Xuechen Li

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Xuechen Li | Xuechen Li
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Education

- **University of Minnesota Twin Cities** *Jan 2024 - Present*
  PhD student, Agriculture engineering Saint Paul, USA
- **Guangxi University** *Sep 2021 - Jan 2024*
  Msc, Computer Science Naning, China
- **Beijing Forestry University** *Sep 2016 - Jun 2020*
  BEng, Mechanical Engineering Beijing, China

First Author Publications

[1]] **Li, X.**, Li, X., Zhang, S., Zhang, G., Zhang, M., & Shang, H. (2023). SLViT: Shuffle-convolution-based lightweight Vision transformer for effective diagnosis of sugarcane leaf diseases. Journal of King Saud University-Computer and Information Sciences, 35(6), 101401.

[2]] **Li, X.**, Li, X., Zhang, M., Dong, Q., Zhang, G., Wang, Z., & Wei, P. (2024). SugarcaneGAN: A novel dataset generating approach for sugarcane leaf diseases based on lightweight hybrid CNN-Transformer network. Computers and Electronics in Agriculture, 219, 108762.

[3]] **Li, X.**, Sanaeifar, A., Padilla, N., Stover, C., Kowalewski, A., Watkins, E., Runck, B., & Yang, C. (2025). Winter Damage Diagnostic Modeling Based On Synthetic Vegetation Indices From UAV-Based Multispectral Imaging. Computers and Electronics in Agriculture, Submitted

[4]] **Li, X.**, Yang, C., Qiao, L., & Zhou, J.(2025). Dynamic Multimodal Few-Shot Pest Recognition Across Growth Stages with Prior Knowledge. Expert Systems with Applications, In preparation

[5]] **Li, X.**, Wei, P., Li, X., Wu, T., Li, M., & Shang, H..(2025). Extraction method of physical phenotypic parameters of banana plant based on 3D point cloud. Plant Phenomics, In preparation

Research Experience

- **Graduate Researcher, University of Minnesota Twin Cities** *Jan 2024 - Present*
  - Developed a segmentation model to achieve accurate winter damage detection in turfgrass.
  - Collected drone multispectral imagery field measurement data in winter 2024
  - Developed an entomology agent system based on the Large Language Model and local knowledge base.
  - Developed a few-shot learning model for agricultural insect detection.
- **Journal Reviewer** *Jan 2025 - Present*
  - Reviewed research papers for several academic journals and conferences: Expert Systems with Applications, IJCNN, CVPRW.
- **Graduate Researcher, Guangxi University** *Sep 2021 - Jan 2024*
  - Developed a crop disease diagnosis system achieving an 85% accuracy rate in real-world agricultural scenarios.
  - Implemented GAN-based image generation technology, enhancing disease image variety and dataset quality.
  - Conducted analysis on high-resolution 3-dimensional point cloud data of banana crops, identifying critical structural features for accurate plant phenotype extraction.
- **Poster presenter in ASABE North Central Regional Section Meeting, South Dakota State University** *April 2024*
  - Made a poster presentation on the research of "Winter Damage Detection on Golf Courses through Drone-Based Multispectral lmaging".
- **Poster presenter in Chinese Society of Agricultural Engineering Academic Annual Meeting, China** *August 2023*
  - Made a poster presentation on the research of "A lightweight diagnostic model for sugarcane leaf diseases in field environments".

Additional Experience

- **Teaching Assistant, University of Minnesota Twin Cities** *Jan 2024 - Present*
  - Worked as teaching assistant for BBE 4023W Process Control and Instrumentation; BBE 3033 (001) Material and Energy Balances in Biological Systems
  - Advised a total of 50 students on course material, and field experiment.
  - Assisted faculty with administrative tasks and curriculum development.

Skills

- **Languages:** Mandarin (native), English.
- **Programming Languages:** Python, Java, JavaScript, R, Matlab
- **Professional:** Pytorch, ONNX, Vue.js
- **Interests:** Photograph, City biking, Road trip, and video games.