Contents

High-Throughput Estimation of Yield for Individual Rice Plant Using Multi-angle RGB Imaging ........................................ 1
Lingfeng Duan, Chenglong Huang, Guoxing Chen, Lizhong Xiong, Qian Liu, and Wanneng Yang

A Method to Determine the Maximum Side Perspective of Satellite with the Constraints of Mapping Accuracy ..................... 13
Jihong Yang, Haiwei Li, Yin Zhan, Liangshu Shi, Jinqiang Wang, and Zhengchao Chen

Using Hyperspectral Remote Sensing Identification of Wheat Take-All Based on SVM .................................................. 23
Hongbo Qiao, Hongtao Jiao, Yue Shi, Lei Shi, Wei Guo, and Ximing Ma

Evaluation Research of the Influence of Small Hydropower Station for Fuel Project on Social Development Impact—taking Majiang of Guizhou Province as an example ............................... 31
Zhengqi He, Dechun Huang, Changzheng Zhang, Bo Wang, and Zhijie Ma

Study on Survey Methods for Crop Area Change Reasons at National Scale ........................................................... 40
Quan Wu, Hualang Hu, Yanxia Liu, Danqiong Wang, Xinyu Duan, Lijuan Jia, and Yajuan He

Path Analysis on Effects of Main Economic Traits on the Yield of YU6, A Japonica x Indica Hybrid Rice Line ......................... 48
Weiming Liu

Nitrogen Revising of Rapeseed (Brassica napus L.) Phenology and Leaf Number Models .................................................. 54
Hongxin Cao, Yan Liu, Wenyu Zhang, Yeping Zhu, Daokuo Ge, Yanbin Yue, Yongxia Liu, Jinying Sun, Zhiyou Zhang, Yuli Chen, Weixin Zhang, Kunya Fu, Na Liu, Chunhuan Feng, and Taiming Yang

Research on the Principles of User Behavior in Building Information Resource Sharing System ................................. 67
Qi Wang and Wenyong Chen

Research on Three Dimensional Reconstruction of the Ancient Building Based on Images ....................................... 73
Yingfeng Hu
Development and Current Situation of Agricultural Scientific Data Sharing in China ..................................................... 80
    Hua Zhao and Jian Wang

Research on Building Technology of Aquaculture Water Quality Real-Time Monitoring Software Platform ........................... 87
    Yinchi Ma, Wen Ding, and Wentong Li

Mathematical Modeling of Broccoli Cultivation and Growth Period and Yield of Flower Heads ........................................ 94
    Weiming Liu and Wang En-guo

    Qiang Fu, Tienan Li, and Tianxiao Li

The Effect of Precision Nitrogen Topdressing Decision on Winter Wheat ................................................................. 107
    Guo Jianhua, Meng Zhijun, Chen Liping, Ma Wei, An Xiaofei, and Yao Hong

Design and Implementation of WeChat Public Service Platform for the China Research Center for Agricultural Mechanization Development, CAU ................................................................................. 117
    Qing Dong and Min-li Yang

Research on Data Sharing Model Based on Cluster .......................... 130
    Xiaobin Qiu, Hongqian Chen, and Nan Zhou

Agriculture Big Data: Research Status, Challenges and Countermeasures ................................................................. 137
    Haoran Zhang, Xuyang Wei, Tengfei Zou, Zhongliang Li, and Guocai Yang

Improved Method for Modeling in Capacitive Grain Moisture Sensor ... 144
    Yang Liu, Cheng Xinrong, Mu Haomiao, and Song Yuyao

Effects of Reclaimed Water and C and N on Breakthrough Curves in Sandy Soil and Loam ........................................ 151
    Fangze Shang, Shumei Ren, Lei Yan, Chong Zhang, Ganlin Wu, Guoya Wang, and Chunhuan Zhu

The Design and Implementation of Email Archiving System Based on J2EE ................................................................. 160
    Hu Hongwei, Yu Ping, and Zhou Nan
Contents

Stimulating Effect of Low-Temperature Plasma on Seed Germination Characteristics of *Trifolium repens* .......................................................... 167
Nandintsetseg Munkhuu, Changyong Shao, Decheng Wang, Liangdong Liu, Imtiaz Muhammad, Changbin He, Shanzhu Qian, Ru Jia, and Jinkui Feng

Research and Implementation of Modeling Grid DEM Based on Discrete Data .................................................. 175
Jing Wang, Kai Xia, and Xuegong Chen

Effect of Different Nitrogen Fertilizers with Reclaimed Water Irrigation on Soil Greenhouse Gas Emissions .................................................. 185
Ning Ma, Shumei Ren, Peiling Yang, Yanbing Chi, and Dawei Gao

Research on Spatial Variability Characteristics of Black Soil Unfrozen Water in Songnen Plain during Freezing-Thawing Period .............. 193
Zilong Wang, Qiang Fu, Jun Meng, Qixiang Jiang, and Xianghao Wang

Comprehensive Evaluation of Land Resources Carrying Capacity under Different Scales Based on RAGA-PPC ........................................ 200
Qixiang Jiang, Qiang Fu, Jun Meng, Zilong Wang, and Ke Zhao

Software Design of Distribution Map Generation for Soil Parameters Based on VC++ .......................................................... 210
Xiaofei An, Zhijun Meng, Guangwei Wu, and Jianhua Guo

RBF Neural Network Based on K-means Algorithm with Density Parameter and Its Application to the Rainfall Forecasting ................. 218
Zhenxiang Xing, Hao Guo, Shuhua Dong, Qiang Fu, and Jing Li

Design of Transplanting Mechanism with B-Spline Curve Gear for Rice Pot Seedling Based on UG ........................................ 226
Yanjun Zuo, Huixuan Zhu, and Peng Cao

The Catchment Water-Based System Health Evaluation Based on the TOPSIS Model .......................................................... 233
Zhenxiang Xing, Jing Li, Meixin Liu, Qiang Fu, and Hao Guo

Efficiency Evaluation of Agricultural Informatization Based on CCR and Super-Efficiency DEA Model ........................................ 240
Xu Han, Li Wang, Hui Wang, and Shuqin Wang

A Portable Impedance Detector of Interdigitated Array Microelectrode for Rapid Detection of Avian Influenza Virus .......................... 247
Xiaohong Wang, Zhuo Zhao, Yuhe Wang, and Jianhan Lin

Application of Information Technology on Traceability System for Agro-Food Quality and Safety ........................................ 257
Xue Xia, Yun Qiu, Lin Hu, and Guomin Zhou
Computer Computing and Simulation—In View of the Leaves’ Categories, Shapes and Mass .................................................. 270
   Jiahong Li, Heng Li, and Qiang Fu

Numerical Simulation of Regulating Performance of Direct-Operated Pressure Regulator for a Microirrigation Lateral .......... 285
   Chen Zhang and Guangyong Li

Analysis and Research of K-means Algorithm in Soil Fertility Based on Hadoop Platform ............................................. 304
   Guifen Chen, Yuqin Yang, Hongliang Guo, Xionghui Sun, Hang Chen, and Lixia Cai

Application and Prospect of New Media in Forecast of Plant Pests ...... 313
   Zhiwei Zhao, Feng Qin, and Haiquang Wang

Modeling the Drivers of Agricultural Land Conversion Response to China’s Rapidly Rural Urbanization: Integrating Remote Sensing with Socio-Economic Data ............................................. 324
   Yiqiang Guo, Jieyong Wang, and Chunxian Du

Study on the Detection and Warning System of Rice Disease Based on the GIS and IOT in Jilin Province .......................... 337
   Guogang Zhao, Haiye Yu, Guowei Wang, Yuanyuan Sui, and Lei Zhang

Study of Plant Animation Synthesis by Unity3D .......................... 344
   Yanna Jiang, Boxiang Xiao, Baozhu Yang, and Xinyu Guo

A New Algorithm of Bayesian Model Averaging Based on SCE - UA Collection Averaging ............................................. 351
   Liu Jun-Hua, Zhang Hong-Qin, Zhang Cheng-Ming, Zhao Tianyu, and Ma Jing

Research on Social Risk Evolution and Control of the Large Hydraulic Project Construction Based on Society Burning Theory ........ 359
   Bo Wang, Dechun Huang, Haiyan Li, Chang Zheng Zhang, and Zheng Qi He

Exploring the Influential Factors of e-Banking Satisfaction in Rural Areas in China ................................................... 371
   Mengyu Ren, Yan Li, Yu Wang, and Zihao Zhao

Study on Key Technology for the Discrimination of Xihu Longjing Tea Grade by Electronic Tongue .................................... 379
   Bolin Shi, Houyin Wang, Lei Zhao, Ruicong Zhi, Zhi Li, Lulu Zhang, and Nan Xie
Research on Pattern Recognition Method for Honey Nectar Detection by Electronic Nose ........................................... 393
   Ningjing Liu, Bolin Shi, Lei Zhao, Zhaoshen Qing, Baopin Ji, and Feng Zhou

Study on Cloud Service Mode of Digital Libraries Based on Sharing Alliance ........................................................ 404
   Xiaorong Yang, Dan Wang, Lihua Jiang, Jian Ma, and Hui Xie

Research on Detection Moisture of Intact Meat Based on Discrete LED Wavelengths .................................................... 411
   Li-Feng Fan, Jian-Xu Wang, Peng-Fei Zhao, Hao Li, Zhong-Yi Wang, and Lan Huang

The Issues and Challenges in Copyright Protection for Agriculture Digital Publishing .................................................. 419
   Yuan-Yuan Tu

Development of Glass Microelectrodes Pipette Puller Based on Monitoring and Controlling Heating Strength ...................... 426
   Yuan Wang, Li-Feng Fan, Jian-Xu Wang, Yang Chen, Lan Huang, and Zhong-Yi Wang

Effect of Low-Temperature Plasma on Forage Maize (Zea mays Linn.) Seeds Germination and Characters of the Seedlings ........ 437
   Changyong Shao, Decheng Wang, Xianfa Fang, Xin Tang, Lijing Zhao, Lili Zhang, Liangdong Liu, and Guanghui Wang

Comparison of Methods for Forecasting Yellow Rust in Winter Wheat at Regional Scale .................................................. 444
   Chenwei Nie, Lin Yuan, Xiaodong Yang, Liguang Wei, Guijun Yang, and Jingcheng Zhang

The Standard of Data Quality Control Technology Based on the Share of Rural Science and Technology Data ...................... 452
   Dan Wang, Xiaorong Yang, Jian Ma, and Yang Sun

The Impact of Climate Change on the Potential Suitable Distribution of Major Crops in Zambia and the Countermeasures .......... 460
   Yanqin Wang, Zhen Tan, and Guojun Sun

A Model for Personalized Information Services of Agricultural Library Based on Multi-agent ........................................... 473
   Xie Meiling

Interpolation Method of Soil Moisture Data Based on BMA ............ 480
   Wan Shu-jing, Zhang Cheng-ming, Liu Ji-ping, Yu Ting, and Ma Jing
Analysis of Soil Water Wetting and Dynamics in Trace Quantity Irrigation ........................................... 489
   Haobo Cui, Shumei Ren, Peiling Yang, Huang Lingmiao, Zixuan Ma, Xiaorui Zhang, Weishu Wang, and Zelin Li

A Particle Swarm Optimization Algorithm for Neural Networks in Recognition of Maize Leaf Diseases .................. 495
   Jia Tao

Applied Research of IOT and RFID Technology in Agricultural Product Traceability System ............................. 506
   Guogang Zhao, Haiye Yu, Guowei Wang, Yuanyuan Sui, and Lei Zhang

A Survey on Quality of Service Monitoring and Analysis of Network of Agricultural Science and Technology Resources .......... 515
   Ma Jian

An Automatic Counting Method of Maize Ear Grain Based on Image Processing .................................................. 521
   Mingming Zhao, Jian Qin, Shaoming Li, Zhe Liu, Jin Cao, Xiaochuang Yao, Sijing Ye, and Lin Li

Research of SF6 Pressure Gauge Automatic Reading Methods Based on Machine Vision ........................................... 534
   Song Yao, Liu Chunhong, Deng Qiao, and Wang Yizuan

Linking and Consuming Agricultural Big Data with Linked Data and KOS .............................................................. 546
   Guojian Xian, Ruizue Zhao, Xianxue Meng, Yuantao Kou, and Liang Zhu

Research on Construction of Cloud Service Platform of Sci-tech Information for Agricultural Research System .................. 556
   Ruizue Zhao, Yuantao Kou, Ruopeng Du, Liangliang Gu, and Honglei Yang

Research on Construction of Agricultural Domain Knowledge Service Platform Based on Ontology .............................. 565
   Yuantao Kou, Ruizue Zhao, and Guojian Xian

Analysis on Snow Distribution on Sunlight Greenhouse and Its Distribution Coefficient ........................................... 575
   Chunhui Dai, Xiugen Jiang, Min Ding, Dongxin Lv, Guilin Jia, and Peng Zhang

Agricultural Library Information Retrieval Based on Improved Semantic Algorithm ..................................................... 589
   Xie Meiling
Assessment of Agricultural Information Service Based on Improved BP Network ........................................................ 595
Xie Meiling

Measurement System of Reducing Temperature Fluctuation of Thermostat Bath for Calibrating Thermocouple .................. 603
Min Zhang, Feixia Liang, Yue Xie, Ruguo Huang, Haitao Yuan, and Jiahua Lu

Design and Implementation of Monitoring and Early Warning System for Urban Roads Waterlogging ........................ 610
Yang Liu, Mingyi Du, Changfeng Jing, and Guoyin Cai

Development of Early-Warning Model for Intensive Pig Breeding .... 616
Nanxin Chen, Qingling Duan, Jianqin Wang, and Ruizhi Sun

An On-Line Monitoring System of Crop Growth in Greenhouse ...... 627
Wu Lixuan, Sun Hong, Li Minzan, Zhang Meng, and Zhao Yi

Evaluation Model of Winter Wheat Yield Based on Soil Properties .... 638
Wei Yang, Minzan Li, Lihua Zheng, and Hong Sun

Design of a Measurement and Control System for Delinting Machine .... 646
Liming Zhou, Yanwei Yuan, Junning Zhang, and Xin Dong

Automatic Navigation System Research for PZ60 Rice Planter ....... 653
Liguo Wei, Xiaochao Zhang, Quan Jia, and Yangchun Liu

Plant Image Analysis Machine Vision System in Greenhouse .......... 662
Jianlun Wang, Xiaoying Cui, Dongbo Xu, Shuangshaung Zhao, Hao Liu, Shuting Wang, and Jianshu Chen

A Review on Spectrometer of Pb(II) in Water .......................... 691
D. Zhang, M. Sun, and L. Zou

System Design of Online Monitoring and Controlling System Based on Zigbee in Greenhouse ................................. 702
Fengmei Li, Yaoguang Wei, Yingyi Chen, and Xu Zhang

Study on the Temporal and Spatial Variability of Maize Yield in Precision Operation Area ........................................... 714
Yueling Zhao, Haiyan Han, Liying Cao, Li Ma, and Guifen Chen

Soil Water Sensor Based on Standing Wave Ratio Method of Design and Development ............................................. 720
Yinli Xu, Weizhong Yang, and Zhenbo Li

A New Method for Rapid Detection of the Volume and Quality of Watermelon Based on Processing of X-Ray Images ............ 731
Ling Zou, Sun Ming, and Di Zhang
An Improved Method for Image Retrieval Based on Color and Texture Features .................................................. 739
   Jun Yue, Chen Li, and Zhenbo Li

Author Index ............................................................. 753
Computer and Computing Technologies in Agriculture
VIII
8th IFIP WG 5.14 International Conference, CCTA 2014,
Beijing, China, September 16-19, 2014, Revised
Selected Papers
Li, D.; Chen, Y. (Eds.)
2015, XVI, 756 p. 377 illus. in color., Hardcover
ISBN: 978-3-319-19619-0