Postdoctoral Research Associate
Department of Agricultural and Biosystems Engineering
South Dakota State University (SDSU), Brookings, South Dakota

Position Overview
The Department of Agricultural and Biosystems Engineering at South Dakota State University invites applications for a Postdoctoral Research Associate position. The successful candidate will contribute to interdisciplinary research focused on agrohydrology, water resources management, and data-driven modeling in agricultural systems, with emphasis on dryland ecosystems and integrated remote sensing approaches.

Minimum Qualifications
- Ph.D. in Agricultural Engineering, Agrohydrology, Ecohydrology, Agrometeorology, Soil and Water Sciences, Crop Sciences, Statistics, Machine Learning, or a closely related field
- Strong understanding of hydrological processes in dryland ecosystems
- Demonstrated experience with hydrologic models (e.g., APEX, SWAT, AGES) for estimating water movement, evapotranspiration (ET_a), and soil moisture
- Experience with crop models (e.g., EPIC, UPGM) and their interactions with water balance and crop productivity
- Proficiency in geospatial tools (ESRI ArcGIS, ERDAS, QGIS) and geospatial programming libraries
- Strong mathematical background, including understanding of numerical methods and modeling frameworks
- Demonstrated expertise in statistics and machine learning, particularly in remote sensing, data fusion, and environmental modeling applications
- Experience with data visualization and analytical workflows
- Strong technical writing and presentation skills
- Proficiency with version control systems (e.g., Git), API-based data retrieval, and development of real-time or automated analytical tools
- Ability to work effectively in a fast-paced, interdisciplinary research environment

Preferred Qualifications
- Field experience, including soil sampling and instrumentation deployment
- Experience with precision agriculture tools (yield monitors, GPS systems) and AutoCAD
- Experience in full-stack development for dashboards and decision-support tools
- Familiarity with LiDAR data and computer vision applications
- Experience in Extension and outreach, including fact sheet development and stakeholder engagement
- Experience with UAV/drone technology and/or Arduino-based sensing systems
- Familiarity with agricultural programs such as FFA (or similar engagement experience)
- FAA Remote Pilot Certification (Part 107) or equivalent drone/flying license

Responsibilities
- Conduct research integrating hydrologic modeling, crop modeling, and remote sensing

- Develop and apply machine learning and data fusion frameworks for soil moisture, evapotranspiration, and crop productivity
- Collaborate with interdisciplinary teams, including federal and state partners
- Contribute to peer-reviewed publications, reports, and extension materials
- Support proposal development and contribute to competitive research funding efforts
- Mentor undergraduate and graduate students
- Participate in outreach, teaching support, and stakeholder engagement activities

Professional Development Opportunities
The position offers a strong platform for career advancement, including:

- Mentorship experience with undergraduate and graduate students
- Development of competitive grant writing skills
- Opportunities for guest lecturing and classroom engagement
- Networking with USDA, state agencies, and water resource institutions
- Experience in event planning, program evaluation, and extension delivery
- Access to self-paced learning and microcredential opportunities
- Opportunities to publish in high-impact (Q1) journals as lead author

Appointment Details
Start Date: Open until filled (Preferred start date: 08/17/2026)
Salary: Competitive and commensurate with experience
Location: Brookings, South Dakota
Eligibility: No visa sponsorship is available for this position
The initial appointment is for one year, with renewal contingent upon satisfactory performance.

Application Process
Applicants must complete the required application form (https://forms.gle/xw9YkXuBQKRrebdV8). Applications submitted without the completed form will not be considered. Due to the expected volume of applications, only qualified candidates will be contacted.