# April Announcement

Welcome, data science enthusiasts, to April! The DSI is thrilled to announce our Spring Research Workshop on Generative AI, happening May 22nd-24th at the Humphrey Conference Center. Join us for insights into Generative AI's role in healthcare and public policy. Stay tuned for details!

The UMN's Data Science Initiative is your gateway to data science at the University of Minnesota. We're dedicated to tackling global challenges through interdisciplinary research. Have suggestions or want to contribute to our newsletter? Get in touch - let's drive impactful advancements in data science together!

[Visit the DSI Site](#)

The DSI's goals and supporting programs:
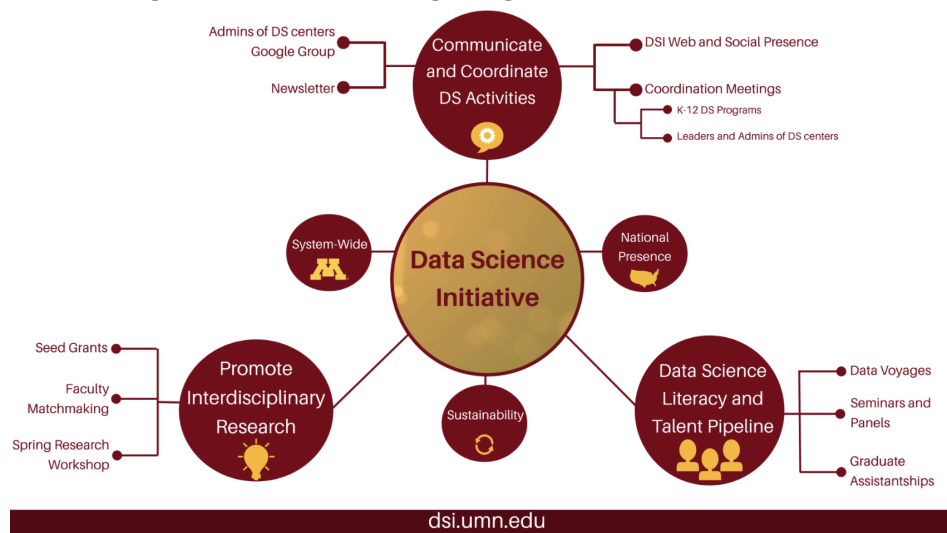
Community Corner: Member/Partner Spotlight
The Data Science Initiative (DSI) regularly features interviews with members of our vibrant data science community, delving into their perspectives on the field and its implications for their careers. This week, we're excited to introduce [Community Member's Name], whose expertise and insights shed light on the evolving landscape of data science. Follow the link to discover their answers to our thought-provoking questions on the intersection of data science and career advancement.

Spotlight on a committee member: **Zhenong Jin - [Spotlight](#)**

What are your current research interests?
How do you define Data Science?
What is an interesting/surprising result you've found in your data?
What are you most excited about in the field of data science in the next 5 years?

In this spotlight on Zhenong Jin, we delve into his pioneering research at the intersection of agricultural science and data science. Zhenong employs a multidisciplinary approach, integrating high-resolution ground and satellite remote sensing, computational modeling, and artificial intelligence (AI) to monitor and manage agricultural production. His work aims to forecast critical agricultural outcomes such as crop yield and environmental impacts, contributing to a sustainable food future. From defining data science in an Earth science context to uncovering intriguing results such as optimizing cashew production in Benin, Zhenong showcases the power of data science in informing sustainable practices. He also highlights revolutionary tools like Google Earth Engine, which democratize access to advanced data science tools, accelerating research in Earth and environmental sciences. Looking forward, Zhenong is excited about the potential of generative data in Earth science, envisioning how AI-driven synthetic datasets can bridge observational gaps and drive innovations in Earth system modeling and environmental management.

Initiative Updates

Featured Article -

Request! Are you interested in or already looking into a UMN-specific instance of a Large Language Model (LLM) like ChatGPT for productivity or research? Email the DSI to join our working group! umn-dsi@umn.edu

Research Spotlight - Seed Grant Awardee
Title: Data Science Methods to Enable Real-world Evidence for Supporting Stroke Care (DRESS)
PI(s): Ju Hou, Margy McCullough-Hicks, Christopher Streib, Ju Sun, Rui Zhang
DSI Track: Digital Health
MnDRIVE Area(s): Brain Conditions
Summary Paragraph: Acute ischemic stroke is a dangerous yet prevalent brain condition that may cause instant death or inflict chronic disability. Using real-world EHRs has been increasingly recognized to supplement randomized clinical trials and accelerate the investigation of treatment response patterns under various disease conditions. To inform therapeutic decisions for acute ischemic stroke, we propose to develop a real-world evidence based precision medicine framework by mining the electronic health records at M Health Fairview. The DRESS team of University of Minnesota researchers combine expertise in vascular neurology, natural language processing, computer vision, deep learning and causal

inference to harness the rich multi-modal data from electronic health records (structured codes, narrative notes, clinical images) to advance the clinical research on acute ischemic stroke. We will develop data science methods in the three independent aims sharing the overarching goal of enabling real-world evidence for supporting stroke care: (Aim 1) curate overall functional outcome in electronic health records; (Aim 2) derive location-sensitive imaging markers for functional outcomes; (Aim 3) assess treatment effect with temporally non-overlapping arms. During the DSI Seed Grant phase, we will establish the research ready M Health Fairview DRESS cohort along with a research pipeline for expanding DRESS to multi-institute consortium.

Events

<u>Upcoming events</u>

- **Panel**: How to write a training grant Date TBD
    If you are interested in joining please let us know <u>here</u>!

- **Hands-On With AI**

    Join us for an upcoming webinar hosted by the DSI on **April 22nd**, from **2:00 p.m. to 3:00 p.m.**

    This workshop series offers an interactive exploration of AI tools in a webinar format. Discover the potential of ChatGPT-style generative AI as we tackle real-world problems together. Gain hands-on experience in prompt generation, refinement, and result evaluation while addressing challenges across research, academics, and administrative tasks. Whether you're a staff member or faculty, this webinar provides an opportunity for collaborative learning and problem-solving.

    Unable to attend the April 22nd session? Let us know your interest on **this form** and we'll keep you informed about future opportunities. Interested in hosting your own? LATIS has developed a facilitator guide, enabling units and others within the University to conduct their own workshops. Let us know you're interested to get started.

    All Staff and Faculty are welcome to participate in this engaging exploration of AI capabilities.

    Register <u>here</u>!

- **Spring Workshop on Generative AI**: foundational issues, and intersections with Public Policy and Societal Impacts, and Health data.

Spring Research Workshop: Generative AI

May 22nd - 24th, 2024
Venue: Humphrey Conference Center

Our spring research workshop on Generative AI aims to foster collaboration and knowledge exchange within the UMN research community.

The workshop will cover:

- May 22nd: GenAI Foundations/Trustworthiness and Capabilities, featuring a keynote address by Xiao-Li Meng
- May 23rd: GenAI and Public Policy and Societal Impacts, featuring a keynote address by Minnesota Secretary of State Steve Simon
- May 24th: GenAI and Health, featuring a keynote address by Lucila Ohno-Machado

We encourage you to mark your calendars and participate in this enriching workshop.

Data Discovery Across Departments

2024 Convene Conference on **April 25th**

Join industry leaders to discuss Minnesota's role as a "Med Tech Hub" and how we can advance it. Gain insights into the latest smart technologies like AI, machine learning, and data science in healthcare. Don't miss the chance to network over lunch!

Register **HERE** or visit the **LINK** for more info.

Midwest Machine Learning Symposium

May 20–21, 2024

The Midwest Machine Learning Symposium, scheduled for May 20–21, 2024, seeks to gather machine learning researchers from the region for engaging discussions and debates, encouraging collaboration across institutions, and highlighting the expertise of ML researchers at various career levels. Esteemed speakers like George Karypis from Amazon and the University of Minnesota, as well as Mikhail Belkin from the University of California San Diego, will be presenting at the Graduate hotels in Minneapolis, MN. For further details, visit the website and secure your spot by registering HERE!

Funding Opportunities and Deadline
If you are interested in any of these or other data science related opportunities and need help organizing your submission or finding the right team please contact us, we're here to help!

- DARPA SURGE: The Structures Uniquely Resolved to Guarantee Endurance (SURGE) program will explore a new approach where the life of every unique part is predicted at the point of production based directly on data captured during manufacturing. Shifting focus from qualifying the machine to assessing each individual part will unlock the full potential of Additive Manufacturing for

distributed production so that any geometry can be produced on any machine, anywhere in the world, at any time, while guaranteeing part life under anticipated service conditions. **Proposers day April 18th, 2024**, BAA will be released in April.

- NIH: Research to Advance the Science of Primary Care. AHRQ is interested in applications to build evidence about the characteristics and value of primary care that influence patient outcomes and advance health equity, such as care coordination, continuity of care, comprehensiveness of care, person-centered whole healthcare, and trust. AHRQ is interested in research that explores how these can be improved, measured, and effectively delivered to strengthen primary care across the lifespan (including perinatal care, pediatric and adolescent health, transition from pediatric to adult care, sexual and reproductive health, women's health, and care of older adults). Coming soon - Spring 2024. First estimated application due date: **Summer 2024**
- NOAA RESTORE - Long-Term Trends in the Gulf of Mexico Ecosystem. This program seeks to conduct a collaborative research project that will identify, track, understand, or predict trends and variability in the Gulf of Mexico's natural resources and the abiotic and biotic factors driving those trends. Three areas of emphasis are Climate Change, Water Quality and Quantity, and Fish, Fisheries, and Fishing Communities. Collection of new or complementary data sets are encouraged. Up to $4 million over 5 years. Letter of Intent due: **May 23, 2024**
- NSF Data Science Corps - This program will help bridge the data-to-knowledge gap in organizations and communities at all levels, including local, state, and national, and will empower better use of data for more effective decision making. Data Science Corps participants will be able to sharpen their skills in data science by working on real-world projects focused on specific community needs, including rural communities, urban communities, academia, industry, or government. The DSI is interested in pursuing the DSC opportunity - if you are interested or have an idea please let us know! Full proposals due **June 21, 2024**

Upcoming deadlines:
- Innovation Impact Case Award: **Deadline: May 6th, 2024**
- NSF: ACED: Accelerating Computing-Enabled Scientific Discovery. Full proposals due **May 13th, 2024**
- DARPA ARC opportunity: QUAntum Materials Engineering using eLEctrOmagNetic fields (QUAMELEON). Abstracts accepted until **June 3, 2024**
- NSF: Developmental Science research. Due **July 30th, 2024** (and also Jan. 30th, 2025)
- NEH: The Dangers and Opportunities of Technology: Perspectives from the Humanities. Due **Sept. 12, 2024**