



MIDWEST BIG DATA HUB: PARTNERSHIPS AND PROJECTS TO ADVANCE THE DATA ECOSYSTEM

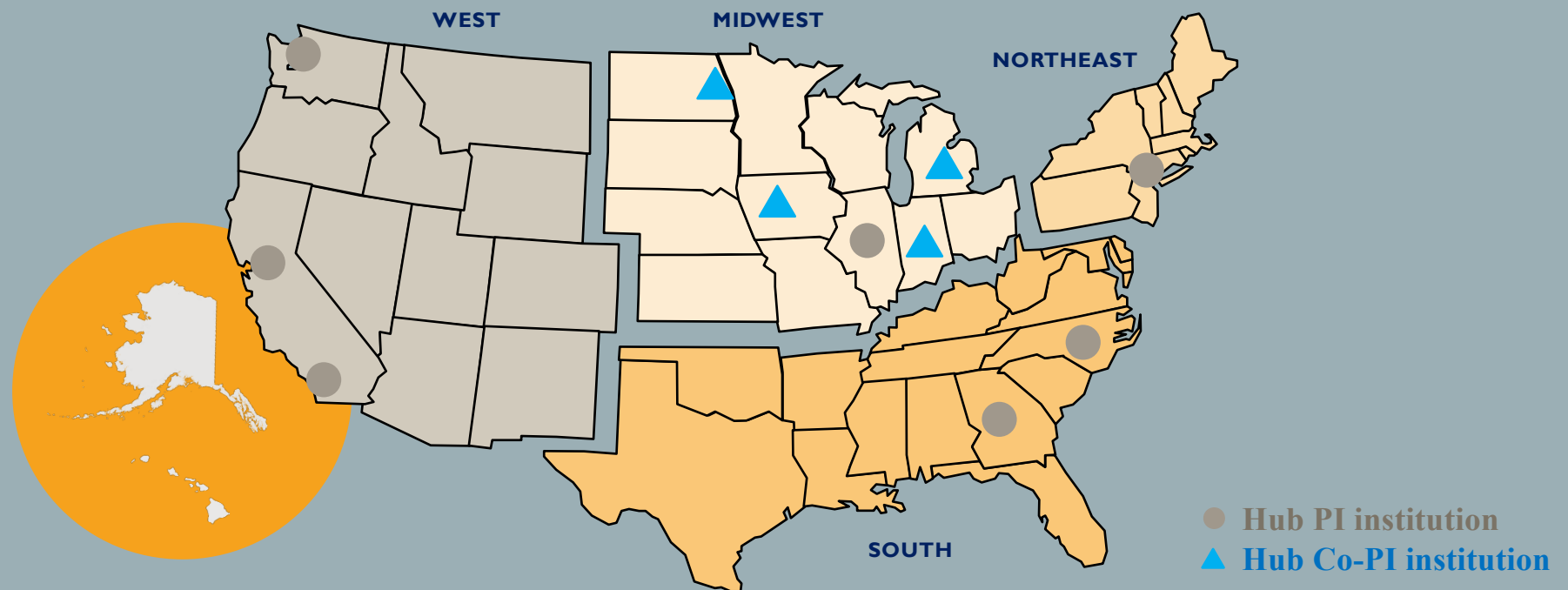
Melissa Cragin, PhD

Executive Director

[#BDHubs](#)

February 26, 2019

Four hubs, one mission.



BUILD + STRENGTHEN PARTNERSHIPS

across industry, academia, nonprofits, government

**to address societal + scientific challenges,
spur economic development,
and accelerate innovation in the national big data ecosystem**

MIDWEST BIG DATA HUB

Accelerating the Big Data innovation ecosystem

- Catalyze new projects – especially to address NSF’s “*Harnessing the Data Revolution*” programs
- Grow our networks of experts, data resources, infrastructure and tools
- Develop collaborations to address regional and national Grand Challenges
- Amplify and develop Data Science education and training activities
- Participate in coordination efforts of the national network of Big Data Hubs



Supported in part by the National Science Foundation (award #1550320).



SECTOR PRIORITIES FOR THE MBDH



Digital Agriculture



Water Quality



**Smart & Resilient
Communities**



Health & Biomedicine



**Materials &
Manufacturing**

Cross-cutting areas

- Data science education and training
- Data Infrastructure: tools, CI, methods & services
- Data policy: access, use, governance

“SPOKE” & PLANNING AWARDS FROM NSF

10 Awards - \$6.3M

- Digital Agriculture - Unmanned Aircraft Systems, Plant Sciences and Education (UND; IA State; GPN; UN-L)
- Collaborative: Advanced Computational Neuroscience Network (ACNN) (UM; OSU; CWRU; UI)
- **Collaborative: Integrative Materials Design (IMaD) - Leverage, Innovate, and Disseminate (UC; UIUC; UM; UW-M; NWU)**
- Collaborative: An Integrated Big Data Framework for Water Quality Issues in the Upper Mississippi River Basin (U. of IA; UIUC; ISU)
- Smart Big Data Pipeline for Aging Rural Bridge Transportation Infrastructure (SMARTI) (UN-O)
- Community-Driven Data Engineering for Substance Abuse Prevention in the Rural Midwest (OSU; Nationwide Children’s Hospital; Wright State; U Chicago)

MATERIALS & MANUFACTURING

Integrative Materials Design (IMaD) Partners

CITRINE INFORMATICS NIST CHIMaD

IMaD - Community Outreach

Disseminate

Stephanie Fox Austin Keating

MEDILL
SCHOOL OF JOURNALISM, MEDIA,
INTEGRATED MARKETING COMMUNICATIONS
Science Communication Program

VIDEOS

IMaD: Materials Data Facility
University of Chicago Professor Logan Ward explains what the Materials Data Facility is, which is part of the Midwest Big Data Spine on Integrative Materials Design, or IMaD.

ACCESS TO LARGE DATASETS
TRANSFORMING MATERIALS SCIENCE
Northwestern Professor Justin Pabst and UIW Medicine Professor Cass Morgan discuss how access to large datasets is transforming materials science.

ACCELERATING MATERIALS DISCOVERY
WITH MICROSCOPES AND BIG DATA
Duke University Professor Catherine Brown and William Horne of Carl Zeiss Microscopy discuss how the Materials Genome Initiative is making data from specialized microscopes available to materials researchers.

CHALLENGES & OPPORTUNITIES
WITH MODERN MATERIALS DESIGN
Three researchers discuss an accelerated materials design kit-down and discuss

- Visit each partner site and create a videos showcasing people, facilities, and data services
- All videos will be available by early Dec.
- Inform the community and public about the materials informatics work being done in the Midwest through videos, news articles, webinars, tutorials, workshops, etc.

Led by [Laura Bartolo](#)



ADV. MATERIALS & MANUFACTURING WG

Mission and purpose: Drive a national agenda

- 2-year Charge:
 - Assessing trends, initiatives, and organizations of relevance to development and sustainability of the MBDH organization;
 - Developing relevant informational summaries and policy recommendations;
 - Communicating data, findings, and policy recommendations to the MBDH leadership, its stakeholders, and the broader big data community.

Co-chairs: Jim Barkley (CEO & Founder, Ekta; formerly UI Labs + DMDII)

Dr. Shiva Sastry (University of Akron Center for Data Science, Analytics and Information Technology; ECE)



DATA SCIENCE EDUCATION & TRAINING

- Midwest Big Data Summer School – IA State
- Data Science Education & Research at PUIs
- Data Carpentry, Meetup groups, webinars
- <http://midwestbigdatahub.org/student-webinar-series/>

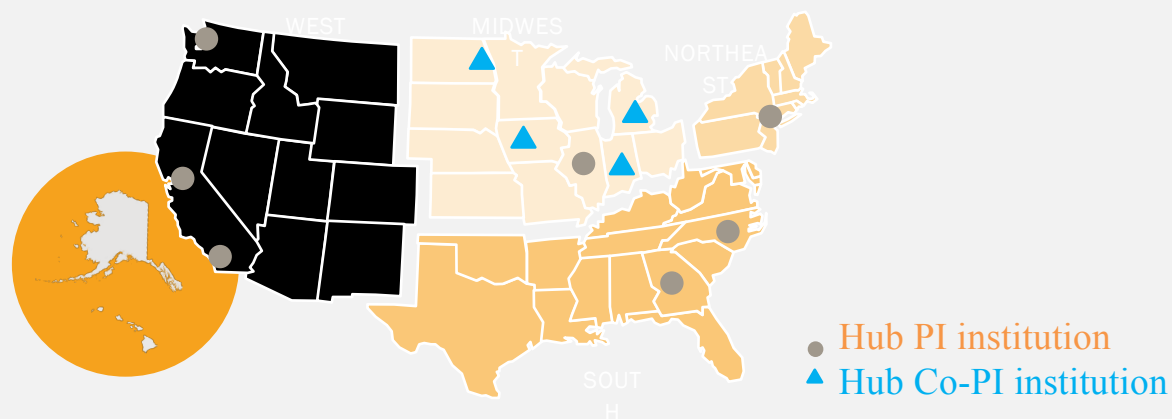


OPPORTUNITIES TO ENGAGE & COLLABORATE

- Participate in MBDH community activities (calls; webinars; meetings; blog)
 - Adv. Mats & Mfg WG - upcoming;
 - Cyberinfrastructure and Data Access & Use
- Cross-cutting technical activities -
 - Best Practices, lessons learned, case studies, and success stories
- Data Carpentry & other training opportunities
- Join the MBDH: Sign-up for our mail list and newsletter - **midwestbigdatahub.org**

ALL HUB INFRASTRUCTURE WORKING GROUP

Co-Chairs: Niall Gaffney (TACC), John Goodhue (MGHPCC),
Christine Kirkpatrick (SDSC), Jim Wilgenbusch (Univ. Minnesota)



Monthly Webinars: 1st Friday/month @12 PM PT

**Opportunities to
present**

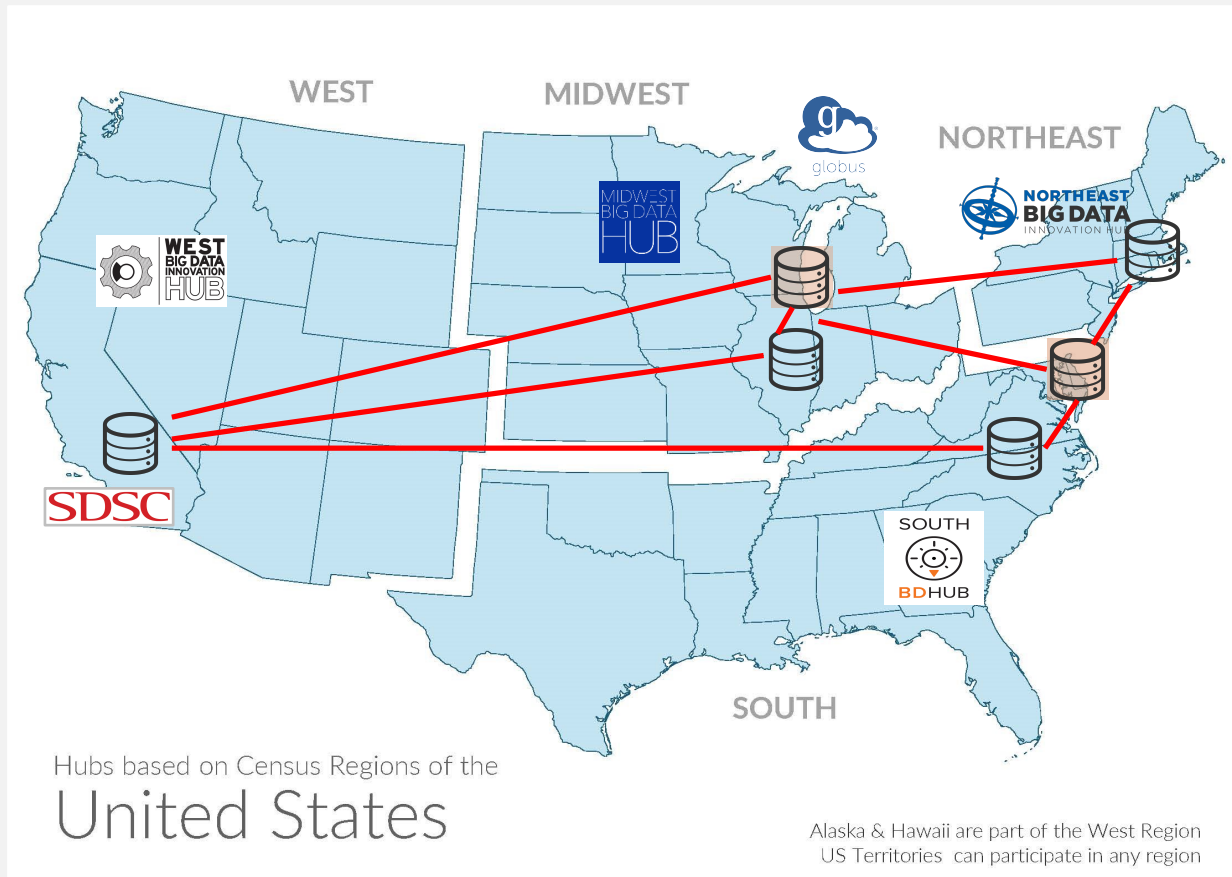
To join, contact Karl Gustafson:
kgustafs@renci.org



OPEN STORAGE NETWORK

Demonstration Project:

- open/distributed storage network
- near computational and networking resources
- Share data with broader scientific community
- Support novel analysis on the data
- Leverage other data services and support



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THANK YOU

Melissa Cragin

info@midwestbigdatahub.org

#bdhubs

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