

A novel high-performance geospatial framework for near-real time crop phenological characterization

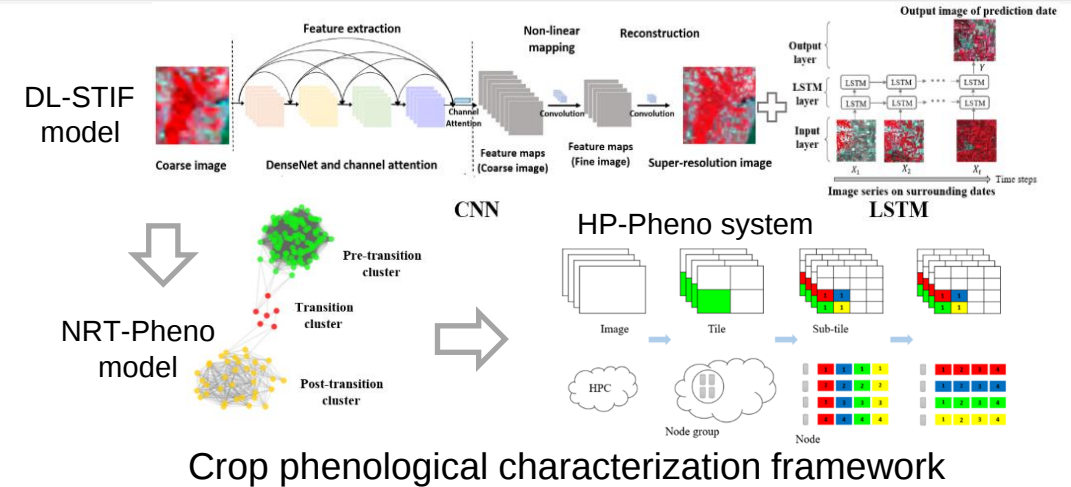
PI: Chunyuan Diao, UIUC

Co-PIs: N. Jacobs, WUSTL;
M. Li, Donald Danforth Plant
Science Center

Objective:

Develop a novel geospatial framework for crop phenological characterization

- Fuse multi-scale satellite data for generating high spatial and temporal resolution imagery
- Characterize crop phenology through bridging network science and time series remote sensing
- Catalyze scalable field-level crop phenological analysis with high performance computing



Approach:

- Develop a DL-STIF model by integrating CNN and LSTM for multi-scale satellite imagery fusion
- Devise a NRT-Pheno model using complex networks to characterize crop phenology in a timely fashion
- Design a HP-Pheno system with a hybrid computation approach for high-performance crop phenological analysis

Key Milestones:

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| • DL-STIF model design for multi-scale satellite imagery fusion | 11/23 |
| • NRT-Pheno model design for crop phenology monitoring | 03/24 |
| • HP-Pheno system design for high-performance phenology analysis | 06/24 |



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