

Midwest Big Data Innovation Hub

Collaboration Cafe

February 2022



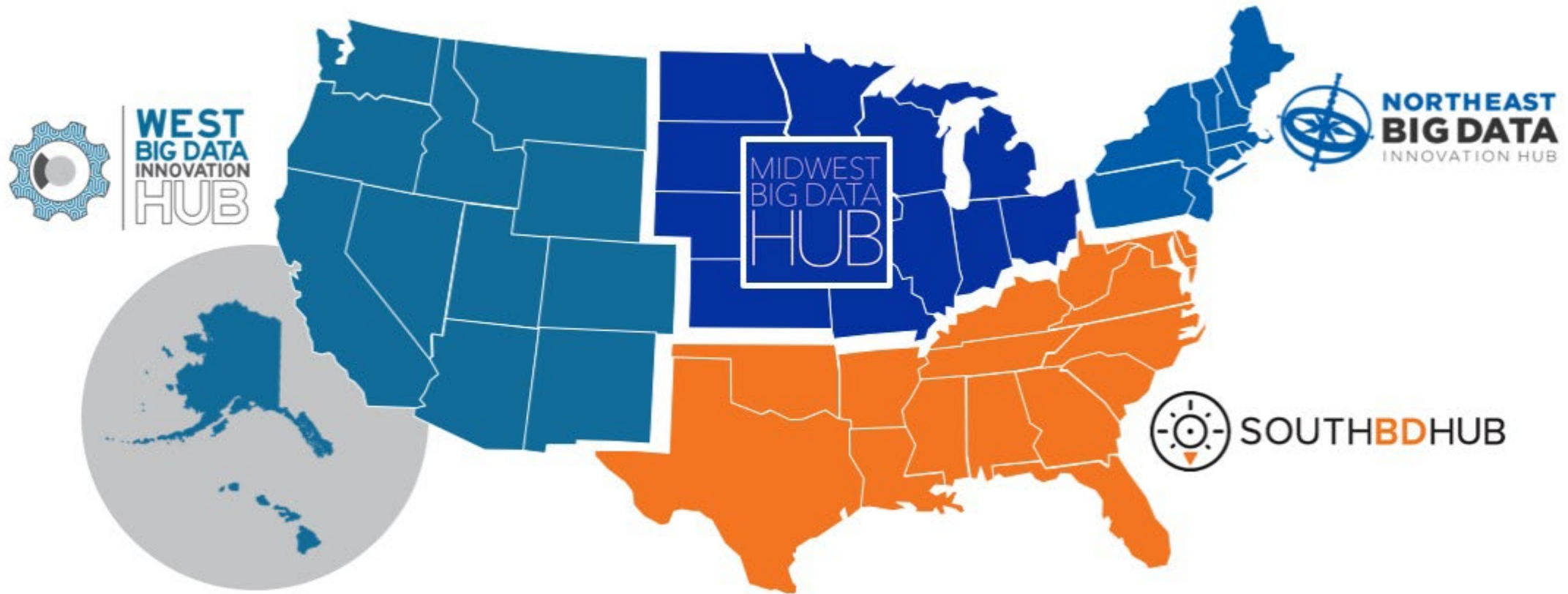
IOWA STATE
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supported by NSF [1916613](#)



Four Hubs, One Mission



What We Do

Engage communities, share resources, and build partnerships that harness data science to address societal and scientific challenges.



Priority Areas and Cross-cutting Themes

- Advanced Materials and Manufacturing
 - Big Data in Health
 - Digital Agriculture
 - Smart & Resilient Communities
 - Water Quality
-
- Data Science Education and Workforce Development
 - Cyberinfrastructure and Data Sharing

Collaboration Cafe webinar series

Goals:

- Building regional capacity for large-scale proposal response
- Growing a cross-disciplinary network of data science collaborators
- Elevating early career researchers
- Creating a more diverse data science community by actively engaging with non-R1 institutions, including minority-serving institutions (MSIs), tribal colleges and universities (TCUs), and predominantly undergraduate institutions (PUIs)
- Partnering with industry, government, nonprofits, and civic organizations to support translational research and transition-to-practice activities

Regular segments:

- Funding opportunity walkthroughs
- Lessons learned from prior awardees
- Researcher lightning talks
- Speed networking
- Small group discussions

Collaboration Cafe resources

- MBDH website
 - Web page with upcoming sessions
 - Short form for engagement
- Slack community
 - Networking
 - Input on future sessions
 - New solicitations
- Shared Google Drive
 - Running notes doc
 - Relevant prior awards to Midwest institutions
- YouTube playlist of webinar recordings

Cafe Ground Rules

- Multi-disciplinary team science is a core focus here - all proposal ideas are welcome for discussion
- Research proposals are competitive; some people may not be willing to discuss the details of their projects in this venue
- Private conversations in breakout rooms or Slack private messages are private
- Participating in Collaboration Cafe activities falls under our [NSF Code of Conduct](#)

MBDH engagement on proposals

There are multiple opportunities to have MBDH participate on proposals for this program, or other projects:

- Engagement partner: Communications, outreach, community assessments, participation in Hub events and activities
 - Non-exclusive Letter of Collaboration
 - Minimal to no funding to MBDH
- Collaborative partner: Engagement roles + involvement in developing and managing project activities
 - Non-exclusive Letter of Collaboration, subaward, co-PI roles, etc.
 - Funding to recover costs of MBDH staff time and other expenses
- **Note:** The MBDH is a neutral party and often provides non-exclusive Letters of Collaboration to multiple proposers to a solicitation



National Institute of Food and Agriculture
U.S. DEPARTMENT OF AGRICULTURE

BIOENERGY, CLIMATE, AND ENVIRONMENT
FOOD PRODUCTION AND SUSTAINABILITY
YOUTH, FAMILY, AND COMMUNITY
FOOD SAFETY AND NUTRITION
INTERNATIONAL PROGRAMS

NIFA

AFRI FAS DSFAS program

INVESTING IN SCIENCE | SECURING OUR FUTURE | WWW.NIFA.USDA.GOV
USDA IS AN EQUAL OPPORTUNITY PROVIDER, EMPLOYER, AND LENDER

Artificial Intelligence (AI) is a federal-government-wide priority



USDA priorities

General priorities from Secretary Vilsack, who will work to address inequity and inequality, meet the moment on climate and nutrition insecurity, and build fairer markets and stronger rural communities.

- Equity and inclusion
- Climate and regenerative agriculture
- Rural economic revitalization
- Nutrition security
- Open and competitive markets

AFRI FAS DSFAS – cross-cutting research that generates **new knowledge in agriculture and data science/AI**



Crosscutting means more than one NIFA AFRI FAS area; in this case it's technology PLUS at least one of the other areas:

- Plant health and production and plant products
- Animal health and production and animal products
- Food safety, nutrition, and health
- Bioenergy, natural resources, and environment
- Agriculture systems and **technology**
- Agriculture economics and rural communities

MUST have both data science/AI AND agricultural research strengths to be highly rated.

AFRI Foundational Cross-cutting: Data Science for Food & Agricultural Systems (DSFAS)

Program Area Priority Code: A1541

Proposed Budget Requests: \$650,000 total per project for project periods of 3-5 years; for coordination innovation networks priority only \$1,000,000 total per project for project periods of up to five years

Project Types: Research Projects or Integrated (research, education and /or extension) Projects only

Application Deadline: **October 20, 2022**

Contact: Ann Stapleton, NIFA-DSFAS@usda.gov

Check for RFA updates!

February Solicitation: USDA NIFA AFRI DSFAS program



Due: Oct 20, 2022	Part I, C of the NIFA AFRI Foundational and Applied Science RFA
Program goals and tracks	<ul style="list-style-type: none"> • Goal: Focus on data science in food systems and communities • Grant types: Standard, Conference, and Food and Agricultural Science Enhancement (FASE) • Project types: Research projects, Integrated projects (two or more of Research, Education, and Extension elements); Coordinated Innovation Networks
Size and duration (max)	<p>\$650k total budget over 4 years</p> <p>\$1m total budget over 5 years for coordination innovation networks priority area</p>
LOI/preproposal	<p>Standard and FASE proposals: No</p> <p>Conference and workshop proposals: Yes, due minimum of 195 days before the meeting begins</p>
Eligibility limits & other guidance	<p>a) State Agricultural Experiment Stations; b) colleges and universities (including junior colleges offering associate degrees or higher); c) university research foundations; d) other research institutions and organizations; e) Federal agencies, f) national laboratories; g) private organizations or corporations; h) individuals</p> <p>Eligible applicants for Integrated Projects include: a) Colleges and universities; b) 1994 Land-Grant Institutions; and c) Hispanic-serving agricultural colleges and universities</p> <p>See also: https://nifa.usda.gov/resource/dsfas-faq</p>



USDA NIFA AFRI DSFAS program



Program goals:

- “Focus on data science to enable systems and communities to effectively utilize data, improve resource management, and integrate new technologies and approaches to further U.S. food and agriculture enterprises.”
- “Projects funded through DSFAS will work to examine the value of data for small and large farmers, agricultural and food industries, and gain an understanding of how data can impact the agricultural supply chain, reduce food waste and loss, improve consumer health, environmental and natural resource management, affect the structure of U.S. food and agriculture sectors, and increase U.S. competitiveness.”



USDA NIFA AFRI DSFAS program

<https://nifa.usda.gov/program/dsfas>



Proposals must address one or more of the following data science priorities in relation to food and agricultural systems:

- **Analysis of Agricultural Data**
 - Develop data-integration and data-quality algorithms and tools to improve analytic capability.
 - Design, validate and implement new algorithms and methods for depicting and leveraging massive data.
- **Connect Multi-scale, Multi-domain or Multi-format Agricultural Data**
 - Bridge real-time distributed and parallel data systems;
 - Create new methodologies and frameworks for tracking and processing data; and/or
 - Identify new approaches to data archiving and sharing that support Findable, Accessible, Interoperable, and Re-usable (FAIR) standards.
- **Agricultural Applications and Human-Technology-Data Interactions**
 - Examine new scientific implications and practical aspects of how agricultural data and computer systems are accessed, designed, and used to improve human-human, human-technology, and human-decision experiences;
 - Integrate visualization with statistical methods and other analytic techniques in order to support discovery and analysis;
 - Engage students and professionals, teams, universities, and the public and private sectors; and /or
 - Develop decision-support tools that use diverse data sources and Big Data analytics modeling of short-term impacts of various factors to create best value to the U. S. agricultural enterprise.



USDA NIFA AFRI DSFAS program



Other important elements:

- Data management plan requirement for all proposals
- A logic model is a required for integrated project applications



Relevant DSFAS awards in the region & beyond

- **Cristina Connolly / University of Connecticut** – Harnessing Mobility Big Data and Artificial Intelligence Through a Transdisciplinary Research Network in Food Production, Processing, and Consumption Systems
- **Sara Lovell / Bhuwan Thapa / University of Missouri** – Agroforestry for Climate Risk Management: Effectiveness of Windbreaks in Reducing Crop Loss in Midwest USA
- **Malia Gehan / Danforth Plant Science Center** – Alliance of Plant Phenotyping Software (Apps) Developers: Integration and Interoperability of Open-Source Tools to Support Plant Phenotyping for Agriculture
- **Zhou Zhang / University of Wisconsin** – 1) Harnessing Machine Learning and Hyperspectral Imaging for High-Throughput Maize Silage Phenotyping; 2) Developing an Integrated Deep Learning Model Framework for County-Level Crop Yield Prediction in Support of USDA NASS Operation
- **J. Arbuckle / Iowa State** – Sociological Research to Advance Sustainable U.S. and International Food Security and Rural Development

Discussion

- Prior experiences with NIFA AFRI proposals?
 - What would you do differently (or the same)?
- Regional needs and opportunities
 - Where are the gaps?
 - Are there specific disciplinary drivers?
 - Precision ag, sensors, drones, other IoT
 - Data analytics for producers (see also the new USDA-funded National Agricultural Producers Data Cooperative – agdatacoop.org)
 - What are some of the roles or trends that are driving the need for this work?
- Other topics

Get involved

- <https://midwestbigdatahub.org/cafe>
- info@midwestbigdatahub.org

March 17, 2022

3:00–4:00 p.m. CT / 4:00–5:00 p.m. ET

- Topic: Funding for Early-Career Researchers
- Solicitation: NSF CAREER program

April 21, 2022

3:00–4:00 p.m. CT / 4:00–5:00 p.m. ET :

- Topic: Building Smart and Resilient Communities
- Solicitation: NSF Smart & Connected Communities



Get Involved ▾

MBDH Collaboration Cafe

Community Development and Engagement Program

Community Advisory Panel

Midwest Carpentries Community

Data Science Student Community

Regional Activities

Event in a Box Tool Kit

Explore Funding Opportunities

Join a Working Group

