Detection Using Binocular Image  
Xiaolong Liu, Wanzeng Cai, Zhengfa Liang, and Yiliu Feng  

Study on Recognition and Management of Cartographic Topology Preprocessing Mode  
Chengming Li, Xiaoli Liu, Wei Wu, and Yong Yin  

Research on Hot Topic Discovery Technology of Micro-blog Based on Biterm Topic Model  
Jun Feng and Yu Fang  

A Deduplication Algorithm Based on Data Similarity and Delta Encoding  
Bin Song, Limin Xiao, Guangjun Qin, Li Ruan, and Shida Qiu  

Area Constrained Space Information Flow  
Alfred Uwitonze, Jiaqing Huang, Yuanqing Ye, and Wenqing Cheng  

Research on the Algorithm of Converting Files Generated by CALPOST to AVS/Express Platform  
Xiaofei Shi, Yunfeng Ma, Qi Wang, Tingshuai Wang, Ping Wang, Shuai Wang, Xuezong Xu, Weike Xu, Zhongyi Wei, Nan Xiao, Caina Zhang, Xiaorui Ma, Yanwei Qian, and Kunyu Gao  

A Construction Method of Road and Residence Correlation Based on Urban Skeleton Network  
Chuang Liu, Haizhong Qian, Haiwei He, Xiao Wang, and Limin Xie  

A Hybrid Parallel Computing Model to Support Scalable Processing of Big Oceanographic Spatial Data  
Miaomiao Song, Wenwen Li, Wenqing Li, Enxiao Liu, and Dingfeng Yu  

A Study on Curve Simplification Method Combining Douglas-Peucker with Li-Openshaw  
Chengming Li, Pengda Wu, Teng Gu, and Xiaoli Liu  

Applications of Geo-informatics in Resource Management and Sustainable Ecosystem  
A Mobile Services Collaborative Recommendation Algorithm Based on Location-Aware Hidden Markov Model  
Mingjun Xin, Shunxiang Li, Liyuan Zhou, and Guobing Zou
3D Visualization Analysis of Longtan Reservoir-Induced Earthquakes and Active Faults .......................................................... 307
Zhengqiang Long, Hong Yao, Shuangqing Liu, and Xuejun Sun

Identification and Characterization of Geological Hazards in a Coal Mining Area Using Remote Sensing .......................... 321
Jin Liu

Monitoring Landslides Using Multi-frequency SAR Data in Danba County, Sichuan Province, China ................................. 330
Yansheng Ding, Jie Dong, Lu Zhang, Mingsheng Liao, and Yang Zhou

Modeling the Avian Influenza H5N1 Virus Infection in Human and Analyzing Its Evolution .............................. 339
Ping Zhang

The Research of 3D Geological Modeling in the Main Mining Area and East Mining Area of BayanObo Deposit ................. 353
Mingchao Zhang, Jingchao Li, Yike Li, Qunchao Zuo, Lei Yao, Hui Chen, and Wanjuan Liang

Application of the Evidence Right in the Quantitative Evaluation of Rural Residential Area ...................................... 363
Chao Tang and Longyi Shao

Research on Detection and Trend Forecasting Technologies of Micro-blog Hot Topic ....................................................... 372
Qi Fu and Jun Tan

The Implementation of Human Tracking with Quadrotor Aircraft .......................................................... 379
Yang Yang, Dongdong Huang, and Nannan Cheng

QvHran: A QoE-Driven Virtualization Based Architecture for Heterogeneous Radio Access Network ....................... 389
Luhan Wang, Zhaoming Lu, Xiangming Wen, Lu Ma, Xin Chen, and Wei Zheng

An ID-Based Anonymous Authentication Scheme for Distributed Mobile Cloud Computing ...................................... 401
Tianyi Zhang and Fengtong Wen

QKDFlow: QKD Based Secure Communication Towards the OpenFlow Interface in SDN ..................................................... 410
Yan Peng, Chunqing Wu, Baokang Zhao, Wanrong Yu, Bo Liu, and Shasha Qiao
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location System Design Based on Weighted RSSI for High-Speed Railway</td>
<td>416</td>
</tr>
<tr>
<td>Bo Yang, Yongqiang Zhang, Jifu Yu, Xingxia Wang, and Xinchun Jia</td>
<td></td>
</tr>
<tr>
<td>Application of Computer Simulation in Interference Assessment Between Satellite Systems</td>
<td>426</td>
</tr>
<tr>
<td>Tingting Cao, Dapeng Li, Aiai Ren, and Pingke Deng</td>
<td></td>
</tr>
<tr>
<td>Research and Application of Three-Dimensional Simulation Technology on Virtual Display of Skirt</td>
<td>433</td>
</tr>
<tr>
<td>Yan Wan, Zheng Tie, and Zilin Shi</td>
<td></td>
</tr>
<tr>
<td>Database Construction and Map Compilation of Provincial Common Geographic Maps</td>
<td>442</td>
</tr>
<tr>
<td>Guizhi Wang and Wen Zhou</td>
<td></td>
</tr>
<tr>
<td>Building Geospatial Health Applications from the EASTWeb Framework</td>
<td>451</td>
</tr>
<tr>
<td>Yi Liu, Michael D. DeVos, Muhammad Abdul-Ramin, and Michael C. Wimberly</td>
<td></td>
</tr>
<tr>
<td>Ship Navigation and Warning System Based on GPS/BDS Equivalent Satellite Clock Error Method</td>
<td>465</td>
</tr>
<tr>
<td>Dongjian Cai, Zhanyong Fan, Zongkun Zhen, and Wanghui Zhou</td>
<td></td>
</tr>
<tr>
<td>Research on Cloud Storage of Vector Data Based on HBase</td>
<td>473</td>
</tr>
<tr>
<td>Ruoxin Zhu, Jianqiao Cheng, Jianyong Fan, and Ke Chen</td>
<td></td>
</tr>
<tr>
<td>Research on Visualization Methods for Academic Papers</td>
<td>483</td>
</tr>
<tr>
<td>Analysis of Chinese Surveying and Mapping Journals</td>
<td></td>
</tr>
<tr>
<td>Jing Li, Haiyan Liu, Wenyue Guo, and Ruijie Yang</td>
<td></td>
</tr>
<tr>
<td>Author Index</td>
<td>493</td>
</tr>
</tbody>
</table>
Contents – Part I

Smart City in Resource Management and Sustainable Ecosystem

Study of Ecosystem Sensitivity Based on Grid GIS in Leishan County .............................. 3
  Shanshan Zhang, Zhongfa Zhou, and Xiaotao Sun

The Design and Implementation of Field Patrol Inspection System Based on GPS-Tablet PC ................................................................. 12
  Shengchun Shi and Yicheng Yin

The Vehicle Route Modeling and Optimization Considering the Dynamic Demands and Traffic Information .......................... 20
  Chouyong Chen and Jun Chen

Developing a 3D Routing Instruction Engine for Indoor Environment .................................. 34
  Ismail Rakip Karas, Umit Atila, and Emrullah Demiral

Saliency Detection for High Dynamic Range Images via Global and Local Cues ................ 43
  Dengmei Xie, Gangyi Jiang, Hua Shao, and Mei Yu

Research on Vegetable Growth Monitoring Platform Based on Facility Agricultural IOT .......................................................... 52
  Qingxue Li and Huarui Wu

A Novel Framework for Analyzing Overlapping Community Evolution in Dynamic Social Networks ...................................................... 60
  Hui Jiang, Xiaolong Xu, Jiaying Wu, and Xuewu Zhang

Developing Mobile Software for Extenics Innovation ...................................................... 71
  Siwei Yan, Rui Fan, Yuefeng Chen, and Xiaohang Luo

Variable Weight Based Clustering Approach for Load Balancing in Wireless Sensor Networks ......................................................... 80
  Xuxun Liu and Hongyan Xin

MDPRP: Markov Decision Process Based Routing Protocol for Mobile WSNs ................................. 91
  Eric Ke Wang, Zhe Nie, Zheng Du, and Yuming Ye

Medical Insurance Data Mining Using SPAM Algorithm ................................................. 100
  Qifeng Cheng and Xiaoguang Ren
A Genetic-Algorithm-Based Optimized AODV Routing Protocol ........................................ 109
             Hua Yang and Zhiyong Liu

Performance Analysis of PaaS Cloud Resources Management Model
           Based on LXC .................................................. 118
             Xuefei Li and Jing Jiang

Link Prediction Based on Precision Optimization ......................................................... 131
                  Shensheng Gu and Ling Chen

Face Feature Points Detection Based on Adaboost and AAM ........................................ 142
                Xiaoqi Jia, Qing Zhu, Peng Zhang, and Menglong Chang

Stock Price Manipulation Detection Based on Machine Learning
                    Technology: Evidence in China ............................................. 150
                Jiangyun Zhang, Shaojie Wang, Shicheng Xu, and Mengxin Yu

Study over Cerebellum Prediction Model During Hand Tracking .................................... 159
                  Shaobai Zhang and Qun Chen

Forecasting for the Risk of Transmission Line Galloping Trip Based
           on BP Neural Network .................................................. 168
                   Lichun Zhang, Bin Liu, Bin Zhao, Xiangze Fei, and Yongfeng Cheng

A Features Fusion Method for Sleep Stage Classification Using EEG
         and EMG ............................................................... 176
                      Tiantian Lv, Xinzui Wang, Qian Yu, and Yong Yu

Community Detection Algorithm with Membership Function ....................................... 185
                               Dongming Chen, Lulu Jia, Dongfang Sima, Xinyu Huang,
                               and Dongqi Wang

Task Scheduling in Cloud Computing Based on Cross Entropy Method .......................... 196
                 Ying Ren, Lijun Zhou, and Huawei Li

Bad Data Identification Based on Optimized Local Outlier
           Detection Algorithm .................................................. 203
                      Jingxian Qi, Yuefeng Cao, and Jianhua Shi

A Novel Approach to Extracting Posts Qualification from Internet ............................. 213
                 Yi Ding, Bing Li, Yuqi Zhao, and Fengling Liao

Unclear Norm Minimization and Weighted Sparse Reconstruction Cost
       for Crowd Abnormal Detection ............................................. 222
                   Shaochao Sun
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality Measurement and Evaluation Technology Research of Power Grid</td>
<td>230</td>
</tr>
<tr>
<td>Dispatching Automation System Software</td>
<td></td>
</tr>
<tr>
<td>Xin Xu, Yujia Li, Lixin Li, Fangchun Di, Qing-bo Yang, Ling-lin Gong, and Lin-peng Zhang</td>
<td></td>
</tr>
<tr>
<td>Identification of Certain Shrapnel’s Air Resistance Coefficient in Plateau Environment Based on CK Method</td>
<td>238</td>
</tr>
<tr>
<td>Ming Jiang, Yuwen Liu, Lijing Cao, and Zhiyuan Zhang</td>
<td></td>
</tr>
<tr>
<td>Image Semantic Segmentation Based on Fully Convolutional Neural Network and CRF</td>
<td>245</td>
</tr>
<tr>
<td>Huiyun Li, Xin Qian, and Wei Li</td>
<td></td>
</tr>
<tr>
<td>Car-Based Laser Scanning System of Ancient Architecture Visual Modeling</td>
<td>251</td>
</tr>
<tr>
<td>Kunyang Wang and Jing Zhang</td>
<td></td>
</tr>
<tr>
<td>Research on Fractal Characteristics of Road Network in Chengdu City</td>
<td>257</td>
</tr>
<tr>
<td>Bowen Qiao and Jing Zhang</td>
<td></td>
</tr>
<tr>
<td>WIFI-Based Indoor Positioning System with Twice Clustering and Multi-user Topology Approximation Algorithm</td>
<td>265</td>
</tr>
<tr>
<td>Xiaofeng Lu, Jianlin Wang, Zibo Zhang, Haibin Bian, and Erzhou Yang</td>
<td></td>
</tr>
<tr>
<td>Surveillance Camera-Based Monitoring of Plant Flowering Phenology</td>
<td>273</td>
</tr>
<tr>
<td>Lijun Deng, Wei Shen, Yi Lin, Wei Gao, and Jiayuan Lin</td>
<td></td>
</tr>
<tr>
<td>Visual Analysis Research of Traffic Jam Based on Flow Data</td>
<td>284</td>
</tr>
<tr>
<td>Wei Tian, Jinming Zhang, and Jialin Ma</td>
<td></td>
</tr>
<tr>
<td>A Design of UAV Multi-lens Camera System for 3D Reconstruction During Emergency Response</td>
<td>293</td>
</tr>
<tr>
<td>Junhui Wu, Fei Wang, and Xiaocui Zheng</td>
<td></td>
</tr>
<tr>
<td>Spatial Data Acquisition through RS and GIS in Resource Management and Sustainable Ecosystem</td>
<td>301</td>
</tr>
<tr>
<td>Winter Wheat Leaf Area Index (LAI) Inversion Combining with HJ-1/CCD1 and GF-1/WFV1 Data</td>
<td></td>
</tr>
<tr>
<td>Dan Li, Jie Lv, Chongyang Wang, Wei Liu, Hao Jiang, and Shuisen Chen</td>
<td></td>
</tr>
<tr>
<td>Assessment of Wavelet Base Based on Analytic Hierarchy Process in Remote Sensing Image De-noising</td>
<td>310</td>
</tr>
<tr>
<td>Yongmei Zhai, Shenglong Chen, Fuzhen Wang, and Qi Zhao</td>
<td></td>
</tr>
</tbody>
</table>
Estimation of Fishing Vessel Numbers Close to the Terminator in the Pacific Northwest Using OLS/DMSP Data

Tianfei Cheng, Weifeng Zhou, Hongyun Xu, and Wei Fan

321

Similarities and Differences of Oceanic Primary Productivity Product Estimated by Three Models Based on MODIS for the Open South China Sea

Hongyun Xu, Weifeng Zhou, Anzhou Li, and Shijian Ji

328

Hydrological Feature Extraction of the Tarim Basin Based on DEM in ArcGIS Environment

Yaping Wei, Jinglong Fan, and Xinwen Xu

337

Extraction Method of Remote Sensing Alteration Anomaly Information Based on Principal Component Analysis

Nan Lin, Menghong Wu, and Weidong Li

342

Geographical Situation Monitoring Applications Based on MiniSAR

Xuejing Shi, Gang Huang, Ming Qiao, and Bingnan Wang

350

New Reduced-Reference Stereo Image Quality Assessment Model for 3D Visual Communication

Ying Wang, Kaihui Zheng, Mei Yu, Baozhen Du, and Gangyi Jiang

356

New Tone-Mapped Image Quality Assessment Method Based on Color Space

Hao Song, Gangyi Jiang, Hua Shao, and Mei Yu

365

A Modified NCSR Algorithm for Image Denoising

Diwei Li, Yunjie Zhang, and Xin Liu

377

Aviator Hand Tracking Based on Depth Images

Xiaolong Wang and Shan Fu

387

Reachability Problem in Temporal Graphs

Kaiyang Liu and Xincan Fan

396

Research on Rapid Extraction Method of Building Boundary Based on LIDAR Point Cloud Data

Minshui Wang, Guodong Yang, Xuqing Zhang, and Liji Lu

403

Absorption Band Spectrum Features Extraction for Minerals Recognition Based on Local Spectral Continuum Removal

Wei Zhou, Qichao Liu, and Zhikang Xiang

414

Analysis of Seasonal Variation of Surface Shortwave Broadband Albedo on Tibetan Plateau from MODIS Data

Zihan Zhang, Shengcheng Cui, and Xuebin Li

423
A Novel Multiple Watermarking Algorithm Based on Correlation Detection for Vector Geographic Data

Yingying Wang, Chensong Yang, Changqing Zhu, Na Ren, and Peng Chen

A Spatial SQL Based on SparkSQL

Qingyun Meng, Xiujun Ma, Wei Lu, and Zerong Yao

Ecological and Environmental Data Processing and Management

A Comparison of Four Global Land Cover Maps on a Provincial Scale Based on China’s 30 m GlobeLand30

Xiaohui Ye, Jinling Zhao, Linsheng Huang, Dongyan Zhang, and Qi Hong

Research Progress on Coupling Relationship Between Carbon and Water of Ecosystem in Arid Area

Xiang Huang

Karst Rocky Desertification Dynamic Monitoring Analysis Based on Remote Sensing for a Typical Mountain Area in Southeast of Yunnan Province

Ling Yuan, Shu Gan, Xiping Yuan, Ce Wang, and Da Yi

Guangxi Longtan Reservoir Earthquakes S-Wave Splitting

Lijuan Lu, Bin Zhou, Xiang Wen, Shuiping Shi, Chunheng Yan, Sha Li, and Peilan Guo

Study on Inversion Forecasting Model for 2011 Tohoku Tsunami

Chao Ying, Yong Liu, Xin Zhao, and Jinbin Mu

Remote Sensing Dynamic Monitoring and Driving Force Analysis of Grassland Desertification Around the Qinghai Lake Area

Yu’e Du, Baokang Liu, Fujiang Hou, and Zongli Wang

Leaf Area Index Estimation of Winter Pepper Based on Canopy Spectral Data and Simulated Bands of Satellite

Dan Li, Hao Jiang, Shuisen Chen, Chongyang Wang, Siyu Huang, and Wei Liu

Geoinformatics in Mapping of Fog-Affected Areas over Northern India and Development of Ion Based Fog Dispersion Technique


Ground Subsidence Monitoring in Cheng Du Plain Using DInSAR SBAS Algorithm

Xiaoya Lu and Xiaopeng Sun
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>GIS in Seismic Hazard Assessment of Shillong Region, India</td>
<td>546</td>
</tr>
<tr>
<td>J.D. Das, A.K. Saraf, and V. Srivastava</td>
<td></td>
</tr>
<tr>
<td>Spatial-Temporal Analysis of Soil Erosion in Ninghua County Based on the RUSLE</td>
<td>553</td>
</tr>
<tr>
<td>Ming Yu, Yao Huang, Chaofeng Sun, and Yong Wu</td>
<td></td>
</tr>
<tr>
<td>Characteristics and Environmental Significance and Physical and Chemical Properties of Karst Cave Water in Shuanghe Cave, Guizhou Province (in China)</td>
<td>563</td>
</tr>
<tr>
<td>Jie Zhang, Zhongfa Zhou, Mingda Cao, and Yanxi Pan</td>
<td></td>
</tr>
<tr>
<td>Regional Pollutant Dispersion Characteristics of Weather Systems</td>
<td>572</td>
</tr>
<tr>
<td>Tingshuai Wang, Qi Wang, Yunfeng Ma, Ping Wang, Wei Huang, and Dexin Guan</td>
<td></td>
</tr>
<tr>
<td>Study on the Selection and Moving Model of the Poverty Alleviation and Resettlement in the Typical Karst Mountain Area: —A Case Study of Pan County in Guizhou Province</td>
<td>579</td>
</tr>
<tr>
<td>Yanxi Pan, Zhongfa Zhou, Qian Feng, and Mingda Cao</td>
<td></td>
</tr>
<tr>
<td>Assessment of Flood Hazard Based on Underlying Surface Change by Using GIS and Analytic Hierarchy Process</td>
<td>589</td>
</tr>
<tr>
<td>Lin Lin, Caihong Hu, and Zening Wu</td>
<td></td>
</tr>
<tr>
<td><strong>Author Index</strong></td>
<td>601</td>
</tr>
</tbody>
</table>
Geo-Spatial Knowledge and Intelligence
4th International Conference on Geo-Informatics in Resource Management and Sustainable Ecosystem, GRMSE 2016, Hong Kong, China, November 18-20, 2016, Revised Selected Papers, Part II
Yuan, H.; Geng, J.; Bian, F. (Eds.)
2017, L, 497 p. 253 illus., Softcover