XIANGYU LU

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OBJECTIVE

Enhance and Understand UAV Images using Deep-Learning and Photogrammetry Methods, towards the Automatic end-to-end UAV imagery Processing and Analyzing System for Ag & Env Science.

EDUCATION

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

China Agricultural University | Exchange Student Sep. 2018 - Jul. 2019
Course Learning Beijing, China

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

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

RESEARCH Abilities

Skilled in: Image Processing, CNN & Transformer Networks, Python Programming, UAV Sensing & GIS.
Interested in: Generative Model, Large Area Ag & Env Sensing, Few-Shot Learning.

RESEARCH PROJECTS

Aerial Image Super-Resolution with Diffusion Model and Variance Attention Jan. 2023 - Oct.2023

- Propose a variance-based attention (VASA) that enhanced various super-resolution models
- Constructed a VASA-enhanced Diffusion Model for effective aerial image super-resolution

Automated Rice Phenology Mapping using UAV Images and Deep Learning Jul. 2022 - Dec. 2022

- Improve the bilateral segmentation model for canopy 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

- Design a method of multi-model integration using prediction confidence
- Propose a Transformer hybrid model achieving 98.51% mAcc on 11 categories

Wheat Field Weed Sensing System using UAV (Provincial Project: 5k funds) Mar. 2018 - Apr. 2019

- Good Ending Reward | As team leader and algorithm implementation coder
- Construct a real-time 4-classes weeds detection system with UAV image sequence

AWARDS & HONORS

- Award of Honor for Graduate 2020-2022 (top 15%, 2-times) 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*. 34(5):1755-1767. https://doi.org/10.1016/j.jksuci.2022.03.006
- Zhou, J., **Lu, X.**, Yang, R., et al., 2023. Developing thermal infrared de-ghost and multi-level nested conglutinated segmentation algorithm for detection of rice seed setting rate. *Computers and Electronics in Agriculture*. 207:107725. https://doi.org/10.1016/j.compag.2023.107725