Jing Wu

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Education

University of Illinois at Urbana-Champaign
Ph.D. in Mechanical Engineering *Expected: December 2023*

University of Illinois at Urbana-Champaign
Master of Engineer in Mechanical Engineering *Jan. 2018 - Dec.2019*

Northeastern University
BE in Mechanical Engineering *Sept.2014 - Jun. 2017*

Selected Publications

- Optimizing Nitrogen Management with Deep Reinforcement Learning and Crop Simulations
  Jing Wu, Ran Tao, Pan Zhao Nicolas F. Martin, Naira Hovakimyan
  Computer Vision and Pattern Recognition (CVPR) on Agriculture-Vision, 2022 (Oral)

- Extended Agriculture-Vision: An Extension of a Large Aerial Image Dataset for Agricultural Pattern Analysis
  Jing Wu, David Pichler, Daniel Marley, Naira Hovakimyan, Jennifer Hobbs
  In Submission of TMLR, 2022

- Momentum Contrastive Learning for Few-Shot Classification and Segmentation in Remote Sensing
  Jing Wu, Naira Hovakimyan, Jennifer Hobbs
  In Submission of AAAI, 2022

Academic Experience

Semi-Supervised Pretraining on the Extended Agriculture-Vision Champaign, Illinois
Research Assistant *Mar. 2021 - till now*

- Published Extended Agriculture-Vision dataset for unsupervised and semi-supervised learning.
- Benchmarked self-supervised pre-training methods based on MoCoV2, Siamese Network and SimCLR.
- Proposed temporal-aware and pixel propagation model to improve the performance of contrastive learning.

Agricultural Management Using Deep Reinforcement Learning Champaign, Illinois
Research Assistant *Mar. 2021 - till now*

- Developed an interactive crop simulator based on APSIM (The Agricultural Production Systems sIMulator).
- Trained management policies for soil carbon sequestration with deep Reinforcement Learning.
- Robustified and adapted policies under varying weather and geographic conditions.

Vision-Based Panicle Detection/Counting Champaign, Illinois
Research Assistant *Jun. 2020 - Jun. 2021*

- Developed and published flowering dataset of olive tree
- Applied transfer learning based on Faster R-CNN.
- Applied the frustratingly simple few-shot Object Detection (FsDet) model for panicle detection.

Evaluation of Operators Capacities Based on Machine learning China
Research Assistant *Sept. 2014 - Jun. 2017*

- Reprocessed the collected EEG signals of brain waves using EEGLAB and Rejected the artifacts of the EEG data.
- Extracted features by wavelet analysis, train and evaluate operators' capacities using support vector machine.

Working Experince

Research Intern in Deep Learning and Computer Vision Intelinair, makers of AGMRI
Research Intern *May. 2021 - Aug.2021/ May. 2022 - Aug.2022*

- Applied and designed semi-supervised learning methods for agricultural remote sensing datasets.
- Extracted features by wavelet analysis, train and evaluate operators' capacities using support vector machine.

Services

Conference Review

CVPR (Conference on Computer Vision and Pattern Recognition)	2022
ECCV (European Conference on Computer Vision)	2022
NeurIPS (Neural Information Processing Systems)	2022

Journal Review

Computers and Electronics in Agriculture	2022

Skills

Python, C++, R, MATLAB, PyTorch