XIANGYU LU

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OBJECTIVE

Locate and understand UAV images of field crop using photogrammetry and deep-learning methods, towards the automatic end-to-end UAV imagery processing and analyzing system.

EDUCATION

Zhejiang University Sep. 2020 - Jul. 2025
Ph.D., Agricultural Electrification and Automation Hangzhou, China
Research Field: Agricultural information technology

China Agricultural University Sep. 2018 - Jul. 2019
Exchange Student | GPA: 3.53 Beijing, China

Oriel College, University of Oxford Aug. 2018
Summer Institute Program | Courses: Quantum Computing, Cosmology Oxford, U.K.

Northwest A&F University Sep. 2016 - Jul. 2020
B.S., Agricultural Mechanization and Automation | GPA: 3.71 (rank: 2/75) Yangling, China

RESEARCH SKILLS

Skilled in: Python programming, Image processing, Deep learning model utilization and improvement.
Familiar with: QGIS data processing; PyQt interface design; Arduino hardware development

RESEARCH PROJECTS

Automated Rice Phenology Mapping using UAV Images and Deep Learning Jul. 2022 - Dec. 2022
- Utilize semantic segmentation for field extraction and phenology detection
- Propose direct geo-locating and incremental sparse sampling for traits mapping

Grape Leaf Disease and Pest Diagnose Using Transformer Networks Jul. 2021 - Dec. 2021
- Provided the method of multi-model integration using prediction confidence
- Proposed a novel hybrid model with 98.51% accuracy on 11 categories

Soil Heavy Metal Detection based on Laser-Induced Breakdown Spectroscopy Oct. 2019 - Jun. 2020
- Enhance spectrum signal with Ar gas, and quantitative regression using Neural Network
- Design and simulate an automatic LIBS batch inspection platform for soil samples

Wheat Field Weed Identification System using UAV (Provincial Project/5k funds) Mar. 2018 - Apr. 2019
- Good Evaluation Result | As the team leader and algorithm implementation coder
- Constructed a real-time weed detection model for UAV imagery with 74.2% mAP

AWARDS & HONORS

- Award of Honor for Graduate 2020-2022 (top 15%, twice) Dec. 2022
- Special Award of Agricultural Equipment Innovation - ZOOMLION Cup 2020 Jun. 2020
- President Scholarship 2017-2018 (top 5%) Dec. 2018

PUBLICATIONS

- **Lu X,** Zhou J, Yang R, et al. 2023. Automated Rice Phenology Stage Mapping Using UAV Images and Deep Learning. *Drones*. 7(2):83. https://doi.org/10.3390/drones7020083
- **Lu, X.**, Yang, R., Zhou, J., et al., 2022. A hybrid model of ghost-convolution enlightened transformer for effective diagnosis of grape leaf disease and pest. *Journal of King Saud University - Computer and Information Sciences*. https://doi.org/10.1016/j.jksuci.2022.03.006
- Yang, R., **Lu, X.**, Huang, J., et al., 2021. A multi-source data fusion decision-making method for disease and pest detection of grape foliage based on shufflenet v2. *Remote Sensing*. 13, 5102. https://doi.org/10.3390/rs13245102