COLLEGE OF AGRICULTURE AND LIFE SCIENCES
SCHOOL OF PLANT AND ENVIRONMENTAL SCIENCES
VIRGINIA TECH

Postdoc and Ph.D. Positions in Climate-Smart Agriculture at Virginia Tech

Dr. Yongfa You's lab in the School of Plant and Environmental Sciences at Virginia Tech is seeking **a Postdoctoral Researcher** and **a Ph.D. Student.** Come be part of a collaborative team driving innovative solutions and making a real-world impact!

About Our Research Group:

Our research group addresses some of the most pressing challenges facing global agriculture and the environment. We are dedicated to monitoring, assessing, and predicting agroecosystem dynamics (e.g., crop yield, greenhouse gas (GHG) emissions, and soil organic carbon (SOC)) under various influencing factors, such as climate change, agricultural management, rising CO_2 levels, land use changes, and disturbances like droughts and heatwaves. Our mission is to develop science-informed, actionable solutions that enhance food security, mitigate climate change, and promote sustainable and resilient agricultural systems. We employ data-driven systems approaches that integrate domain knowledge with process-based agricultural modeling, artificial intelligence (AI), geospatial data science, and big data analytics. More information is available at https://yongfayou.github.io/#JoinUs

Position 1: Postdoctoral Researcher (AI-Driven Climate-Smart Agriculture)

This position offers an exciting opportunity to leverage cutting-edge technologies, such as AI, process-based modeling, and model-data integration, to advance CSA research. Depending on the postdoc's interests and expertise, potential research topics include:

- Evaluating environmental outcomes (e.g., GHG emissions, yield, and nutrient loading) of different CSA practices (e.g., cover cropping, biochar application, and reduced tillage).
- Optimizing CSA practices tailored to specific environmental conditions to maximize overall benefits.
- Short-term predictions of agroecosystem dynamics to enable proactive and timely interventions.
- Satellite-based monitoring and mapping of agricultural features to support precision agriculture.

The postdoc will also have the opportunity to pursue their own research interests in related fields, collaborate with multidisciplinary teams, and engage with stakeholders.

Required Qualifications:

- Ph.D. in agroecology, Earth and environmental sciences, soil science, geography, remote sensing, or a closely related field (**within 4 years after completing the PhD**)
- Experience in AI research and geospatial data processing
- Strong programming skills (e.g., Python, R, MATLAB, C++)
- Proven ability to conduct independent research and effectively disseminate findings

Preferred Qualifications:

- Experience with process-based modeling, data assimilation, and model-data integration
- Proficiency in handling large datasets, Google Earth Engine, and high-performance computing

Salary Information:

- $55,000–$62,000/year with full benefits (commensurate with experience)

Starting Date: After August 1, 2025 (flexible)

Position 2: Ph.D. Student (Carbon and Nutrient Dynamics in Agricultural Systems)

We are seeking a highly motivated Ph.D. student to join our group starting in **Fall 2025 or Spring 2026**. This position offers an exciting opportunity to explore innovative solutions for CSA through interdisciplinary research. The candidate will integrate multi-source observations (e.g., field measurements and satellite observations), process-based modeling, and advanced analytical approaches (e.g., AI, data assimilation, and geospatial analysis) to advance our understanding of carbon and nutrient dynamics in agricultural systems. The candidate will have the flexibility to shape their research direction based on their interests and expertise.

Potential Areas of Focus Include (but are not limited to):

- Precision agriculture
- Impacts of multi-environmental challenges on agroecosystems (e.g., yield and GHG emissions)
- Mitigation and adaptation strategies in agriculture
- Carbon dynamics, nutrient cycling, and soil health interactions within agroecosystems

Qualifications:

- A master's degree in a relevant field, such as agroecology, geography, soil science, Earth and environmental sciences, GIS, remote sensing, agronomy, hydrology, and computer science.
- Proficiency in programming languages (e.g., Python, R, Matlab, C++)
- Experience with machine learning/deep learning and process-based modeling is preferred

Application Deadline for Fall 2025 Admissions: January 5, 2025.

Application process:

Interested candidates are strongly encouraged to contact **Dr. Yongfa You** (**yongfayouau@gmail.com**) before submitting their application. Please include the following documents in the email: 1) a brief description of research experience, expertise, and interests; 2) curriculum vitae; 3) academic transcripts; 4) contact information of three references

About Virginia Tech:

Virginia Tech, located in Blacksburg, Virginia, is a distinguished R1 research university ranked #51 among National Universities and #21 among Top Public Schools in the 2025 U.S. News & World Report rankings. Guided by its motto, *Ut Prosim* (*That I May Serve*), Virginia Tech embraces a hands-on, transdisciplinary approach to education, preparing scholars to become innovative leaders and problem-solvers. As a comprehensive land-grant institution, the university enhances the quality of life locally and globally through a commitment to knowledge, discovery, and creativity.