LIYIKE JI

Applied AI & Computer Vision | Ph.D. Candidate | Gainesville, FL | jiliyike@gmail.com | Google Scholar | LinkedIn

SUMMARY

Ph.D. candidate at the University of Florida, graduating December 2026, with 4+ years building applied AI and computer-vision systems for messy, terabyte-scale sensor data. Experience spans foundation-model segmentation, object detection, multimodal and temporal modeling, automated data pipelines, and HPC (SLURM) across crop breeding and field programs. Seeking applied ML, computer vision, and research engineering roles.

TECHNICAL SKILLS

Languages: Python, R, SQL, Bash

ML / Deep Learning: PyTorch, TensorFlow, scikit-learn, XGBoost; CNNs, YOLO, segmentation, SAM / Depth Anything, multimodal fusion, LSTM / TCN / Transformers, regression/time-series, XAI

Computer Vision & Imaging: OpenCV, photogrammetry, sensor data analysis, point clouds, instance & semantic segmentation, SAM

UAV Systems & Sensors: FAA-certificated Remote Pilot (Part 107); multirotor systems; RGB / multispectral / thermal / hyperspectral; payload integration, mission planning, flight operations

Data & Geospatial: pandas, NumPy, GDAL, GeoPandas, QGIS / ArcGIS, orthomosaic & DSM processing

Engineering & MLOps: Git, Docker, Linux, HPC / SLURM, cloud GPU, reproducible pipelines

RESEARCH & ENGINEERING EXPERIENCE

Graduate Research Assistant — *UF Phenomics Lab, IFAS GCREC* 2023 – Present

- **Multimodal nutrient-prediction framework :** fused UAV imagery, phenotypes, management, and environmental data; benchmarked PLSR, RF, CNN, LSTM, TCN, and Transformer variants. Reached R^2 0.76 (N) / 0.83 (K) and validated across an independent season. Ablations showed limited incremental value from UAV image sequences; evaluated SHAP, Integrated Gradients, and Grad-CAM diagnostics. (manuscript in prep.)
- **Multi-sensor UAV platform:** designed and validated a regulation-compliant modular drone payload integrating RGB + multispectral + thermal sensors; built the pipeline extracting canopy height, coverage, and temperature with strong agreement to ground truth.
- **Foundation-model & deep-learning CV:** applied SAM and fine-tuned YOLO for instance segmentation of fruit, leaves, and seeds; built watershed canopy delineation, canopy-height, and runner-detection models — batched on UF's HiPerGator HPC (SLURM).
- **Automated data pipelines & data engineering:** built a multistage, automated Python pipeline (orthomosaic rendering → spectral-index computation → plot segmentation → trait extraction) and a labeled image database; modeled over 1,000 genotypes comparing phenomic vs. genomic selection.

SELECTED PUBLICATIONS

7 peer-reviewed / conference works (= first author).*

- * **A Multi-Sensor UAV Platform: Design, Testing & Application for High-Throughput Plant Phenotyping** — Drones (2026).
- * **AI-Driven Multimodal Framework for Predicting Strawberry Performance and Insights** — ASABE AIM (2025).
- **Deep Learning for Strawberry Runner Detection Integrating Ground & Aerial Imaging** — Smart Agricultural Technology (2025).
- * **Predicting Caladium Tuber Weight from Canopy Traits Through High-Throughput Aerial Imagery** — ASABE AIM (2024).

EDUCATION

Ph.D. Candidate, Agricultural & Biological Engineering — *University of Florida* 2023 – Dec. 2026 (expected)
Focus: plant phenomics, UAV multispectral imaging, deep learning & computer vision.

M.S., Engineering / Industrial Management — *University of Southern California* 2021 – 2022
Department of Industrial & Systems Engineering (ISE).

B.S., Controlled Environment Agriculture — *Northwest A&F University* 2016 – 2020
Additional training: DSSAT crop-modeling workshop (process-based crop simulation).

LEADERSHIP & HONORS

- Vice Chair, Student Advisory Committee (SAC) — AOC-ABFE (Association of Overseas Chinese Agricultural, Biological & Food Engineers), 2026; Secretary, 2025.
- Session Moderator — Machinery Systems Poster Session (Session 115), ASABE Annual International Meeting, 2026.
- GCREC Spring Travel Award — UF/IFAS Gulf Coast Research & Education Center, 2026.
- ASABE Student Poster Presentation Competition — selected through the ITSC Community, 2024.
- Master's Scholar Award — University of Southern California, 2021.