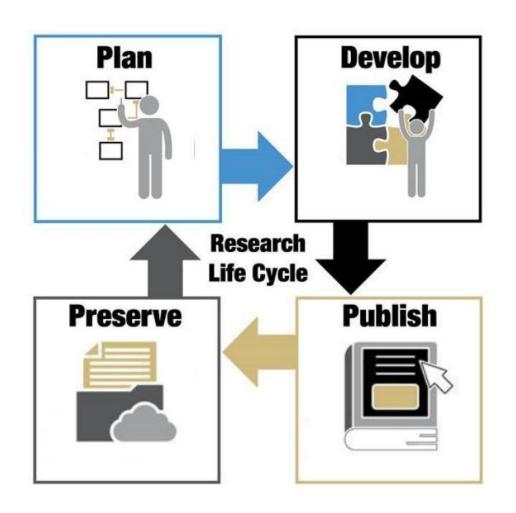
Interdisciplinary Tools to Support Your Research Across the Data Lifecycle

Nickoal Eichmann-Kalwara (she/her)
Associate Professor, Digital Scholarship Librarian
Center for Research Data and Digital Scholarship, CU Boulder
nickoal-eichmann@colorado.edu
bit.ly/nickoal-appt

This week, you're learning about...



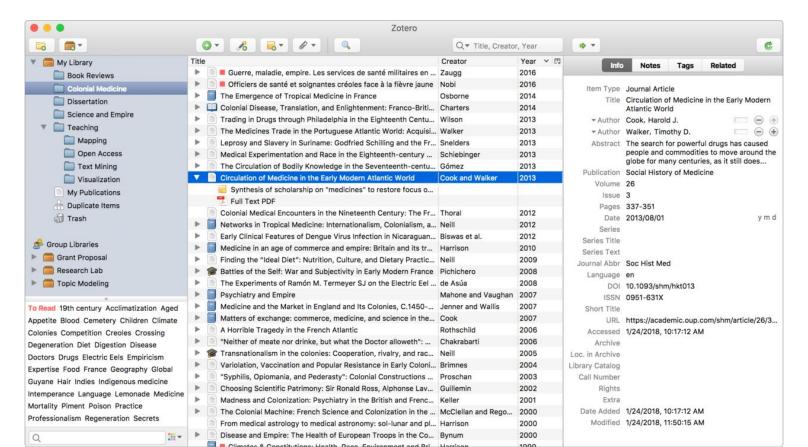
The Research / Data Lifecycle





Citation management software - Free

https://www.zotero.org/



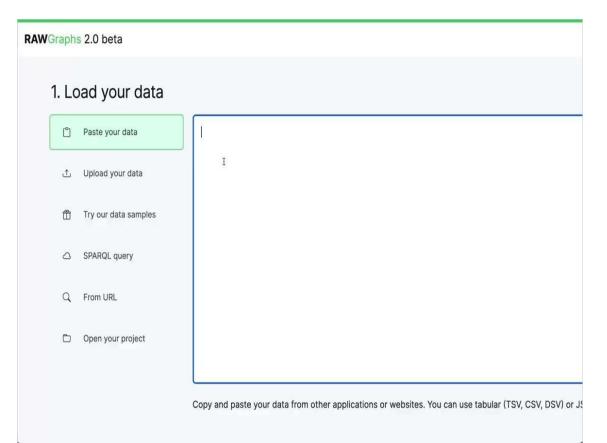


Data cleaning, reconciliation - Free, open source https://openrefine.org/

Cluster & edit column "Place" This feature helps you find groups of different cell values that might be alternative representations of the same thing. For example, the two strings "New York" and "new york" are very likely to refer to the same concept and just have capitalization differences, and "Gödel" and "Godel" probably refer to the same person. Find out more... Method key collision Keying Function | Fingerprint 7 clusters found Row Count Values in cluster New cell value Cluster size Merge? # Rows in cluster 10 · PRINCESS FIELD (6 rows) PRINCESS FIELD PRINCESS FIELD (4 rows) 5 - 2222 MOUNT ZION (18 rows) MOUNT ZION Average length of choices MOUNT ZION (4 rows) · SWABYS HOPE (5 rows) SWABYS HOPE 10 SWABYS HOPE (5 rows) 11 - 15Length variance of choices 9 BROGUE HILL (5 rows) **BROGUE HILL** BROGUE Hill (4 rows) . BALLARDS RIVER (7 rows) 9 BALLARDS RIVER 0 - 1 BALLARDS RIVER (2 rows) 5 SPRING MOUNTAIN (3 rows) SPRING MOUNTAIN MOUNTAIN SPRING (2 rows) 19 . GRAVEL HILL (17 rows) **GRAVEL HILL** GRAVEL HILL (2 rows) Select all Deselect all Merge selected & re-cluster Merge selected & Close Close Export clusters



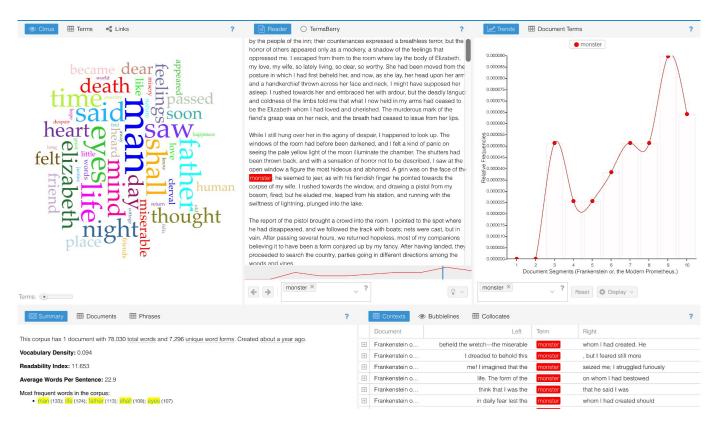
Data Visualization - Free, open source rawgraphs.io





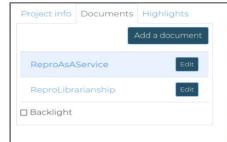
Text analysis - Free, open source

https://voyant-tools.org/





Qualitative Data Analysis (QDA) - free https://www.taguette.org/



Recent studies demonstrated that the reproducibility of previously published computational experiments is inadequate. Many of these published computational experiments are not reproducible, because they never recorded or preserved their computational environment. This environment consists of artifacts such as packages installed in the language, libraries installed on the host system, file names, and directory hierarchy. Researchers have created reproducibility tools to help mitigate this problem, but they do nothing for the experiments that already exist in online repositories. This situation is not improving, as researchers continue to publish results every year without using reproducibility tools, likely due to benign neglect as it is common to believe publishing the code and data is sufficient for reproducibility. To clarify the gap between what existing reproducibility tools are capable of and this issue with published experiments, we define a framework to distinguish between actions taken by a researcher to facilitate reproducibility in the presence of a computational environment and actions taken by a researcher to enable reproduction of an experiment when that environment has been lost. The difference between these approaches in reproducibility lies in the availability of a computational environment. Researchers that provide access to the original computational environment perform proactive reproducibility, while those who do not enable only retroactive reproducibility. We present Reproducibility as a Service (RaaS), which is, to our knowledge, the first reproducibility tool explicitly designed to facilitate retroactive reproducibility. We demonstrate how RaaS can fix many of the common errors found in R scripts on Harvard's Dataverse and preserve the recreated computational environment.

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Lay Summary

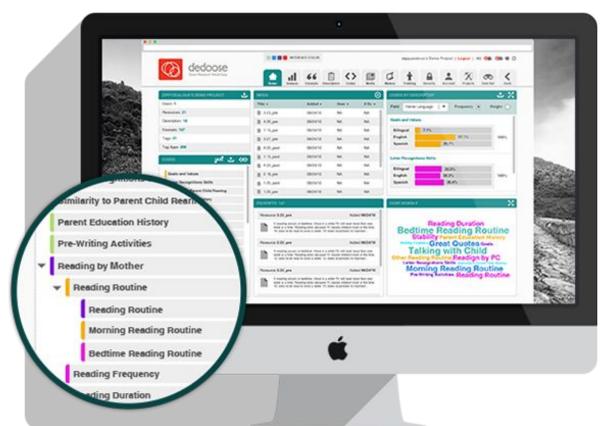
One of the pillars of modern science is computation. Research software allows scientists to quickly and accurately analyze large amounts of data. When scientists publish their results, it is critical that their peers can then repeat their computations.

Unfortunately, researchers have discovered they cannot reproduce the findings of openly published analyses. This failure is not necessarily due to an incorrect experiment or flawed science. Instead, the software that scientists use to analyze their data fails if the original authors do not take careful steps ahead of time to preserve it. Researchers created new technologies to help facilitate this preservation, but they are not (yet) commonly used. We created a new tool, Reproducibility as a Service, that helps facilitate reproducibility for publicly available analyses that lack this preservation.



Qualitative Data Analysis (QDA) - proprietary (\$)

https://www.dedoose.com/



Mapping



- QGIS: Free and Open Source
- https://qgis.org/



- ArcGIS: Proprietary / institutional accounts
- CSU: https://gis.colostate.edu/resources/esri-software/
- CUB: https://libguides.colorado.edu/gis/access

ScrollyTeller

Generate scroll-driven stories with Google Docs



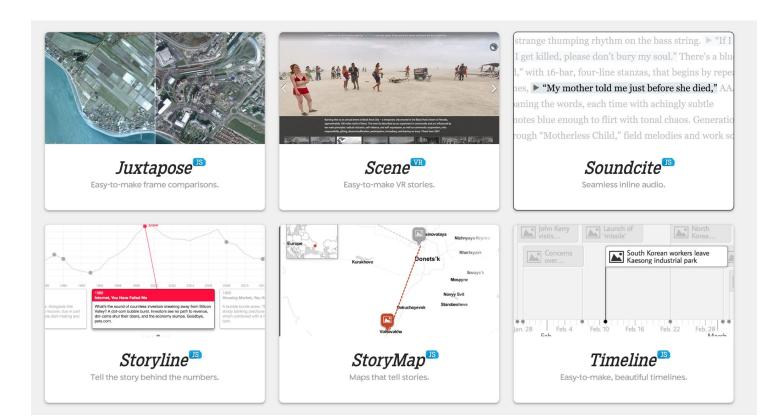
- Free and Open Source
- https://github.com/Davidson-Library/scrolly
- Based on Google Doc template
- Example: Growing with the City



- Proprietary / institutional accounts
- https://storymaps.arcgis.com
- Examples:
 - <u>Biodiversity of the Colorado State University Lands</u>
 - Chicanx Movement & Los Seis de Boulder



Digital storytelling, digital humanities - free https://knightlab.northwestern.edu/





Digital exhibits and archives - free, open source https://collectionbuilder.github.io/





Oral History archives - free, open source https://oralhistoryasdata.github.io/



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