

# International Journal of Agricultural and Biological Engineering (IJABE)

Open Access at <https://www.ijabe.org>

## Table of Contents

Volume 17, Number 2, April, 2024

### Overview Articles (OA)

- Review of the field environmental sensing methods based on multi-sensor information fusion technology  
..... Yuanyuan Zhang, Bin Zhang, Cheng Shen, Haolu Liu, Jicheng Huang, Kunpeng Tian, et al. (1)
- Promising real-time fruit and vegetable quality detection technologies applicable to manipulator picking process  
..... Jintao Feng, Qinyi Yang, Hao Tian, Zhipeng Wang, Shijie Tian, Huirong Xu (14)

### Applied Science, Engineering and Technology (ASET)

- Multi-machine collaboration realization conditions and precise and efficient production mode of intelligent agricultural machinery  
..... Bo Wang, Xiaoxue Du, Yana Wang, Hanping Mao (27)
- Discrete element modeling and parameter calibration of safflower biomechanical properties  
..... Zhenguo Zhang, Chao Zeng, Zhenyu Xing, Peng Xu, Quanfeng Guo, Ruimeng Shi, et al. (37)
- Mechanism and experimental study on the fruit detachment of Chinese wolfberry through reciprocating vibration  
..... Song Mei, Jinpeng Wang, Zhiyu Song, Dunbing Tang, Cheng Shen (47)
- Peculiar influence of linearly polarized spectrum illumination patterns on the sensitivity characteristics of locust response to polarized light  
..... Qihang Liu, Huiyuan Zhao, Pingchuan Zhang, Jianxin Cui, Guohong Gao (59)

### Animal, Plant and Facility Systems (APFS)

- Light demand characteristics, production performance, and changes in the feeding patterns of broilers  
..... Shouyi Wang, Guoping Jiang, Chenghao Pan, Thebano Santos, Yasser Elhadidi, Ahmed Jado, et al. (68)

### Power and Machinery Systems (PMS)

- Extraction and evolution of grader's bionic morphological feature line using shape structure behavior function model  
..... Bin Qi, Yubin Lan, Xiaoming Sun, He Zhu, Yanhao Li, Ke Lou (74)
- Optimization design and experiment of the variable differential gear train planting mechanism  
..... Xiong Zhao, Ziwei Liu, Yuanwu Jia, Xingxiao Ma, Pengfei Zhang, Jianneng Chen (85)
- Novel control strategy for the energy recovery system of a hydraulic excavator  
..... Changsheng Liu, Qinghua He, Qijun Tang, Kai Ren, Jun Gong, Daqing Zhang (94)
- Design and test of a wheel-belt type cotton stalk puller  
..... Jialin Cai, Jiayi Zhang, Zebin Gao, Xiaoxuan Wang, Gang Guo, Yasenjiang Baikeli, et al. (102)
- Optimization design of the hydro-pneumatic suspension system for high clearance self-propelled sprayer using improved MOPSO algorithm  
..... Fan Yang, Yuefeng Du, Changkai Wen, Zhen Li, Enrong Mao, Zhongxiang Zhu (109)
- Design and optimization of the seed conveying system for belt-type high-speed corn seed guiding device  
..... Yifei Li, Wenqi Zhou, Chengcheng Ma, Zhaohua Feng, Jinwu Wang, Shujuan Yi, et al. (123)
- Design and parameters optimization of the curved sieve for an air suction jujube harvester  
..... Shenghe Bai, Yanwei Yuan, Kang Niu, Liming Zhou, Bo Zhao, Liguang Wei, et al. (132)
- Prediction model for the initial seed clearing angles of a precision seed meter based on vector fields  
..... Wan Jiao, Junjie Zhang, Xuhui Chen, Hao Shen, Yuxiang Huang, Jiangtao Shi (140)

## **Natural Resources and Environmental Systems (NRES)**

- Appropriate supply of irrigation and nitrogen produced higher yields of cherry tomatoes  
..... Zelin Cai, Mengchi Zhang, Jiarui Xie, Tingting Kong, Yuxuan Zhang, Zhihao He, et al. (149)
- Effects of organic fertilizers on organic carbon accumulation in alkalized saline soil and silage maize yield  
..... Lidong Ji, Lei Li, Rui Wang, Xing Xu, Fengju Zhang, Guilian Mao, et al. (159)
- Comparison of the water consumption levels of four shelterbelt tree species in a typical arid oasis in Northwest China  
..... Shuai Fu, Bingxian Xu, Yufang Leng, Yuxin Peng, Guogen Tao, Lanhai Li (169)
- Effects of biofertilizer and water-saving irrigation interactions on the leaf photosynthesis and plant growth of tomatoes  
..... Danyan Chen, Yuchun Ai, Peizhe Li, Yue Dong, Hailing Li, Changyi Wang, et al. (177)
- Response of maize growth and soil biological characteristics to planting density under fertigation in a semi-arid region  
..... Peng Jiang, Lei Li, Dejie Xu, Rui Wang, Quan Sun (186)

## **Information Technology, Sensors and Control Systems (ITSCS)**

- Method for the height measurement of agricultural implements based on variable parameter Kalman filter  
..... Gaolong Chen, Xiwen Luo, Lian Hu, Pei Wang, Jie He, Dawen Feng, et al. (193)
- Method for the real-time detection of tomato ripeness using a phenotype robot and RP-YolactEdge  
..... Yuanqiao Wang, Wenbo Gou, Chuanyu Wang, Jiangchuan Fan, Weiliang Wen, Xianju Lu, et al. (200)
- Cotton leaf disease detection method based on improved SSD  
..... Wenjuan Guo, Shuo Feng, Quan Feng, Xiangzhou Li, Xueze Gao (211)
- Method for the fruit tree recognition and navigation in complex environment of an agricultural robot  
..... Xiaolin Xie, Yuchao Li, Lijun Zhao, Xin Jin, Shengsheng Wang, Xiaobing Han (221)
- Method for the navigation line recognition of the ridge without crops via machine vision  
..... Wei Liu, Jianping Hu, Jiabin Liu, Rencai Yue, Tengfei Zhang, Mengjiao Yao, et al. (230)
- Wheat FHB resistance assessment using hyperspectral feature band image fusion and deep learning  
..... Kun Liang, Zhizhou Ren, Jinpeng Song, Rui Yuan, Qun Zhang (240)
- Research and test of the measurement sensing device for the downforce of no-till planter row unit gauge wheels  
..... Jiajie Shang, Liyi Liu, Ruifeng Zhang, Hongcheng Li, Shouyin Hou, Hongxin Liu, et al. (250)
- Comparison of three models for winter wheat yield prediction based on UAV hyperspectral images  
..... Xiaobin Xu, Cong Teng, Hongchun Zhu, Haikuan Feng, Yu Zhao, Zhenhai Li (260)

## **Renewable Energy and Material Systems (REMS)**

- Comparison of life cycle assessment of large-scale biogas projects with different raw materials in China  
..... Jiazheng Sun, Youpei Qu, Xiaoyi Lyu, Xinjie Ding, Xinying Miao, Mukesh Kumar Awasthi, et al. (268)

## **Agro-product and Food Processing Systems (AFPS)**

- Functional properties of defatted chickpea flour heat-induced gels  
..... Chonghao Bi, Aoxue Qie, Tong Zhou, Yi Liu, Bin Tian (280)

## **Perspective and Insight (PI)**

- Chatbots: a critical look into the future of the academia  
..... Samuel Ariyo Okaiyeto, Arun S. Mujumdar, Parag Prakash Sutar, Wei Liu, Junwen Bai, Hongwei Xiao (287)
- Fukushima wastewater release: unanswered questions and global concerns  
..... Samuel Ariyo Okaiyeto, Parag Prakash Sutar, Arun S. Mujumdar, Hongwei Xiao (289)

## **Cover Captions**

- Real-time detection of tomato ripeness using a phenotype robot ..... (Cover)
- Looking back to 2023, and looking forward to 2024 ..... (Back Cover)

## **Information**

- Fourth-term IJABE International Editorial Board ..... (Front Insert I)