

University of Virginia

Darden-Data Science Collaboratory (DCADS)

2023 DCADS Research Fellowship Program Overview

Summary

The Darden-Data Science Collaboratory for Applied Data Science (DCADS) is requesting proposals for student-centric, multidisciplinary, research fellowships focused on topics at the intersection of business and data science. Proposed projects may focus on any topic, however, preference will be given to those that address select 2023 Topics of interest.

All UVA faculty are eligible to submit proposals and serve as primary investigators, however preference will be given to those affiliated with Darden or SDS. Practitioners or outside experts may serve as co-investigators, and project teams must include student researchers currently at UVA or newly hired for these roles.

The fellowships will cover faculty and student-centric research activities for a period of 12-24 months up to a total of \$100,000. Funding restrictions apply. Proposed projects must produce academic-quality output that is suitable for dissemination and useful in pursuit of follow-on research funding.

Applications are due 10/15 and DCADS Fellowship recipients will be announced in late Fall 2023.

Several information sessions will be scheduled for interested individuals - please see the 2023 DCADS Fellowship website for details. To request a 1x1 information session, please contact DCADSFellowships@virginia.edu or submit an Information Request on the DCADS Fellowship website.

Information about the 2023 DCADS Fellowship program is also available on the [2023 Fellowships](#) page on the [DCADS website](#).

2023 DCADS Research Fellowship Program

The Darden-Data Science Collaboratory at the University of Virginia invites applications from UVA faculty for the 2023 DCADS Fellows Program. Fellowships are expected to be awarded in Fall of 2023.

The UVA Darden-Data Science Collaboratory is jointly organized by the Darden School of Business and School of Data Science with support from the UVA Office of the Provost. It was established in 2022 with the mission to advance the efforts of the two Schools at the intersection of data science and business, including in research, teaching and learning, and community and corporate engagement. As part of the DCADS mission, a key emphasis is on collaboration across disciplines, including to advance academic research and knowledge creation on timely and important topics where such collaboration may accelerate progress or lead to novel approaches and solutions.

The Fellows program, which will launch for the first time in the fall of 2023, is the primary vehicle to pursue and support collaboration in research. It is designed to support scholars, practitioners and UVA students who are, or intend to be, engaged in research that has beneficial practical outcomes and provides the foundation for substantive work in the future. The Faculty Fellowship program is structured to provide initial funding for work that is conducted within the University of Virginia, as a collaboration among UVA faculty, staff and students, representing multiple disciplines. The program is also open to others in Virginia provided the work is led by UVA affiliated faculty.

We invite all applications covering the broad spectrum of topics at the intersection of data science and business. However, for 2023, we especially encourage proposals that align with one of the following three broad topics:

Bias and Misinformation: exploring algorithms and data-intensive business practices that increase equity and promote truthfulness in business and in society.

Analytical Leadership: managing and leading analytical individuals, high-performing teams, and distinctive organizations in the face of an explosion of data and the near ubiquity of technologies that enable leaders to use or misuse it.

Healthy Choices: understanding and influencing consumer and healthcare professional behavior through interventions, experiments, and analysis using data and technology, with the objective of improving health and better managing care.

Additional information, including examples, for each of these topics is available in the Appendix.

Fellowship Details

The fellowship will support a project at the intersection of business and data science of significance to scholars and practitioners in those domains. The ideal project is aligned with one of the above topics and involves collaboration among multiple disciplines to address a problem or opportunity in a novel way. The intent is to highlight disciplines, develop or apply methods, and pursue approaches that may be unfamiliar or inaccessible in the individual disciplines of data science and management. The goal of the DCADS Fellowship is to produce output that demonstrates the efficacy of such collaboration in identifying novel solutions and unique pathways for continued future research.

Fellow Responsibilities

DCADS Fellowships may include UVA and non-UVA faculty as Faculty Fellows, current and new UVA students as Student Fellows, and non-academic practitioners and other experts as Practitioner Fellows. Proposed projects must be led by a member of the UVA faculty serving as Principal Investigator.

DCADS Fellows will join and have recognized standing as part of the UVA Darden and UVA Data Science communities during the Fellowship.

The primary activities of the Fellows will be those research-related activities that are necessary for completion of the proposed project, including as originally defined and as subsequently modified by agreement during the Fellowship.

Secondary activities may include participation in UVA Darden and UVA Data Science activities (e.g., seminars, classes, meetings, etc), similar engagement with the UVA community at large, including with faculty, students and staff at other UVA schools and units, and inclusion in other UVA activities that are usefully related to the proposed project.

Faculty Fellows will be responsible for overseeing the work of others involved in the proposed project, including Student Fellows (e.g., post-docs, doctoral students, graduate students, etc.), Practitioner Fellows (e.g., individuals from business or other experts, etc.) and staff (e.g., research assistants or support) who may be hired using Fellowship funds.

DCADS Fellows are not expected to be in residence at UVA on a continuous basis. Fellows will be expected to spend 2-3 periods in Charlottesville during the duration of the Fellowship. During the rest of the Fellowship, Fellows must be accessible remotely as necessary to ensure the successful completion of the proposed project. Additional residency in the Charlottesville, Virginia area may be proposed, but Fellowship funding is not available to cover further residency-related expenses.

Fellows are expected to complete the activities and produce the outputs as agreed upon in the project proposal.

Fellows will be required to present their work and/or conduct public and private workshops and participate in related events to further disseminate their work. These may include virtual and/or in-person engagements.

Fellows are expected to be aware of and to adhere to UVA policies and guidelines that are relevant to their work as DCADS Fellows.

Project Guidelines

The proposed project must be led by a UVA faculty member. Additional team members may be affiliated with other academic institutions and/or businesses with a presence in Virginia.

Proposed projects must be new work and not previously completed or published.

Project outputs should include, at a minimum, a paper, article, presentation or other document that is suitable for dissemination to a scholarly audience, such as through a peer-reviewed journal in data science or business, or other venue as proposed and agreed.

Work is expected to be sufficient in quality and other respects so as to be useful in subsequent proposals for funding from public or private sources.

Duration

DCADS Fellowships are generally 18 months in duration, but the duration may be modified to fit the timeline of a proposed project. All proposed activities and outputs are expected to be completed during the duration of the Fellowship.

Compensation

The funds for the fellowships are provided by the UVA School of Data Science from research funds provided by foundation and corporate supporters. Each fellowship will receive a maximum of \$100,000 in total funding. Of this amount, \$75,000 must be used for student-related expenses, including funding Student Fellows such as existing or new student researchers (post-doc, phd, masters), covering student travel, conference fees, etc and providing necessary resources such as data, software, training, compute, storage, etc. In addition, applicable fringe will also be covered. The remaining \$25,000 can be used for any project-related expense at the Principal Investigator's discretion. All funds must be utilized as described in the submitted and accepted fellowship proposal.

Questions regarding funding may be asked prior to submission as well.

Qualifications

For Faculty: Any full-time faculty member from the University of Virginia with any school or department and of any academic rank. Faculty in the fields of data science or business will be given preference, as will collaborations between faculty representing multiple disciplines.

For Non-faculty: Experienced practitioners and other non-academic professionals with more than 10 years of experience in data science or business. UVA Darden and UVA Data Science alumni will be given preference.

DCADS Fellows must meet UVA work eligibility requirements.

Application Instructions

Anyone may nominate candidate(s) for the DCADS Fellowship and direct applications from qualified individuals are encouraged.

Nomination

To nominate someone else for the DCADS Fellowship, please email the following to DCADSFellowships@virginia.edu:

1. Your name and contact information,
2. The Nominee's name and contact information,
3. A short statement (500 words max.) of why you are making this nomination and what you expect the nominee will contribute if selected for this Fellowship.

A DCADS representative will review all nominations and invite qualified individuals to submit an application for the Fellowship.

Nomination deadline: August 31, 2023

Application

To apply for the DCADS Fellowship, individuals must submit the following information using the Apply Now link on the DCADS Fellowship website:

1. An abbreviated CV (3-pages maximum) for each proposed Faculty member,
2. A project proposal that addresses the following at a minimum (5 pages maximum)
 - a. An overview of your proposed project,
 - b. A summary of the plan, timing and approach that you intend to follow,
 - c. A preliminary list of the resources (e.g., data, computing, research staff, etc.) you require,
 - d. What type of UVA student resources (e.g., Post-doc, PhD, Masters) you intend to use,
 - e. What work and other activities you expect the student(s) to perform in the project,
 - f. Outputs and end-products that you will produce,
 - g. Potential avenues to disseminate your work,
 - h. Potential opportunities to extend or expand this work using other sources of funding.
3. A personal statement that addresses the following at a minimum (2 pages maximum)
 - a. Why you are a good candidate for the Fellowship and a strong fit with the University of Virginia Darden-Data Science Collaboratory (DCADS),
 - b. Why this Fellowship and the UVA Darden-Data Science Collaboratory represent a uniquely compelling opportunity for you,
 - c. How this Fellowship supports your current professional activities, and what difference it may make to your future plans.

Application deadline: October 15, 2023

Successful candidates will be expected to provide a letter of support from their current unit/manager, as well as professional and personal references prior to the final acceptance of the Fellowship.

Additional Information

The **UVA Darden-Data Science Collaboratory for Applied Data Science in Business (DCADS)** is an academic center at the University of Virginia that was formed in 2022 by the Darden School of Business and the School of Data Science. It serves as a vehicle to advance the efforts of the two Schools at the intersection of data science and business. DCADS will explore harnessing data science capabilities and applying them effectively to address challenges and opportunities in business, with an unwavering commitment to ethical practices and a clear recognition that leadership remains an active ingredient in transformative change. DCADS mission is to advance the knowledge creation, teaching, and practice of management through the application of data science to the most significant opportunities and challenges in business, in Virginia and globally. DCADS will do this through a collaborative, interdisciplinary approach, an unshakable grounding in business ethics, and a differentiating emphasis on analytical leadership.

The **School of Data Science** is UVA's 12th school and the first established since 2007. It will position the University as a global leader in efforts to improve society through teaching and research based on the powerful, emerging field of data science. It builds on a foundation set in place at UVA by the Data Science Institute (DSI), a pan-University institute established in 2013 that grants graduate degrees and has a dual mission in education and research. The new School of Data Science will be a school without

walls and seeks to establish new and exciting types of relationships with the private sector. The work crosses disciplines, departments, schools and colleges to leverage UVA's combined capabilities in data science, and to create meaningful partnerships with government, corporate, and community partners committed to responsible, collaborative, open, and inclusive data science.

The **Darden School of Business** is a top-rated global business school with a mission to improve the world by developing responsible leaders through unparalleled transformational learning experiences. Through degree and non-degree programs, delivered by the world's best faculty and bolstered by their research and ideas, we put personal purpose in motion, setting the stage for a lifetime of career advancement and impact.

The **University of Virginia** is regarded as one of the nation's finest public universities. Charlottesville is consistently ranked among the best places to live in the United States. See the UVA website for more information about the University, its Schools and units, and the surrounding Charlottesville area.

Required Statements

The University of Virginia, including the UVA Health System which represents the UVA Medical Center, Schools of Medicine and Nursing, UVA Physician's Group and the Claude Moore Health Sciences Library, are fundamentally committed to the diversity of our faculty and staff. We believe diversity is excellence expressing itself through every person's perspectives and lived experiences. We are equal opportunity and affirmative action employers. All qualified applicants will receive consideration for employment without regard to age, color, disability, gender identity or expression, marital status, national or ethnic origin, political affiliation, race, religion, sex (including pregnancy), sexual orientation, veteran status, and family medical or genetic information.

Appendices

- A. [2023 Focus Topic: Bias and Misinformation in Business](#)
- B. [2023 Focus Topic: Analytical Leadership](#)
- C. [2023 Focus Topic: Healthy Choices](#)

Appendix A

University of Virginia Darden-Data Science Collaboratory (DCADS)

2023 Focus Topic

Bias and Misinformation in Business

*Exploring algorithms and data-intensive business practices
that increase equity and promote truthfulness in business and in society.*

The University of Virginia's Darden-Data Science Collaboratory for Applied Data Science in Business (DCADS) is sponsoring a research fellowship to explore the challenges posed by bias and misinformation to business and society and consider the opportunities afforded by application of data and technology to assist in understanding, identifying, and mitigating its harmful impacts.

This topic is timely given recent controversies over covid-19, fake news and election interference, and the growing debate over how and to what extent businesses should play a more active role in addressing the sources and accelerants at work in the information domain.

The use of data and technology to identify biased or inaccurate information, prevent its creation, limit its propagation, and ameliorate its harms at a meaningfully large scale, in the modern business context, affords unique benefits for individuals, businesses, and society. In this context, the use of data and technology can enable:

- individuals to recognize biased or inaccurate information and react appropriately to minimize its spread and mitigate its negative consequences,
- businesses to operate in ways that minimize the production and dissemination of biased or inaccurate information through management policy, process and practice,
- society to sustain the open, productive, and peaceful exchange of ideas and information necessary to nourish and advance a free, just and equitable society.

The Fellowship in Bias and Misinformation in Business is intended to support multidisciplinary research efforts by scholars and/or practitioners from a variety of disciplines, including data science, business, journalism, communication, law, and media, that addresses the problem of bias and misinformation.

The work may cover topics such as data science methods for detecting misinformation, the impact of bias and misinformation on business and the economy, and ways to educate people about avoiding false information. Several representative examples of topics that are of interest are shown below. These examples may be incorporated in DCADS Fellowship proposals, but they are listed here primarily to serve as guidance. They are not intended to limit the scope or focus of proposed research in any way. Examples include:

1. **Interventions to counter misinformation:** Explore how we can best measure the relative benefits and consequences of interventions to counter misinformation or provide access to authoritative content.

2. **Information processing on social media platforms:** Explore the social, psychological, and cognitive variables involved in the consumption of “grey area” content experiences – sensational, provocative, divisive, hateful, misleading, polarizing, or biased information – received and produced on social media platforms.
3. **Violence and incitement, hateful and/or graphic content:** Examine how people and organizations are leveraging social media to organize and potentially influence intergroup relations in their constituencies.
4. **Misinformation across formats:** Investigate the role of non-textual media (images, videos, audio, etc.) on the effectiveness of and people's engagement with misinformation. This area includes basic multimedia like infographics, memes, and audio, compared to more-complex video and emerging technological advances.
5. **Trust, legitimacy, and information quality:** Examine social media users’ exposure to, interaction with, and understanding of qualities of information, especially their attitudes and interpretations of information quality, trust, and bias.
6. **Coordinated harm and inauthentic behavior:** Inspect information practices and flows across multiple communication technologies or mediums.
7. **Digital literacy, demographics, and misinformation:** Explore the relation between digital literacy and vulnerability to misinformation in communication technologies.

Appendix B

University of Virginia Darden-Data Science Collaboratory (DCADS)

2023 Focus Topic

Analytical Leadership in Business

Managing and leading analytical individuals, high-performing teams, and distinctive organizations in the face of an explosion of data and the near ubiquity of technologies that enable leaders to use or misuse it.

The University of Virginia's Darden-Data Science Collaboratory for Applied Data Science in Business (DCADS) is sponsoring a research fellowship to advance our understanding of business leadership in a future where data and technology are pervasive and analytical expertise is necessary for individual and organizational success.

The explosive growth¹ of data and technology presents challenges and opportunities to leaders in all fields. In medicine, physician leaders must master new sources such as genomic data and integrate disparate information from electronic health records in the exam room to deliver evidence-based care. In government, civic leaders are faced with mountains of information from inside and outside government on every substantive issue and subjected to perceptions that spread with lightning speed among constituents, regardless of their accuracy. In law, legal leaders apply new tools which increase fairness but have unintended consequences that are poorly understood and navigate laws and regulations from another era that are wholly inadequate in today's data and technology-intensive world. Similarly in business, corporate leaders must deal with myriad impacts² of this heretofore unchecked explosion.

In business, the explosion of data and technology has changed nearly every major activity, from marketing and selling to customers, sourcing materials and producing products, managing investment and financial resources, and hiring, developing and evaluating employees, to the very fundamental actions of communicating, managing, and making decisions every day. In many ways, the very nature of business leadership may be changing as a result of the volume of data produced by, or available to, leaders in business and the near ubiquitous access to the technology tools needed to use or misuse it.

The DCADS Fellowship in Analytical Leadership is designed to foster exploration of the leadership challenges and opportunities that result from these dramatic changes with an emphasis in two areas - leading analytics and leading analytically.

Leading analytics should explore the leadership of analytical functions and departments in a corporate setting. This responsibility is increasingly in the hands of a designated executive, often titled Chief Analytics Officer or Chief Data Officer, which is a defined role at slightly more than half³ of Fortune 1000 companies. Understanding the unique leadership challenges of this new role and the essential characteristics and behaviors of the leaders who fill it successfully is an important focus.

¹ [Total data volume worldwide 2010-2025 | Statista](#)

² [How to build a data analytics dream team | MIT Sloan](#)

³ [NewVantage Partners Big Data and AI Executive Survey 2019](#)

Leading analytically should examine the changing nature of business leadership, in its many and varied forms and levels, in a world where data and technology are ubiquitous and essential to business success. In taking a broader look at business leadership as a discipline, the impact of data and technology should be considered in the context of established approaches to understanding the topic of leadership and through new avenues of inquiry that are uniquely suited to address the dramatic changes that are taking place.

The Fellowship in Analytical Leadership is intended to support multidisciplinary research efforts by scholars and/or practitioners from a variety of disciplines, including data science, leadership, management, economics, psychology, public policy, and business, focused on the problems and opportunities of analytical leadership.

Several representative examples of topics that are of interest are shown below. These examples may be incorporated in DCADS Fellowship proposals, but they are listed here primarily to serve as guidance. They are not intended to limit the scope or focus of proposed research in any way. Examples include:

1. **CAO/CDO Role, Organization, and Relationships:** Examine contemporary role design, organization structure, and formal and informal relationships and their association with success of analytical individuals, teams and organizations.
2. **Profile and Preparation of Successful Analytical Leaders:** Explore the characteristics of successful analytical leaders, including personal attributes, education, experience, and others, and identify drivers of and pathways to success.
3. **Existing Theories of Leadership or New Approaches Needed:** Assess existing theories of leadership to determine how and to what extent they consider the impact of data and technology competencies on leader behavior and success. Suggest novel new approaches that may better explain the path to successful analytical leadership.
4. **Becoming Analytical:** Understanding the journey to embrace analytical competencies and transform the way leaders think, work, and make decisions, at multiple levels including the individual, team and enterprise.

Appendix C

University of Virginia Darden-Data Science Collaboratory (DCADS)

2023 Focus Topic

Healthy Choices

Understanding and influencing consumer and healthcare professional behavior through interventions, experiments, and analysis using data and technology, with the objective of improving health and better managing care.

The University of Virginia's Darden-Data Science Collaboratory for Applied Data Science in Business (DCADS) is sponsoring a research fellowship to advance our understanding of why and how people in the United States make decisions related to their health, and how we can effectively, ethically, and safely influence those decisions in ways that benefit the individual, the healthcare system, and the nation.

The healthcare system in the United States is expensive, with spending averaging more than \$11,500 per capita and totaling 16.8% of GDP in 2019, exceeding the OECD averages of \$4,087 and 8.8% respectively.⁴ In addition, investment in medical and health research and development exceeded \$194 billion in 2019, or about 1% of US GDP.⁵ Despite spending and investment that far exceed the rest of the world, life expectancy in the United States is 78.7 years at birth and ranks 26th of 37 OECD countries.⁶ While some Americans lack access to the care they need to be their healthiest, many have most or all of the tools that are required, including some of the best nurses, doctors, tests and treatments in the world. The same is true of many other determinants of health. Many, but not all, Americans also have access to clean water and air, healthy food, sufficient shelter and protection from harm, and the opportunity to be active and social.

So, why aren't Americans the healthiest and longest lived in the world? And why isn't the system of healthcare in the United States the model for all others? Among the factors that contribute to this underperformance is one that is both simple and complex; at once, easy to grasp and nearly impossible to understand. Americans are not the healthiest people in part for a very different reason – because we choose not to be. All too often, we choose to behave in ways that diminish our health or not to behave in ways that would improve it. These seemingly irrational behaviors are the focus of the DCADS Fellowship in Healthy Choices. By understanding why individuals make these choices, how those decisions spread, and the ways we can influence them at a meaningfully large scale, this initiative will help to improve individual health and increase the business performance of the healthcare system, benefitting UVA, the Commonwealth and the Nation.

Understanding the social, economic, and community determinants of health-related choices may allow prediction, detection and targeted intervention to treat the kinds of acute emergencies or chronic health

⁴ OECD (2022), Health spending (indicator). doi: 10.1787/8643de7e-en (Accessed on 29 September 2022)

⁵ ResearchAmerica (Fall 2019). *U.S. Investments in Medical and Health Research and Development, 2013 - 2018*. ResearchAmerica. https://www.researchamerica.org/wpcontent/uploads/2022/09/InvestmentReport2019_Fnl.pdf (Accessed on 29 September 2022)

⁶ United Health Foundation (2020). *International Comparison*. America's Health Rankings. Retrieved September 29, 2022, from <https://www.americashealthrankings.org/learn/reports/2020-annual-report/international-comparison>.

crises and disparities that threaten the well-being of individuals, the vibrancy of our communities, and the viability of our healthcare system.

The Fellowship in Healthy Choices is intended to support multidisciplinary research efforts by scholars and/or practitioners from a variety of disciplines, including data science, business, economics, psychology, public policy, and medicine focused on the problems and opportunities of decision-making in healthcare.

The work may cover topics such as data science methods for modeling health-related choice behavior, the diffusion of such decisions through families, communities, workplaces and other social networks, and informational and other interventions enabled by contemporary digital technologies.

Several representative examples of topics that are of interest are shown below. These examples may be incorporated in DCADS Fellowship proposals, but they are listed here primarily to serve as guidance. They are not intended to limit the scope or focus of proposed research in any way. Examples include:

1. **Health-related decisions at the individual level:** Explore how people make decisions about their health, well-being, and care, using contemporary choice modelling approaches that apply new data science methods and extend our ability to understand and predict choice among individuals.
2. **The diffusion of health-related decisions through networks:** Examine the network effects by which individual choices influence the decisions of others in families, communities, workplaces and other social networks, and result in aggregate outcomes at a scale that matters to the healthcare system.
3. **Interventions that influence health-related behavior:** Design, test and evaluate informational and other individual interventions in the field or in virtual and simulated environments to demonstrate and measure the positive health and financial impact these efforts can have on individuals, groups, and on the healthcare system overall.