

The Digital Agricultural Group at the University of Minnesota-Twin Cities is looking for two **postdoc** candidates to work on **AI for Agriculture and Earth System Prediction**. With funding supports from NSF, NASA, DOE and more, research in our group spreads across the spectrum of process-based modeling, remote sensing, data-model fusion, and hybrid AI modeling. We are dedicated to advancing science and technology for achieving food security and agroecosystem sustainability.

Leveraging the recent AI boom to substantially improve agroecosystem prediction is a paradigm-shift topic in the coming decade. In particular, Knowledge Guided Machine Learning (KGML) as a hybrid modeling approach has demonstrated great potential in several geoscience disciplines. We would invite highly motivated applicants to further develop and apply KGML to investigate a range of critical questions concerning agroecosystem sustainability.

Successful candidates will be supported to work on one or more topics listed below:

- Develop AI-driven methods to assimilate remote sensing and low-cost sensor observations into KGML models to improve the prediction of GHG emissions, climate risks, and crop productions.
- The application of KGML for Climate-Smart Agriculture and optimizing management practices.
- Modeling the impacts of agricultural nitrogen (N) management on air and water quality.
- Modeling agricultural phosphorous (P) cycle, with a focus on P losses from cropland to water bodies and coupling with N cycle.
- GeoAI for commodity mapping and sustainable supply chain management

The successful applicants will be supervised by Dr. Zhenong Jin (<https://bbe.umn.edu/people/zhenong-jin>) and collaborate closely with leading experts from UIUC, Stanford, Lawrence Berkeley National Laboratory, and many more academia and industrial collaborators.

Essential Qualifications:

All applicants are expected to have a strong quantitative background. The successful candidate will need to meet **at least two** of the following expectations:

- Strong programming experience (e.g., Python, Fortran, or C++) and be familiar with supercomputing and/or cloud platforms.
- Rich experience and code-level deep understanding of crop models or watershed models.
- Rich experience with remote sensing algorithm development.
- Familiar with deep learning algorithms and libraries such as PyTorch and TensorFlow, and have experience with GPU computing.

About the Lab (<http://jinlab.bbe.umn.edu/>): We are a fast-growing group who tackles big challenges with innovation! We have sufficient funding and resources for supporting the exploration of high-risk high-reward ideas that can revolutionize digital agriculture. We collaborate closely with many leading groups in academia and the industry. What our work looks like? Please see our most recent publications in [Nature Climate Change](#), [Remote Sensing of Environment](#), and [Geoscientific Model Development](#).

Applications: Qualified candidates must send a short introduction email and CV to Dr. Zhenong Jin (jinz@umn.edu). The interview will start immediately until all positions are filled. A competitive salary will be provided based on experience. The positions have a funding commitment for two years, with possibilities for renewal or promotion upon performance.