2023 11th International Conference on Agro-Geoinformatics (Agro-Geoinformatics 2023)

Wuhan, China 25 – 28 July 2023



IEEE Catalog Number: CFP2348T-POD ISBN:

979-8-3503-0352-0

Copyright © 2023 by the Institute of Electrical and Electronics Engineers, Inc. All Rights Reserved

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

*** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.

 IEEE Catalog Number:
 CFP2348T-POD

 ISBN (Print-On-Demand):
 979-8-3503-0352-0

 ISBN (Online):
 979-8-3503-0351-3

Additional Copies of This Publication Are Available From:

Curran Associates, Inc 57 Morehouse Lane Red Hook, NY 12571 USA Phone: (845) 758-0400

Fax: (845) 758-2633

E-mail: curran@proceedings.com Web: www.proceedings.com



Table of Contents

Winter wheat identification and area extraction based on hyperspectral/multispectral image fusion	1
Rapid Crop Insurance Survey Method Based on Unmanned Aerial Vehicle Imagery	7
Cognitive and semantic construct for Digital Twin river basin geographic information fusion	12
A Dynamic Multi-Branch Neural Network Module for 3D Point Cloud Classification and Segmentation Using Structural Re-parameterization	18
MGTIPM: A Multi-granularity Time Intention Prediction Model for Next Point-of-Interest Recommendation	24
Non-visual common root rot disease detection using NIR spectrum and machine learning methods	29
Cross-Scale Feature Selection Transformer for Street-Level Crop Classification	35
LMNet: A lightweight MobileNetV2-based model for identification of rice leaf diseases Pan Liu, Xuyang Ban, Lei Xu, Linsheng Huang, Feijie Dai and Jinling Zhao	41
Identifying spatio-temporal patterns of the young population changes in mainland China from 2010 to 2020	47
Early Identification of Tobacco Fields Based on Sentinel-1 SAR Images	52
Measuring Spatial Patterns of Tea Farms and Their Colocation Relationships with Agritourism Scenic Spots from Geo-Spatial Datasets in Huzhou, China	57
Spatial Distribution of Tourist Toilets and the Driving Factors in Rural Destinations based on Data from Three Counties in China	62
SegFormer-Based Cotton Planting Areas Extraction from High-Resolution Remote Sensing Images	67
Service Evaluation of Urban Roads Based on Mobile Phone Signaling Data	73

An ontology-based approach for virtual constellation recommendation in remote sensing applications
Zhanfei Huang, Chenxiao Zhang, Hao Li, Ming Wang, Zhe Fang and Liangcun Jiang
A Cube-enabled Cloud Geoprocessing Engine for Big Earth Data
Robust LiDAR-inertial Calibration System and Refined Normal Estimation Module for 3D Mapping
A Geospatial Data and Model Hub for Online Geospaital Analysis
OGEScript: an OGC-oriented Interoperable Script API for Online Geospatial Analysis 101 Kaixuan Wang, Peng Yue, Dayu Yu, Ruixiang Liu, Haipeng Deng and Haoyu Liu
OBViT: A high-resolution remote sensing crop classification model combining OBIA and Vision Transformer
Lightweight Transformer Model for Winter Wheat Yield Prediction Based on Multi-source Data
OB-ConvLSTM: A sequential remote sensing crop classification model with OBIA and ConvLSTM models
Towards Sharing and Integrating Data and Models for Geospatial Artificial Intelligence on the Web
Wi-Fi indoor localization based on long short-term memory neural network model of genetic algorithm
A Spatial-Aware Representation Learning Model for Link Completion in GeoKG: A Case Study on Wikidata and OpenStreetMap
Early Crop Classification Based on Historical Annual Crop Inventory Data and Remote Sensing Data
Estimation of the ratio of leaf carbon to nitrogen in winter wheat based on hyperspectral data and machine learning method
Research on the optimization of sample point placement for ground substrate survey based on interpretable machine learning

Implementation of an Automated Vegetation Drought Monitoring System Based on Long-Term Satellite Remote Sensing
Wheat Fusarium head blight identification based on new index using in situ hyperspectral data
Oriented Object Detection Based on CNN and Transformer for Remote Sensing Images166 Luyun Tian, Guangjun He, Boyi Shangguan, Pengming Feng, Ying Liang and Shichao Jin
Evaluation of agricultural drought monitoring through the utilization of vegetation optical depth (VOD) and gross primary productivity (GPP)
A lightweight model based on YOLOv8n in wheat spike detection
Spatio-temporal variation analysis of soil moisture in major global black soil areas based on microwave remote sensing
The Design of Water Resources Cooperation Expert Database System based on Talent Portrait
SPAD values estimation in jujube leaves based on lasso-based optimized spectral indices and a Stacking Algorithm
Adjusted CBA-Wheat model for predicting aboveground biomass in winter wheat from hyperspectral data
Quantitative attribution and simulation of land use change based on the PLUS model: A case study of the urban agglomeration on the northern slope of the Tianshan Mountains 200 Jiale Wu, Jianghua Zheng, Chuqiao Han, Wenjie Yu, Zhe Wang and Juan Yang
Scaling effects of chlorophyll content in walnut leaves estimations with coupling Boruta algorithm and machine learning model
Response of cotton growth to meteorological factors in the 7th division of Xinjiang from 2019 to 2022
Spatio-temporal distribution of Aconitum leucostomum in Narathi Grassland of Xinjiang in China from 2013 to 2022
Effects of land use patterns on carbon sinks in terrestrial ecosystems in Xinjiang

Legacy effects of spring phenology on net primary productivity of grasslands in Xinjiang224 Tian Ruikang, Zheng Jianghua, Li Jianhao, Peng Jian and Li Gangyong
Spatial-temporal evolution analysis of habitat quality in Xinjiang based on InVEST model229 Jifei Zhao, Jianghua Zheng, Jun Lin, Jianguo Wu, Wanqiang Han and Liang Liu
Study on planting suitability and planting structure optimization of fruit trees in Xinjiang 235 Guobing Zhao, Jianghua Zheng, Lei Wang, Rui Wu and Tuerxun Nigela
Remote sensing estimating of plant nitrogen accumulation in winter wheat based on nitrogen partitioning model
Enhanced storm surge forecasting model for digital twin watershed applications of Ningbo 245 $\it Hongjie~Zhou$
Mapping City-Scale Cotton Fields Based on Sentinel-2 and Landsat-9 Data
Application of an improved lightweight YOLOv5 model to wheat stripe rust detection 256 Lei Xu, Yongyan Zhao, Pan Liu, Xuyang Ban, Jinling Zhao and Feijie Dai
Long-Term Spatio-Temporal Pattern of Urban Heat Island Effect of Land Use/ Cover Changes: A Case Study of Hangzhou, China
Extracting 10-m Resolution Photovoltaic Landcover Using A Slightly Modified U-Net and Sentinel-2 Images
CoLabel: a collaborative labeling platform for remote sensing imagery
Spatio-temporal characteristics of the impacts of land-use change on carbon emission: A case study of Hangzhou, China
Insights into spatiotemporal variations and driving factors of net primary productivity of terrestrial vegetation in Africa
AN OGC TRAININGDML-AI APPROACH FOR MAKING EO TRAINING DATASETS READY IN DEEP LEARNING FRAMEWORKS
Remote sensing estimation and spatiotemporal variation analysis of vegetation carbon sink in the Yangtze River Economic Belt
A Genetic Optimization Method for Spatial Layout of Cameras in Video Sensor Networks 301 $\it Tong~Yue~and~Qingwu~Hu$
A remote sensing extraction method for garlic distribution in Pizhou City using GEE cloud platform

Spatial-temporal variation analysis and prediction of carbon storage in urban ecosystems based on PLUS-INVEST model: A case study of Jiangsu Province
Paddy Fields Extraction and Spatiotemporal Evolution Analysis Based on Remote Sensing Cloud Platform-A case study of Hubei Province
Crop Classification in Jingzhou Area of Jianghan Plain Based on random forest
Using canopy hyperspectral measurements to evaluate nitrogen status in different leaf layers of winter wheat
Extraction of Winter Wheat Planting Area and Monitoring of Growth During key Fertility Periods Based on Time Series Sentinel-2 Images
Temporal and spatial changes of ecosystem service value in Loess Hilly-gully region based on land use change
Monitoring Global Agricultural Drought with Chinese Meteorological Satellite Data 346 Jinlong Fan, Yeping Zhang and Zhihao Qin
Machine Learning Based Agricultural Crop Yield Estimation in Yingcheng District, Hubei Province
The Impact of Meteorological Conditions on the Growth of Spring Maize in Northeast China
A method of automatic extraction and modeling of indoor spatial data based on CAD 358 Aiguo Zhang, Chunyuan Zhao, Qingquan Zeng, Qunyong Wu, Yunfan Ji and Litao Han
Analysis of the impact of aquaculture farms on regional coastline evolution based on PIE Engine: A case study of Dafeng, Jiangsu
Estimation of Chlorophyll Content of Tea Tree Canopy using multispectral UAV images 370 Zeng Xianming, Tang Shihao, Peng Shiyi, Xia Wanjun, Chen Yongchong and Wang Changwei
Dynamic analysis and influence mechanism of thermal environment space in Nanjing City block scale
Utilization of hyperspectral imaging to characterize herbicide phytotoxicity in oat and mustard

Proximal hyperspectral imaging to classify herbicide-resistant and -susceptible kochia (bassia scoparia)
Prabahar Ravichandran, Keshav D. Singh, Charles M. Geddes, Manoj Natarajan, Austin Jaster and Hongquan Wang
Crop Type Classification Network for Hyperspectral Images Coupled with Agricultural Vegetation Indices
Shuai Zhang, Yonghua Jiang, Chengjun Wang, Weiling Liu, Da Li and Kaiwen Wu
Compact-Polarimetric SAR decompositions for soil moisture retrievals using Radarsat Constellation Mission data
Hongquan Wang, Keshav D. Singh and Prabahar Ravichandran
Mapping Tea Plantations from Medium-Resolution Remote Sensing Images Using Convolutional Neural Networks and Swin Transformer
Reverse Deduction Model of Forest Fire Spread Based on Cellular Automata
Correlation between landscape pattern changes and carbon intensity in Nanjing 414 Xiaoqing Lu, Chang Jiang, Zixuan Lu, Yumeng Huang, Chaolong Tian and Rui Zhang
Detection of paddy rice with time series Sentinel 1/2 images and transfer learning algorithms
Assessing the Accuracy of the Esa Worldcover 2021 for the Local Region of Lalapasa/Edirne, Turkey and Recommending Possible Accuracy Improvement Strategies 426 Paria Ettehadi Osgouei, Elif Sertel and Mustafa Erdem Kabadayi
Multi-scale Residual Spatial-Spectral Attention Longan-Litchi Extraction Network for Cultivated Land Non-grain Monitoring
Research on ecological function regionalization of Qingyang City based on 3S technology . 435 $\it Hua\ Liu,\ Aihong\ Gai,\ Junqing\ Lin,\ Shujie\ Cao\ and\ Jun\ Zhang$
Preliminary study on the classification of typical rural domestic waste in Jiangsu province 441 Xiaoqing Lu, Chang Jiang, Zixuan Lu, Yumeng Huang and Chaolong Tian
Development of a Predictive Model of Honey Bee Foraging Activity Under Different Climate Conditions
Hyperspectral image classification of agricultural tillage practices using spatial-aware collaborative representation
Distributed Satellite Pod Scheduling Algorithm Based on DQN

Spatio-Temporal Missing Data Reconstruction by Using Deep Neural Networks in Agricultural Monitoring Systems
Mehmet Selahaddin Şentop, Meriç Yücel and Burak Berk Üstündağ
High Performance Real-time Anomaly Detection for Agricultural Monitoring Systems 471 Selim Eren Eryilmaz, Meric Yucel and Burak Berk Ustundag
An Exploration of Operational Image Recognition Application for Agricultural Meteorological Observation Based on YOLO5 Framework
Root-zone Soil Moisture Nowcasting using Context Aware Machine Learning
A Review of Scientific Irrigation Scheduling Methods
Prediction of Crop Planting Map Using One-dimensional Convolutional Neural Network and Decision Tree Algorithm
Hui Li, Liping Di, Chen Zhang, Li Lin, Liying Guo and Haoteng Zhao
Enhancing Remote Sensing Based Machine Learning Applications Through Analysis Ready Data: A Comprehensive Review
A Review of Remote Sensing in Sugarcane Mapping
Monitoring of Tobacco Planting based on Remote Sensing in Karst Landforms
A SIMPLE AND EFFICIENT DEEP LEARNING ARCHITECTURE FOR CORN YIELD ESTIMATION
Assessing Wildfire Burn Severity Indices Using Sentinel-2 Data: A Comparative Study of Common Remote Sensing Burn Indices and CBI Field Data
Optimizing Irrigation Scheduling Using Deep Reinforcement Learning
Early Crop Identification Using a Prior Probability-Adjusted Machine Learning Algorithms
Ting Pan, Qian Shi and Haoyang Li
RS DINO: A Novel Panoptic Segmentation Algorithm for High Resolution Remote Sensing Images
Zizhen Li, Guangjun He, Han Fu, Qianqian Chen, Boyi Shangguan, Pengming Feng and Shichao Jin

Spatial Pattern and Driving Factors of Newly Abandoned Farmland in China during 2015-2019	34
Analysis of Ecological Environment in Linyi City based on Remote Sensing	3 9
Accurate extraction of fragmented field boundaries using classification-assisted and CNN-based semantic segmentation methods	13
An improved zoning crop mapping approach in complex agricultural landscapes considering crop heterogeneity	ŀ7
Assessing Urban Resilience to Flooding at County Level Using Multi-Modal Geospatial Data	52
DSFNet: Dual-Stream-Fusion Network for Farmland Parcel Mapping in High-Resolution Satellite Images	57
A Counting Algorithm for Adhesion of Wheat Scab Spore Based on Contour Angle-to-distance Ratio	3
RS-SAGAN: Boosting Remote Sensing Sample Diversity via Seasonal Adaptive GAN 56 Huan Zhou, Qingyu Liu, Mi Zhang, Yuanxin Zhao, Jiangyong Ying and Yueran Qi	5 9
Evaluating the Long-Term Spatio-Temporal Equity of Urban Green Space: A Case Study of Hangzhou, China	⁷ 4
Enhancing USDA NASS Cropland Data Layer with Segment Anything Model	' 9