

UK LIBRARIES: SERVICES AND PERSPECTIVES ON RESEARCH DATA

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Research Review

```
graph LR; A[Research Review] --- B[Literature Review]; A --- C[Scoping Review]; A --- D[Systematic Review];
```

Literature Review

- ▶ Written summary and evaluation of what is known about a topic
- ▶ Iterative process commonly used for bibliographies

Scoping Review

- ▶ Preliminary assessment of the size and scope of available literature
- ▶ Map existing evidence w/out synthesizing findings

Systematic Review

- ▶ Analyze and synthesize many studies, well-documented and unbiased
- ▶ Reproducible methodology, assesses the validity of the findings

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- [IEEE Xplore](#)  
The IEEE Xplore digital library is a powerful resource for discovery of scientific and technical content published by the IEEE (Institute of Electrical and Electronics Engineers) and its publishing partners.
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STEM Librarian



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she/her

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RESEARCH-ARTICLE

August 2020



[Overview of Container Cloud Task Scheduling](#)

[Cai Zhiyong](#), [Xie Xiaolan](#)

AICScnf '20: Proceedings of the 2020 Artificial Intelligence and Complex Systems Conference • August 2020, pp 50–55 • <https://doi.org/10.1145/3407703.3407714>

With the rapid development of cloud computing, virtualization technology represented by container technology is gradually replacing the original virtual machine technology. Introducing the container cloud and its main research direction. Starting from ...

0 225 | [Highlights](#)



RESEARCH-ARTICLE

OPEN ACCESS

January 2024



[Taming Algorithmic Priority Inversion in Mission-Critical Perception Pipelines](#)

[Shengzhong Liu](#), [Shuochao Yao](#), [Xinzhe Fu](#), [Rohan Tabish](#), [Simon Yu](#), [+ 4](#)

Communications of the ACM (CACM), Volume 67, Issue 2 • February 2024, pp 110–117 • <https://doi.org/10.1145/2610801>



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Taming Algorithmic Priority Inversion in Mission-Critical Perception Pipelines

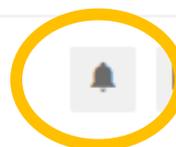
Authors: [Shengzhong Liu](#), [Shuochao Yao](#), [Xinzhe Fu](#), [Rohan Tabish](#), [Simon Yu](#), [Ayoosh Bansal](#),
 [Heechul Yun](#), [Lui Sha](#), [Tarek Abdelzaher](#) [Authors Info & Claims](#)

Communications of the ACM, Volume 67, Issue 2 • pp 110–117 • <https://doi.org/10.1145/3610801>

Published: 25 January 2024 [Publication History](#)



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f the

Abstract

The paper discusses *algorithmic priority inversion* in mission-critical machine inference pipelines used in modern neural-network-based perception subsystems and describes a solution to mitigate its effect. In general, *priority inversion* occurs in computing systems when computations that are "less important" are performed together with or ahead of those that are "more important." Significant priority inversion occurs

xt →

ACM Transactions on Computational Logic



ACM Transactions on Computational Logic (TOCL) is devoted to research concerned with all uses of logic in computer science. Logic continues to play an important role in computer science and permeates many of its areas including: artificial intelligence, computational complexity, database systems and programming languages.

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 2023 Proceeding

General Chairs:  [Andrea Bartolini](#),  [Kristian Rietveld](#), [+ 2](#)

Publisher: Association for Computing Machinery, New York, NY, United States

Conference: CF '23: 20th ACM International Conference on Computing Frontiers • Bologna Italy • May 9 - 11, 2023

ISBN: 979-8-4007-0140-5

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RESEARCH-ARTICLE

OPEN ACCESS

February 2024



An Analysis of Various Design Pathways Towards Multi-Terabit Photonic On-Interposer Interconnects

[Venkata Sai Praneeth Karempudi](#), [Janibul Bashir](#), [Ishan G. Thakkar](#)

ACM Journal on Emerging Technologies in Computing Systems (JETC), Volume 20, Issue 2 • Article No.: 6, pp 1-34 • <https://doi.org/10.1145/3635031>

In the wake of dwindling Moore's Law, to address the rapidly increasing complexity and cost of fabricating large-scale, monolithic systems-on-chip (SoCs), the industry has adopted dis-aggregation as a solution, wherein a large monolithic SoC is ...

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RESEARCH-ARTICLE

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January 2024



Design and Validation of a Virtual Reality Mental Rotation Test

[Kristin A. Bartlett](#), [Almudena Palacios-Ibáñez](#), [Jorge Dorribo Camba](#)

ACM Transactions on Applied Perception (TAP), Volume 21, Issue 2 • Article No.: 5, pp 1-22 • <https://doi.org/10.1145/3626238>

Mental rotation, a common measure of spatial ability, has traditionally been assessed through paper-based instruments like the Mental Rotation Test (MRT) or the Purdue Spatial Visualization Test: Rotations (PSVT:R). The fact that these instruments present ...

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ARTICLE

January 1997



An evaluation of the real-time performances of SVR4.0 and SVR4.2

[Sherali Zeadally](#)

ACM SIGOPS Operating Systems Review (SIGOPS), Volume 31, Issue 1 • Jan. 1997, pp 78–87 • <https://doi.org/10.1145/254784.254797>

UNIX is one of the most widely used operating systems on current workstations. However, UNIX was originally designed as a multitasking and time-sharing system with little concern for supporting real-time applications. Recent versions of UNIX have ...

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September 2014



Online deception in social media

[Michail Tsikerdekis](#), [Sherali Zeadally](#)



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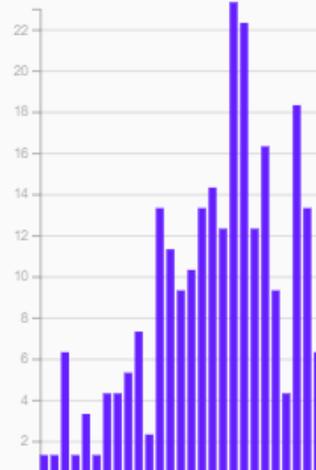
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Colleague Collaboration

Naveen K Chilamkurti	17
Debiao He	16
Quan Z. Sheng	12
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Farhan Siddiqui	9
Neeraj Suresh Kumar	8
Abdelhamid Mellouk	7



EndNoteTM

- Share references and work collaboratively with other EndNote users
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- Annotate PDFs
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The screenshot displays the EndNote 21 interface. On the left is a navigation pane with sections like 'MY GROUPS', 'MY TAGS', and 'ONLINE SEARCH'. The main area shows a search for 'engineering librarianship' with a table of results. The selected reference is expanded to show its details.

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Giles, Kelly; Price, Eliza...	2020	H...	2020 ASEE Virtual Annual Conferen...	1/17/2024	Conference Proce
Guo, Wenxiao	2023	D...	23rd IFToMM China International C...	1/23/2024	Conference Proce
Lalwani, Leena N.; Alle...	2022	P...	129th ASEE Annual Conference and...	1/17/2024	Conference Proce
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 Lalwani, 2022 #32 [Summary](#) Edit PDF
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Preparing the Engineering Library of the Future: Changing Services, Structures, Staffing, and Resources - A Case Study
 L. N. Lalwani and N. J. Allee
 129th ASEE Annual Conference and Exposition: Excellence Through Diversity, ASEE 2022, June 26, 2022 - June 29, 2022
 Minneapolis, MN, United states 2022
 Publisher: American Society for Engineering Education

Text Snippet:
 Engineering libraries have been transforming spaces for the last 20+ years by moving collections to a digital environment, having more collaborative learning spaces and integrating innovative resources like maker spaces. This led to changes in the long-standing interactions with the College of Engineering (CoE) and the library as more content is available online, and library users no longer have to come to the library in person to access the library collections. Librarians are engaged in new service models, and staff are no longer visible in locations like reference and informatics desks. The library is also adjusting to organizational changes brought about by the pandemic as well as planned transitions, such as Engineering subject liaisons becoming organizationally aligned as HS-STEM, spanning the disciplinary boundaries of Health Sciences and Science, Technology, Engineering, & Mathematics, within the new Research Division. Organizational changes have allowed not only the closer examination of library services and resources but also the re-envisioning of how the library engages with the campus and how collaboration works within the team of HS-STEM and the Research Division. HS-STEM has requested and acquired new positions such as the Biomedical Engineering librarian, the Council of Library and Information Resources (CLIR) Fellow, and the new management position of Associate Director, Engineering Librarian. Re-engagement was established with the Engineering Library Faculty Advisory Committee, and an engineering librarian has been appointed to the CoE Curriculum Committee. This transformation facilitated innovative, team-based collaborations at HS-STEM for Collections, Grant Funding, Research Impact, and Informatics, serving our HS-STEM clientele. The process began with



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 Adobe Creative Cloud is a set of applications and services that gives subscribers access to a collection of software used for graphic design, video editing, web development, photography, along with a set of mobile applications and also some optional cloud services.

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 **ArcGIS**
 ArcGIS is a geographic information system (GIS) for working with maps and geographic information, it provides contextual tools for mapping and spatial reasoning so you can explore data and share location-based insights.

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 **EndNote**
 EndNote is a reference management software that simplifies publishing and managing citations, references, and bibliographies.

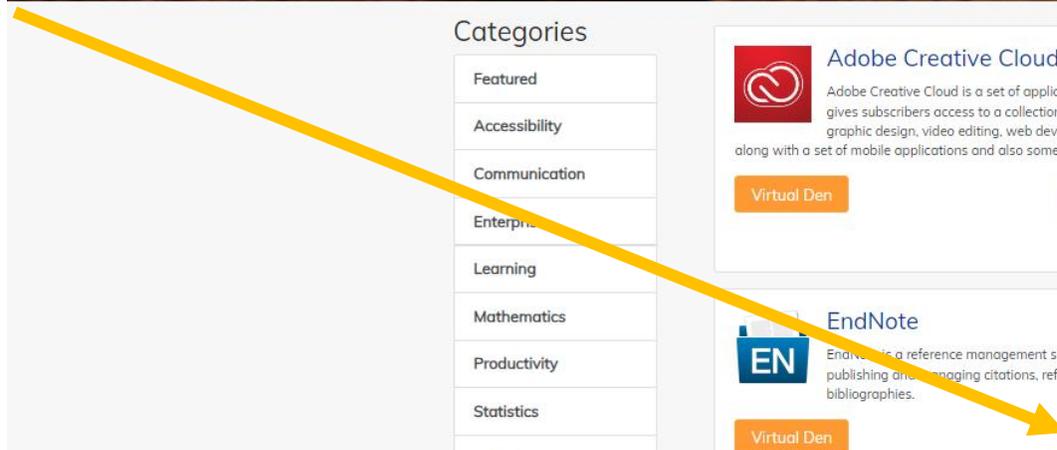
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 **IBM SPSS Statistics**
 IBM SPSS Statistics is the world's leading statistical software used to solve such business and research problems by means of ad-hoc analysis, hypothesis testing, geospatial analysis and predictive analytics. Organizations use IBM SPSS Statistics to understand data, analyze trends, forecast and plan to validate assumptions and drive accurate conclusions.

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THE NEW FUNDER LANDSCAPE FOR DATA SHARING

In August 2022, the Office of Science and Technology Policy released a memo directing funding agencies to promote public access to the products of federally funded research by requiring researchers to:

- Make scholarly publications freely available without embargo
- Make research data freely available
- Attach specific metadata to research outputs to promote access and discoverability

For major funders, these new policies must start going into effect at the start of 2026.

THE NEW FUNDER LANDSCAPE FOR DATA SHARING

“Scientific data include the recorded factual material commonly accepted in the scientific community as of sufficient quality to validate and replicate research findings.”

“Such scientific data do not include laboratory notebooks, preliminary analyses, case report forms, drafts of scientific papers, plans for future research, peer-reviews, communications with colleagues, or physical objects and materials, such as laboratory specimens, artifacts, or field notes.”

“Scientific data underlying peer-reviewed scholarly publications resulting from federally funded research should be made freely available and publicly accessible by default at the time of publication,” and data produced as part of federally funded research that does not result in publication should be shared as well.

THE NSF'S DRAFT PUBLIC ACCESS PLAN

NSF Public Access Plan 2.0:

“To ensure that funded researchers have considered data deposition and appropriate repositories, **NSF plans to more explicitly and systematically require researchers to include**, as part of these [data management and sharing plans], **details about how the data produced will be shared publicly** and with other researchers **and anticipated repositories for the data**, and to **ensure that costs associated with the chosen repository are reflected in the proposal budget request.**”

A similar data management and sharing policy is already in effect for NIH grants.

HOW DOES DATA GET SHARED?

There is a strong funder preference for sharing data in established data repositories.

May be discipline-specific (such as the NCBI's Sequence Read Archive) or generalist (Dryad, Figshare, Zenodo, Dataverse, etc.).

Insufficient forms of data sharing:

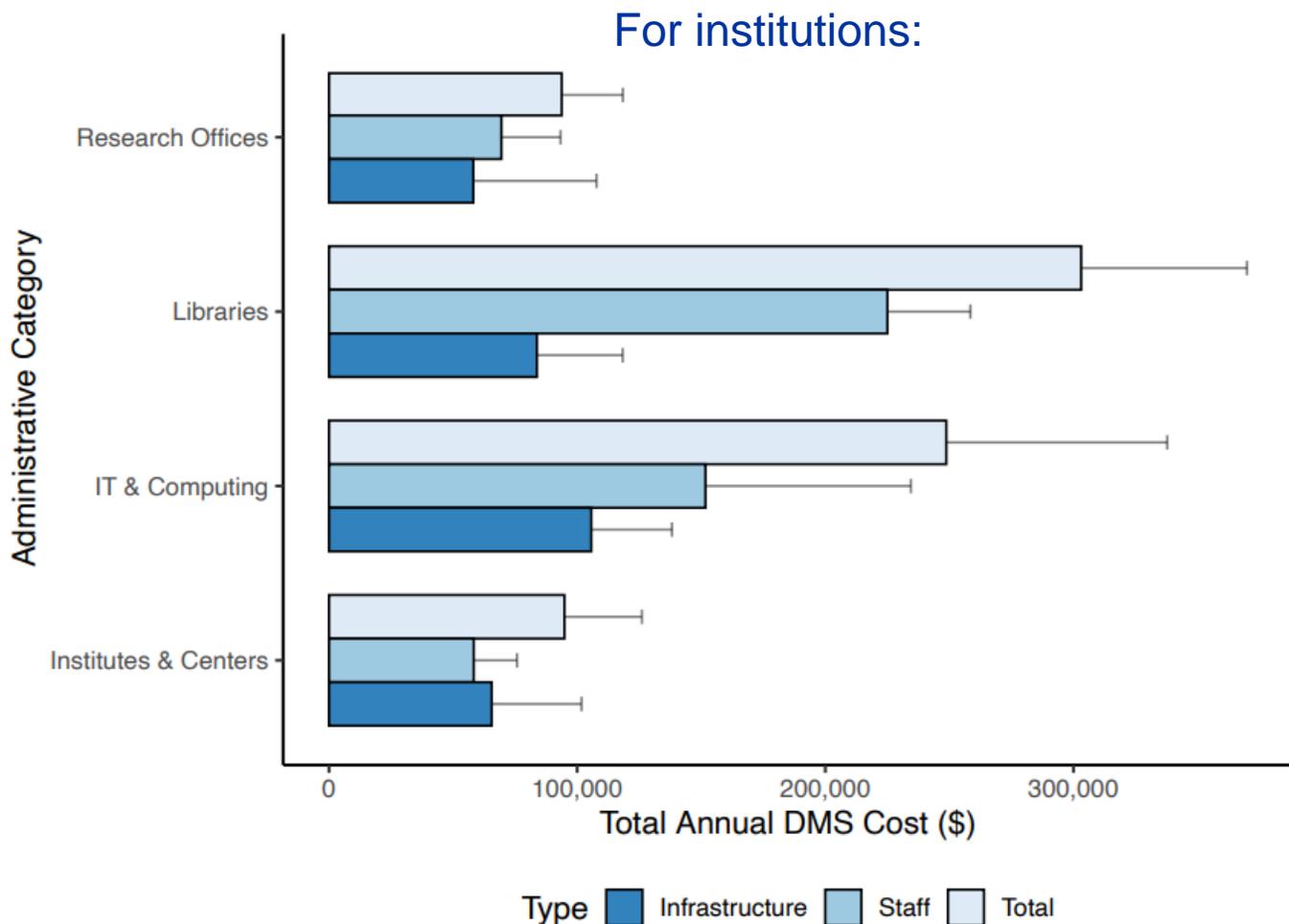
- Stating that data can be accessed by contacting the PI/other researcher
- Hosting data in LabArchives
- Only sharing representations of data, such as charts

DESIRABLE CHARACTERISTICS OF DATA REPOSITORIES

- Unique persistent identifiers (such as DOIs)
- Free and easy access for users
- Documented risk management practices
- Retention policy (clear statement of how long data will be accessible)
- Robust metadata for discovery, reuse, and citation
- Curation and quality assurance

[Desirable Characteristics of Data Repositories for Federally Funded Research](#)
From the National Science and Technology Council

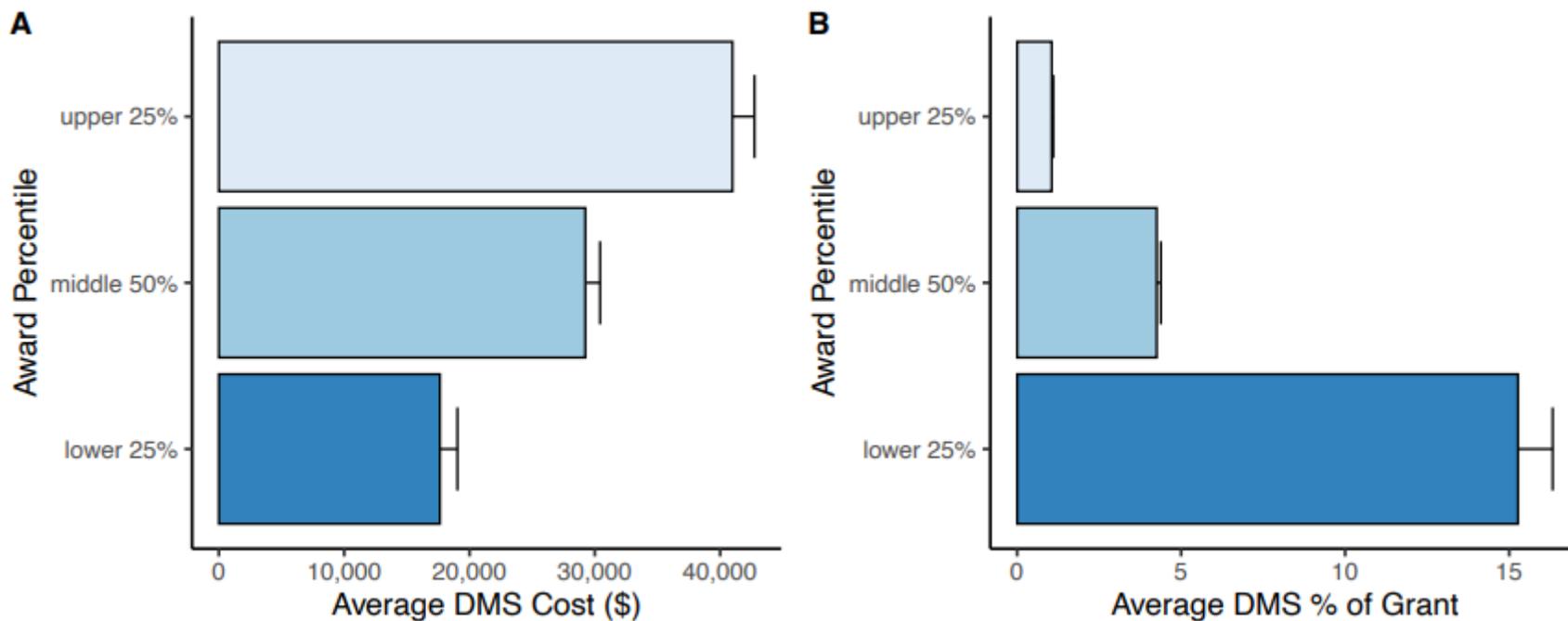
BUDGETING FOR DATA MANAGEMENT AND SHARING ACTIVITIES



Hofelich Mohr, Alicia, et al. Making Research Data Publicly Accessible: Estimates of Institutional & Researcher Expense. Washington, DC: Association of Research Libraries, February 2024. <https://doi.org/10.29242/report.radsexpense2024>

BUDGETING FOR DATA MANAGEMENT AND SHARING ACTIVITIES

For researchers:



Hofelich Mohr, Alicia, et al. Making Research Data Publicly Accessible: Estimates of Institutional & Researcher Expense. Washington, DC: Association of Research Libraries, February 2024. <https://doi.org/10.29242/report.radsexpense2024>.

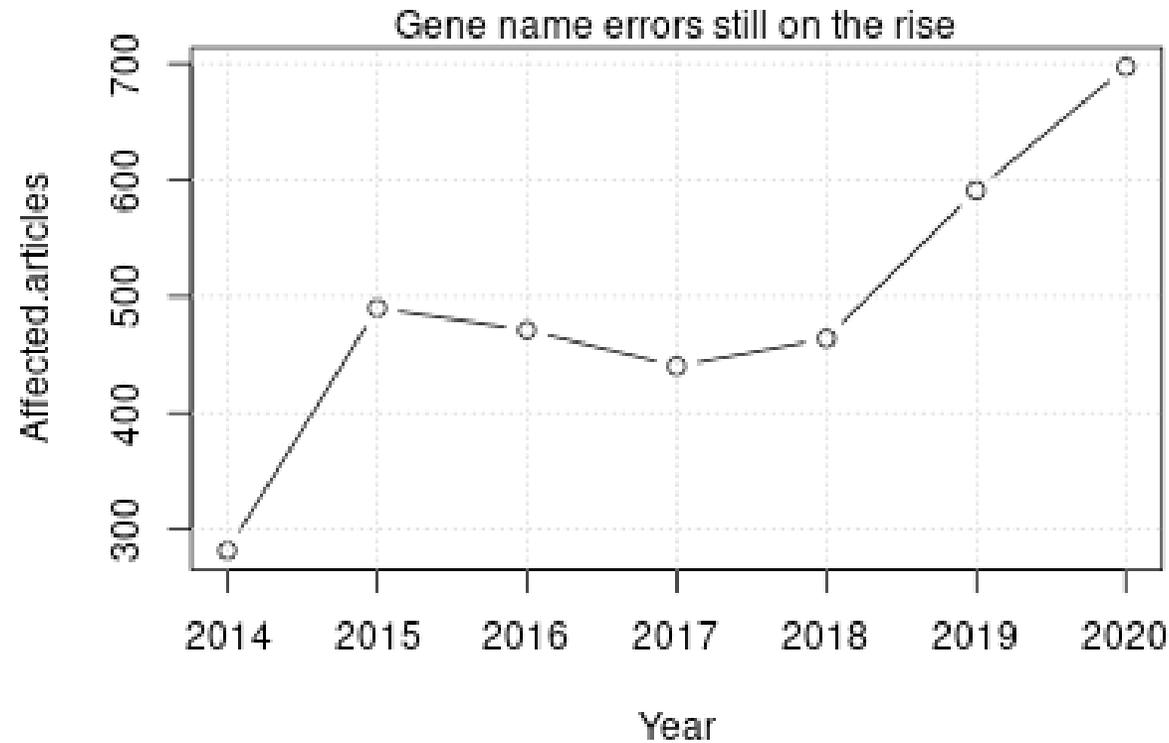
NOT ALL SHARED DATA IS GOOD DATA

SEPTIN8

SEP8

8-Sep

44812



Abeysooriya et al, "Gene name errors: Lessons not learned," *PLoS Computational Biology* (2021).

DATA MANAGEMENT AND SHARING: PHASES AND ACTIVITIES

- Planning, Design, and Start Up of Project
Example: Determining storage solutions for active research data
- Data Collection, Storage, and Management
Example: Creating or reviewing established quality-control mechanisms/procedures
- Making Data Broadly Available
Example: Deciding what data to share and where to do so
- Data Retention, Including Preservation, Archive, and Long-Term Access
Example: Migrating files to new formats or across systems as needed
- Project Closeout and Compliance
Example: Completing funder or institutional reports on data management and sharing

Realities of Academic Data Sharing:

<https://www.arl.org/realities-of-academic-data-sharing-rads-initiative/>

LIBRARY DATA MANAGEMENT ACTIVITIES

Data Management and Sharing Phase	DMS Activity
Planning, Design and Start Up of Projects	<ul style="list-style-type: none">• Reviewing or preparing data management (and sharing) plans• Identifying appropriate storage platforms for active research data
Data Collection, Storage, and Management	<ul style="list-style-type: none">• Reviewing data documentation (such as data dictionaries and codebooks)• Recommending data analysis tools and processes that support reproducibility and transparency
Making Data Broadly Available	<ul style="list-style-type: none">• Recommending data repositories• Consulting on preparing data for sharing, include file format conversion, licensing, and application of persistent identifiers

DATA STAKEHOLDERS AT UK

Data Collection, Storage, and Management

The Research Data Librarian might consult on data documentation practices and workflows.

The Office of Technology Commercialization might sign a data use agreement so a researcher can access restricted use data.

The Center for Clinical and Translational Sciences might provide support in configuring REDCap accounts.

Departmental IT might set up local network space for data storage.

Realities of Academic Data Sharing:

<https://www.arl.org/realities-of-academic-data-sharing-rads-initiative/>

CHALLENGES AND OPEN QUESTIONS

- What additional infrastructure is needed to ensure that storage keeps pace with data generation?
- What obstacles hinder the reuse and reproducibility of Big Data and complex data types, and how can they be ameliorated?
- How do we best combine discipline expertise with expertise in data management, curation, and sharing to make sure datasets are actually reusable?

[Find updates on the NSF's public access policy](#), including webinars and requests for information.

For UK-specific perspective, read the [2022 Research Data Management Task Force Report](#).



THANK YOU!
QUESTIONS?