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IFIP is the global non-profit federation of societies of ICT professionals that aims at achieving a worldwide professional and socially responsible development and application of information and communication technologies.

IFIP is a non-profit-making organization, run almost solely by 2500 volunteers. It operates through a number of technical committees and working groups, which organize events and publications. IFIP's events range from large international open conferences to working conferences and local seminars.

The flagship event is the IFIP World Computer Congress, at which both invited and contributed papers are presented. Contributed papers are rigorously refereed and the rejection rate is high.

As with the Congress, participation in the open conferences is open to all and papers may be invited or submitted. Again, submitted papers are stringently refereed.

The working conferences are structured differently. They are usually run by a working group and attendance is generally smaller and occasionally by invitation only. Their purpose is to create an atmosphere conducive to innovation and development. Refereeing is also rigorous and papers are subjected to extensive group discussion.

Publications arising from IFIP events vary. The papers presented at the IFIP World Computer Congress and at open conferences are published as conference proceedings, while the results of the working conferences are often published as collections of selected and edited papers.

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Daoliang Li · Chunjiang Zhao (Eds.)

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Preface

Agricultural information technology has become an important means for developing modern agriculture. In order to promote the academic exchange and cooperation of ICT in Agriculture, from 2000 to 2016, the National Engineering Research Center for Information Technology in Agriculture (NERCITA), China Agricultural University (CAU), and related organizations hosted eight events in the International Symposium on Intelligent Information Technology in Agriculture (ISIITA) series and ten events in the International Conference on Computer and Computing Technologies in Agriculture (CCTA) series, which provided a platform for the exchange of information on and ICT in agriculture between global scholars.

Since 2015, the Internet of Things, big data, robots, and precision farming have entered a stage of agricultural applications. Artificial intelligence (AI) has gradually penetrated the agriculture field and promoted the development of intelligent agriculture, which is characterized by “information perception, quantitative decision-making, intelligent control, precision input, and personalized services.” To exchange experiences and share the state of the art as well as successful application cases of ICT in intelligent agriculture, ISIITA and CCTA were merged into the International Conference on Intelligent Agriculture (ICIA). The ICIA will be held every two years (odd year), and the co-sponsors and conference venue are also selected according to applications.

ICIA 2017 focused on four topics: Internet of Things and Big Data in Agriculture, Precision Agriculture and Agricultural Robot, Agricultural Information Services, and Animal and Plant Phenotyping for Agriculture. The newest theories, viewpoints, technologies, products, and applications were extensively presented. Practical experiences in innovation and applications in intelligent agriculture were shared among experts from different countries.

We selected the 100 best papers among the 282 papers submitted to CCTA 2017 for these proceedings. All papers underwent two reviews by members who are from the Special Interest Group on Advanced Information Processing in Agriculture (AIPA), IFIP. In these proceedings, creative thoughts and inspiration can be discovered, discussed, and disseminated. It is always exciting to have experts, professional, and scholars with creative contributions getting together to share inspiring ideas and to accomplish great developments in the field.

I would like to express my sincere thanks to all authors who submitted research papers to the conference. Finally, I would also like to express my sincere thanks to all speakers, session chairs, and attendees, both national and international, for their active participation and support of this conference.

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Contents – Part II

Research and Application of Spark Platform on Big Data Processing in Intelligent Agriculture of Jilin Province	1
<i>Siwei Fu, Guifen Chen, Shan Zhao, and Enze Xiao</i>	
Summary of Agricultural Drought Monitoring by Remote Sensing at Home and Abroad	13
<i>Meng Wang, Tao Liu, Shouzhen Ling, Xueyan Sui, Huimin Yao, and Xuehui Hou</i>	
Research and Application of 3D Visualization Plug-in Integration with ArcGIS.	21
<i>Yinglun Li, Guifen Chen, and Dongxue Wang</i>	
Growth and Spectral Characteristics of Grassland in Response to Different Soil Textures.	31
<i>Xiaochun Zhong, Junchan Wang, Liu Tao, Chengming Sun, Zhemin Li, and Shengping Liu</i>	
Soil Moisture Estimation by Combining L-Band Brightness Temperature and Vegetation Related Information.	45
<i>Yuanyuan Fu, Chunjiang Zhao, Guijun Yang, and Haikuan Feng</i>	
Study on Precision Fertilization Model Based on Fusion Algorithm of Cluster and RBF Neural Network	56
<i>Shan Zhao, Guifen Chen, Siwei Fu, and Enze Xiao</i>	
Study on Three-Dimensional Data Acquisition of Crop Grains	67
<i>Zetao Yu, Weiliang Wen, Xinyu Guo, and Xianju Lu</i>	
An Agricultural Habitat Information Acquisition and Remote Intelligent Decision System Based on the Internet of Things	75
<i>Ze Lin Hu, Yi Gao, Miao Li, Hua Long Li, Xuan Jiang Yang, and Zhi Run Ma</i>	
Comprehensive Evaluation of Soil Fertility in Yanzhou District Based on Principal Component Analysis	86
<i>Qiuting Zhang and Xia Geng</i>	
Advances in Monitoring Soil Nutrients by Near Infrared Spectroscopy	94
<i>Yan Wang, Bei Cui, Yanhua Zhou, and Xiudong Sun</i>	

Microwave Mixing Technique for Nondestructive Measurement of Moisture Content of Particulate Agricultural Products	100
<i>Chenxiao Li, Yanlei Xu, He Gong, Yuanyuan Liu, and Qian Song</i>	
China's Wine Import Industry: An Economic Analysis of Influencing Trade Factors.	109
<i>Yu Hu, Wei Ma, Ruimei Wang, Huan Song, Weisong Mu, Dong Tian, and Jianying Feng</i>	
Three - Dimensional Visualization of Soil Nutrient Evolution in Maize Precision Operation Area Based on ArcGIS	119
<i>Enze Xiao, Guifen Chen, Shan Zhao, and Siwei Fu</i>	
Characteristics of the Warming Trend During Winter Wheat Growing Seasons in Jiangsu Province of China	127
<i>Xiangying Xu, Xinkai Zhu, Wenshan Guo, Chunyan Li, and Jinfeng Ding</i>	
Estimation of Leaf Nitrogen Concentration of Winter Wheat Using UAV-Based RGB Imagery.	139
<i>Qinglin Niu, Haikuan Feng, Changchun Li, Guijun Yang, Yuanyuan Fu, Zhenhai Li, and Haojie Pei</i>	
New NNI Model in Winter Wheat Based on Hyperspectral Index	154
<i>Wang Jianwen, Li Zhenhai, Xu Xingang, Zhu Hongchun, Feng Haikuan, Liu Chang, Gan Ping, and Xu Xiaobin</i>	
Fruit Trees 3D Data Acquisition and Reconstruction Based on Multi-source	162
<i>Sheng Wu, Boxiang Xiao, Weiliang Wen, Xinyu Guo, and Long Liu</i>	
Comparison of Remote Sensing Estimation Methods for Winter Wheat Leaf Nitrogen Content	173
<i>Chunlan Zhang, Fuquan Tang, Heli Li, Guijun Yang, Haikuan Feng, and Chang Liu</i>	
Design and Implementation of the Wheat Population Nutrition Detection System	185
<i>Lei Shi, Qiguo Duan, Mingyang Xiong, Juanjuan Zhang, Lihong Song, and Xinming Ma</i>	
Hyperspectral Estimation Methods for Chlorophyll Content of Apple Based on Random Forest.	194
<i>Haojie Pei, Changchun Li, Haikuan Feng, Guijun Yang, Mingxing Liu, and Zhichao Wu</i>	
Improving Design of a PVDF Grain Loss Sensor for Combine Harvester. . . .	208
<i>Liming Zhou, Yanwei Yuan, Junning Zhang, and Kang Niu</i>	

Maize Precision Farming Parallel Management Technology and Its Application in Northeast China	218
<i>Xianju Lu, Xinyu Guo, Jiangchuan Fan, Sheng Luo, Yufa Song, and Chunwei Li</i>	
Research on Vegetation Ecologic Quality Index of Rocky Desertification in Karst Area of Guangxi Province Based on NPP and Fractional Vegetation Cover Since 2000	225
<i>Xin Yang, Haihong Huang, Shuan Qian, and Hao Yan</i>	
Estimation of Leaf Nitrogen Content of Winter Wheat Based on Akaike's Information Criterion	231
<i>Haojie Pei, Haikuan Feng, Fuqin Yang, Zhenhai Li, Guijun Yang, and Qinglin Niu</i>	
Monitoring of Winter Wheat Biomass Using UAV Hyperspectral Texture Features	241
<i>Chang Liu, Guijun Yang, Zhenhai Li, Fuquan Tang, Haikuan Feng, Jianwen Wang, Chunlan Zhang, and Liyan Zhang</i>	
Reconstruction and Body Size Detection of 3D Sheep Body Model Based on Point Cloud Data	251
<i>Yanqing Zhou, Heru Xue, Chunlan Wang, Xinhua Jiang, Xiaojing Gao, and Jie Bai</i>	
Research on Irrigation System of Limited Water Supply for Soybean Crops in Shanxi Province	263
<i>Lantao Ye, Yangren Wang, Qing Liu, and Sida Wang</i>	
Development and Application of Hyperspectral Remote Sensing	271
<i>Huimin Xing, Haikuan Feng, Jingying Fu, Xingang Xu, and Guijun Yang</i>	
Study on Spatial Distribution Characters of Rubber Yield and Soil Nutrients in Guangba Farm of Hainai Province.	283
<i>Bei Cui, Wenjiang Huang, Huichun Ye, and Qimin Cao</i>	
The Environment Intelligent Monitoring and Analysis for Enclosed Layer House with Four Overlap Tiers Cages in Winter.	292
<i>Hualong Li, Miao Li, Junying Li, Kai Zhan, and Xianwang Liu</i>	
Research and Realization of Winter Wheat Yield Estimation Model Based on NDVI Index.	301
<i>Zhichao Wu, Changchun Li, Haikuan Feng, Bo Xu, Guijun Yang, Zhenhai Li, Haojie Pei, and Mingxing Liu</i>	
Study on Vegetation Classification Based on Spectral Knowledge Base	310
<i>Peng Liu, Jingcheng Zhang, Bin Wang, Xuexue Zhang, and Kaihua Wu</i>	

Hyperspectral Estimation of Nitrogen Content in Winter Wheat Leaves Based on Unmanned Aerial Vehicles.	321
<i>Liu Mingxing, Li Changchun, Feng Haikuan, Pei Haojie, Li Zhenhai, Yang Fuqin, Yang Guijun, and Xu Shouzhi</i>	
Quantification of Root Anatomical Traits in <i>RGP</i> Transgenic Maize Plants Based on Micro-CT.	340
<i>Xiaodi Pan, Liming Ma, Ying Zhang, Jinglu Wang, Jianjun Du, and Xinyu Guo</i>	
Effects of Exogenous Gamma-Aminobutyric Acid on Absorption and Regulation of Ion in Wheat Under Salinity Stress	347
<i>Xiaodong Wang, Hongtu Dong, Peichen Hou, Hang Zhou, Lulu He, and Cheng Wang</i>	
Development of Portable Dynamic Ion Flux Detecting Equipment.	358
<i>Peichen Hou, Cheng Wang, Xiaodong Wang, Aixue Li, Peng Song, Bin Luo, Ye Hu, and Liping Chen</i>	
Study on Intelligent Monitoring Technology for Composting of Agricultural and Livestock Wastes	368
<i>Hualong Li, Miao Li, Xuanjiang Yang, Zelin Hu, Zhirun Ma, and Xianwang Liu</i>	
Optimization and Simulation of Fertilizer Guide Device Parameters Based on EDEM Software.	377
<i>Hai Ding, Xiaofei An, Guangwei Wu, Liwei Li, and Qingzhen Zhu</i>	
Development of an Automated Guidance System for Tracked Combine Harvester	389
<i>Fangming Zhang, Wenbin Wu, and Yunfei Zhu</i>	
Research on the Internet of Things Platform Design for Agricultural Machinery Operation and Operation Management	400
<i>Qian Zhou, Jiandong Jiang, Zhangfeng Zhao, Jiang Zhong, Bosong Pan, Xiao Jin, and Yuanfang Sun</i>	
Understanding the Consumer Satisfaction of the “Last-Mile” Delivery of E-Business Services.	411
<i>Shujun Liu, Yan Li, Jingqi Huang, and Xin Zhao</i>	
The State of Motion Stereo About Plant Leaves Monitoring System Design and Simulation	419
<i>Jiangchuan Fan, Xinyu Guo, Chuanyu Wang, Xianju Lu, and Sheng Wu</i>	
Research on Agricultural Scientific and Technological Information Dissemination System Based on Complex Network Technology	432
<i>Hang Chen, Guifen Chen, Ying Zhang, and HongJun Gu</i>	

An Illumination Invariant Maize Canopy Structure Parameters Analysis Method Based on Hemispherical Photography	440
<i>Chuanyu Wang, Xinyu Guo, and Jianjun Du</i>	
Application of DBSCAN Algorithm in Precision Fertilization Decision of Maize	453
<i>Yang Li, Guowei Wang, Yu Chen, Yang Jiao, Haijiao Yu, and Guogang Zhao</i>	
Location and Recognition Fruit Trees Based on Binocular Stereo Vision	460
<i>Xueguan Zhao, Yuanyuan Gao, Songlin Wang, Xiu Wang, Pengfei Fan, and Qingcun Feng</i>	
The Realization of Pig Intelligent Feeding Equipment and Network Service Platform	473
<i>Weihong Ma, Jinwei Fan, Chunjiang Zhao, and Huarui Wu</i>	
Improvement of Regional Spatial Interaction Based on Spatial Traffic System Accessibility: A Case Study in Shandong Province, China	485
<i>Yu Zhang, Shouzhi Xu, Fengguang Kang, and Shihua Yin</i>	
Research on the Key Techniques of Semantic Mining of Information Digest in the Field of Agricultural Major Crops Based on Deep Learning	496
<i>Hao G. J. M. Gong, Yunpeng Cui, and Ping Qian</i>	
COPS: A Real-Time Cross-Domain Object Part Segmentation System	508
<i>Xueqing He</i>	
Author Index	517

Contents – Part I

Quinoa Traceable System Based on Internet of Things.	1
<i>Guowei Wang, Yu Sun, Jing Chen, Yang Jiao, Chuanhong Zhang, Haijiao Yu, Chan Lin, and Guogang Zhao</i>	
Research and Application of Safety Management for Virtual Desktop in Colleges and Universities.	9
<i>Haifeng Jia and Guifen Chen</i>	
Philosophical Principles of Data Discovery.	24
<i>Quan Wu, Min Liu, Juanying Sun, Weijie Jiao, Shuanghua Tao, Xiaochen Li, Xue Han, and Lijuan Jia</i>	
Fast Analysis of Maize Kernel Plumpness Characteristics Through Micro-CT Technology.	31
<i>Meng Shao, Ying Zhang, Jianjun Du, Xiaodi Pan, Liming Ma, Jinglu Wang, Dennis Böhmer, and Xinyu Guo</i>	
Automated Counting of Sex-Pheromone Attracted Insects Using Trapped Images.	40
<i>Wenyong Li, Meixiang Chen, Ming Li, Chuanheng Sun, and Lin Wang</i>	
Study of Machine Learning Based Rice Breeding Decision Support Methods and Technologies.	54
<i>Yun-peng Cui, Jian Wang, Shi-hong Liu, En-ping Liu, and Hai-qing Liu</i>	
A Bayesian Network Model for Yellow Rust Forecasting in Winter Wheat. . . .	65
<i>Xiaodong Yang, Chenwei Nie, Jingcheng Zhang, Haikuan Feng, and Guijun Yang</i>	
Soil Organic Carbon Prediction Using Vis-NIR Spectroscopy with a Large Dataset.	76
<i>Yang Shi, Rujing Wang, and Yubing Wang</i>	
Research on High Resolution Remote Sensing Image Classification Based on Convolution Neural Network.	87
<i>Wenwen Gong, Zhuqing Wang, Yong Liang, Xin Fan, and Junmeng Hao</i>	
Computer Vision and Feeding Behavior Based Intelligent Feeding Controller for Fish in Aquaculture.	98
<i>Chao Zhou, Kai Lin, Daming Xu, Chuanheng Sun, Lan Chen, Song Zhang, and Qiang Guo</i>	

Multi-scale 3D Data Acquisition of Maize	108
<i>Weiliang Wen, Xinyu Guo, Xianju Lu, Yongjian Wang, and Zetao Yu</i>	
Remote Sensing Monitoring of Drought Based on Landsat8 and NDVI-Ts Characteristic Space Method.	116
<i>Shouzhen Liang, Tao Liu, Zhen Chen, Xueyan Sui, Xuehui Hou, Meng Wang, and Huimin Yao</i>	
Curve Fitting Derivative Method and Its Application in Mouse Growth	126
<i>Zhihua Li and Xin Zhao</i>	
Spatial Structure Change Analysis of Cultivated Soil Nutrients in Urban Fringe of North China	134
<i>Shiwei Dong, Yuchun Pan, and Bingbo Gao</i>	
Evaluation and Mapping of Rice Flood Damage Using Domestic Remotely Sensed Data in China	143
<i>Huifang Wang, Xiaoyi Fang, Wei Guo, Yonghong Liu, Qingzu Luan, Shuo Zhang, and Yanhu Gao</i>	
Estimating Leaf Carotenoid Concentration of Ginger in Different Layers Based on Discrete Wavelet Transform Algorithm	152
<i>Qinhong Liao</i>	
Ecological Footprint Model of Cultivated Land Based on Ecosystem Services in Beijing	159
<i>Hui Guo, Di Wu, Lei Fa, Shunxiang Pei, Xuebing Xin, Shumin Ma, Sha Wu, and Shiwei Dong</i>	
Numerical Simulation of the Effects of Design Parameters on the Performance of Tractor Powered Flail Choppers	170
<i>Zhiqiang Zhang, Hongwen Li, Allen D. McHugh, Jin He, Qingjie Wang, Caiyun Lu, Wenzheng Liu, and Sun Nina</i>	
Design and Implementation of Water Spectrum Observation System for Aquaculture Pond	194
<i>Yinchi Ma, Wen Ding, Yonghua Qu, and Xiande Zhao</i>	
Chlorophyll Fluorescence Measurement: A New Method to Test the Effect of Two Adjuvants on the Efficacy of Topramezone on Weeds	206
<i>Jinwei Zhang, Ortrud Jäck, Alexander Menegat, Gen Li, and Xiu Wang</i>	
Wheat Growth Process 3D Visualization Research Based on Growth Model . . .	217
<i>Hailong Liu, Shuqin Li, Yeping Zhu, Shengping Liu, and Shijuan Li</i>	
Research on Information Integration Method of Agricultural Products Producing and Managing Based on Knowledge Graph.	232
<i>Xiang Sun, Huarui Wu, Peng Hao, and Qingxue Li</i>	

A 3D Canopy Reconstruction and Phenotype Analysis Method for Wheat . . .	244
<i>Boxiang Xiao, Sheng Wu, Xinyu Guo, and Weiliang Wen</i>	
Detection of Young Green Apples in Orchard Environment Using Adaptive Ratio Chromatic Aberration and HOG-SVM.	253
<i>Xia Xue, Zhou Guomin, Qiu Yun, Li Zhuang, Wang Jian, Hu Lin, Fan Jingchao, and Guo Xiuming</i>	
Detection of Overlapped Apples in Orchard Scene Using Improved K-means and Distance Least Square	269
<i>Xia Xue, Zhou Guomin, Qiu Yun, Li Zhuang, Wang Jian, Hu Lin, Fan Jingchao, and Guo Xiuming</i>	
Application of Growth Curve in Agricultural Scientific Research	285
<i>Zeng-hui Wang, Yan-jun Zhao, Yang Liu, and Dong-yan Huang</i>	
The Study of the Work Parameters of the Corn Harvester Cutter.	293
<i>Zeng-hui Wang, Yan-jun Zhao, Yang Liu, and Dong-yan Huang</i>	
Test Device of Soil Outline and Compactness Distribution on Seedbed Based on Sensors	302
<i>Caiyun Lu, Liwei Li, Zhijun Meng, Xiu Wang, and Qingjie Wang</i>	
Study the Spatial-Temporal Variation of Wheat Growth Under Different Site-Specific Nitrogen Fertilization Approaches.	316
<i>Bei Cui, Wenjiang Huang, Xiaoyu Song, Huichun Ye, and Yingying Dong</i>	
Classification Method Research of Fresh <i>Agaricus Bisporus</i> Based on Image Processing	333
<i>Fengyun Wang, Jiye Zheng, Lei Wang, Wenjie Feng, and Luyan Niu</i>	
A Study About Searching Behavior of Scientific Data User Based on Educational Background and Retrieval Capability.	341
<i>Guilan Zhang, Jian Wang, Guomin Zhou, Jianping Liu, Fei Gao, and Caoyuan Wei</i>	
A Review on the Soil Moisture Prediction Model and Its Application in the Information System	352
<i>Wengang Zheng, Lili Zhangzhong, Xin Zhang, Caiyuan Wang, Shirui Zhang, Shijun Sun, and Hongfei Niu</i>	
Application of Image Segmentation Technology in Crop Disease Detection and Recognition	365
<i>Leilei Deng, Zhenghao Wang, and Hui Zhou</i>	

Research and Realization on the Performance Testing Tool
of Web Application 375
Huarui Wu and Huaji Zhu

Operation Area Measurement Based on Trajectories
of Agricultural Machinery 384
*Chang Ren, Yanwei Yuan, Liwei Yang, Junning Zhang, Yangchun Liu,
Chengxu Lv, and Bo Zhao*

Analysis of Influential Factors of Social Satisfaction in Food Industry 395
Zhiyu Lai, Xinyao Zhu, Chenyue Jin, Mingxin Li, and Yan Qi

Abnormal Identification of Swine Flu Clinical Characteristics Based
on Body Temperature and Behavior 404
*Duo Wang, Ying Xu, Qifeng Liu, Yue Lou, Chaorong Luo,
and Changji Wen*

Hierarchical Denoising Method of Crop 3D Point Cloud Based
on Multi-view Image Reconstruction 416
Lei Chen, Yuan Yuan, and Shide Song

Non-invasive Edge Detection of Leaves Based on Order Morphology 428
Yanlei Xu, Qi Zhang, Chenxiao Li, Xindong Wang, and Xiaotian Meng

Development and Test of GNSS/IMU-Based Speed Measurement Device
for Agricultural Machinery 440
*Weiqliang Fu, Shupeng Hu, Changhai Luo, You Li, Shuxia Guo,
and Junxiong Zhang*

Farmland Weed Species Identification Based on Computer Vision 452
*Shengping Liu, Junchan Wang, Liu Tao, Zheming Li, Chengming Sun,
and Xiaochun Zhong*

Remote Monitoring and Control System for Aquarium Based on Mobile
Communication Platform 462
Wen Ding, Yinchu Ma, and Jinjing Zhang

Effects of the Factors on Maize Yield Under Drip Irrigation Under Film 468
*Hongzheng Shen, Yangren Wang, Xinrui Fan, Hao Wang,
and Yonglin Li*

An Amperometric Glucose Microbiosensor for Real-Time Measurements
in Plants 476
Ye Hu, Cheng Wang, and Aixue Li

Field Information Recommendation Based on Context-Aware
and Collaborative Filtering Algorithm 486
Zhili Chen, Chunjiang Zhao, and Huarui Wu

Research on the Current Situation and Development of Intelligent Precision Fertilizer Technology	499
<i>Wu Yan and Wang Fan</i>	
The Design and Analysis of Self—Balancing Adjustment Implement Leveling Control System	507
<i>Qingfeng Yang, Yehua Shang, Siyu Liu, Fujie Zhang, Yue Cong, Weiqiang Fu, Rui Pan, and Chunjiang Zhao</i>	
Research on Automatic Steering Control System of Full Hydraulic Steering Tractor	517
<i>Shupeng Hu, Weiqiang Fu, You Li, Yue Cong, Yehua Shang, and Zhijun Meng</i>	
Design of Farmland Information Acquisition System Based on LoRa Wireless Sensor Network	529
<i>Qiulan Wu, Chuanqi Zhao, Yong Liang, Dalei Zhang, and Junmeng Hao</i>	
Multi-sensor Array Based Fire Monitor for Cotton Pile	540
<i>Chenrui Bai, Junning Zhang, Chengxu Lv, Liguang Wei, Liming Zhou, and Bo Zhao</i>	
Author Index	555