XIANGYU LU

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OBJECTIVE

To explore learning-based vision systems through UAV and remote sensing data, toward intelligent environmental perception and understanding of Agro-Ecological systems.

EDUCATION

Zhejiang University | Ph.D., Agricultural Electrization and Automation Sep. 2020 - Dec.2025
Research Field: UAV sensing and deep-learning for rice field management. Hangzhou, China

University of Toronto | Visiting Ph.D. Student Jul. 2024 - Jun. 2025
Research Topic: Multimodal UAV data processing for forest sensing. Toronto, Canada

China Agricultural University | Exchange Student Sep. 2018 - Jul. 2019
Courses & Project: AI in Ag, agricultural equipment innovation. Beijing, China

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

SKILLS

Experienced in Python programming, image segmentation and super-resolution, UAV operation & GIS.
Interested in vision based AI application, weakly-supervised learning, scalable Ag & Eco system sensing.

RESEARCH PROJECTS

Grade2Seg: Weakly Supervised Weed Segmentation Method on UAV Images Oct. 2024 – Apr. 2025
- Trained weed segmentation from the class-activation-map of severity-grading model.

UAV Image Super-resolution with Variance-attention enhanced Diffusion Model Jan. 2023 - Oct.2023
- Constructed an enhanced diffusion model for effective field UAV image super-resolution

Automated Rice Phenology Mapping using UAV Images and Deep Learning Jul. 2022 - Dec. 2022
- Proposed a novel segmentation model and an efficient phenology mapping workflow.

Grape Leaf Disease and Pest Diagnose Using Transformer Networks Jul. 2021 - Dec. 2021
- Proposed a hybrid conv-transformer networks for accurate abnormal grape leaf diagnose.

Wheat Field Weed Sensing System using UAV (Provincial Project: 5k funds) Mar. 2018 - Apr. 2019
- Served as team leader and primary developer for algorithm implementation.
- Constructed a real-time multi-type weeds detection system using UAV image sequence.

AWARDS & HONORS

- Award of Honor for Graduate Students 2020-2025 (top 15%, 4 times) Dec. 2024
- Special Award of Agricultural Equipment Innovation - ZOOMLION Cup 2020 Jun. 2020
- President Scholarship 2017-2018 (top 5%) Dec. 2018

PUBLICATIONS

- **Lu X,** Zhang J, Yang R, et al. 2024. Effective variance attention-enhanced diffusion model for crop field aerial image super resolution. *ISPRS Journal of Photogrammetry and Remote Sensing*. 218: 50–68. https://doi.org/10.1016/j.isprsjprs.2024.08.017
- **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