

WARWICK

Graduate Research Forum 30/11/2023

Steve Ranford, Research Computing

Plan

- An introduction to the digital humanities
 - IDG Technology for Research Team
 - One take on the digital humanities and examples
 - Research Centres?

Doing digital humanities

- Tools of the trade
- Computational analysis
- Digital Editions
- Online Exhibitions
- Networks
- Mapping
- Time

Some opportunities at Warwick

- Centre for Digital Inquiry
- Alan Turing Institute

What is digital humanities?

- digital, social, public, open
- digitisation, annotation, presentation
- text as data, data as images, maps, timelines, social graphs
- social media, participatory, crowdsourcing
- sometimes new tools, sometimes existing tools put to new uses
- technologists and librarians as collaborators
- digital not just as outputs but as a form of scholarship

Amber Thomas, Head of Academic Technology, Warwick, 2013

Introductions



Dr. Godwin Yeboah Senior Research Software Engineer

Ph.D. GIS MSc Software Technology MSc Geoinformatics and Photogrammetry



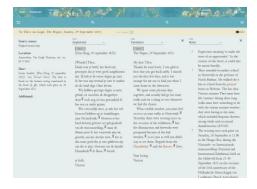
Steve Ranford
Senior Research Software Engineer

Digital Humanities?

- Whole books about defining the digital humanities (Terras, et. al., 2016)
 - The term is debated and widely used
 - Where the digital and computational interact with the arts and humanities
- Three waves (Berry, 2012)
 - 1. Digitisation and technical infrastructure
 - 2. Environments and tools for working with 'born digital' knowledge
 - 3. A means for investigating fundamental questions and assumptions in the humanities
- ► A big Digital Humanities tent
 - Bridging disciplines (Spinaci, et. al., 2022)
 - Covering a wide variety of projects and domains

Examples: Digital Editions





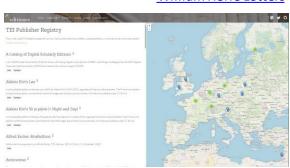


Godwin Diary

Van Gogh Letters



William Herle Letters

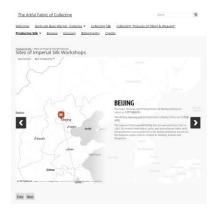


<u>Dig-ed-cat</u> <u>E-editiones</u>

Examples: Digital Exhibitions



Utah Women Working for Better Days



The Artful Fabric of Collecting



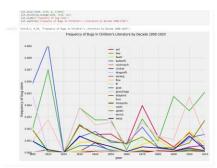
Omeka S directory

Examples: Computational analysis





Programming Historian



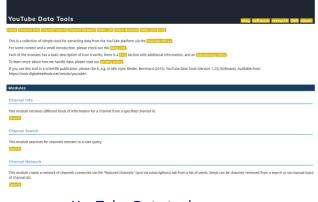
<u>Bugs in Childrens Literature</u> (1800-1920)



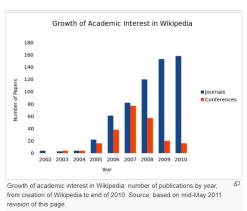


Gale Scholar Lab

Examples: (Born) Digital Objects



YouTube Data tools



Scholarly articles about Wikipedia



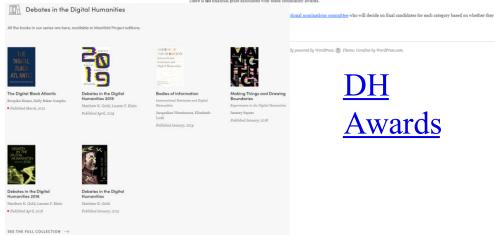
How can technology help your research?

What research questions can you address?

Does it help you to ask new questions?

Communities





Digital Humanities Awards

Highlighting Resources in Digital Humanities

ABOUT 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 TWITTER CONTACT

This site is dedicated to Digital Humanities Awards: Highlighting Resources in Digital Humanities.

Digital Humanities Awards are a set of annual awards where the public is able to nominate resources for the recognition of talent and expertise in the digital humanities community. The resources are nominated and voted for entirely by the public. The weeding out by the nominations committee is solely based on the criteria of "Is it DH?", "Can voters see it?", "Is it in the right category?", and "Was it launched/published/majorly updated in that year?". These awards are intended as an awareness raising activity, to help put interesting DH resources in the spotlight and engage DH users (and general public) in the work of the community. Awards are not specific to geography, language, conference, organization or field of humanities that they benefit. Any suitable resource in any language or writing system may be nominated in any category. DH Awards actively encourages representation from more minority languages, cultures, and areas of DH. All nominated resources are worth investigating to see the range of DH work out there.

Awards

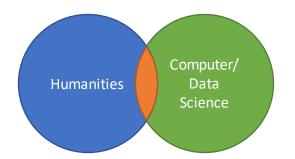
There is no financial prize associated with these community awards.

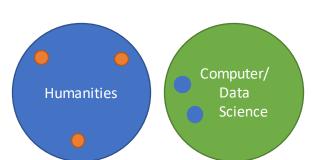
DH Debates

DH Quarterly

The 'DHer' and institutional structures

1. Dedicated research centres



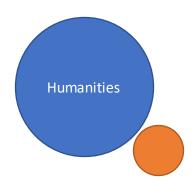


2. "lone wolves"

Inspired by "The disciplinary impact of the digital: DH and 'the Others'", Elena Pierazzo, 2017
https://hal.archives-ouvertes.fr/cel-01544594

The 'DHer' and institutional structures

Brand new disciplines

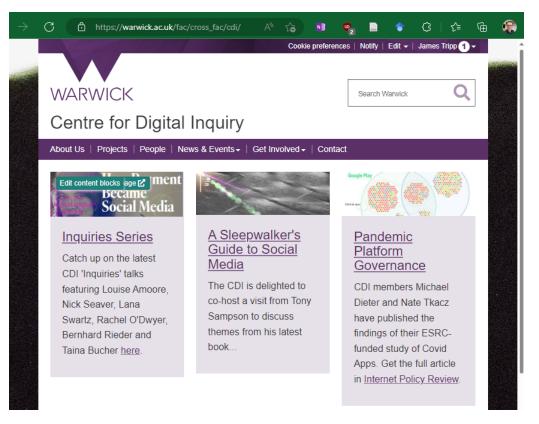


Inspired by "The disciplinary impact of the digital: DH and 'the Others'", Elena Pierazzo, 2017 https://hal.archives-ouvertes.fr/cel-01544594

DH feeds back to enrich disciplines



Centre for Digital Inquiry



Doing Digital humanities

Programming languages

- R
- Python
- JavaScript
- PHP



Programming languages

- R
- Python
- JavaScript
- PHP

Libraries

- Mallet
- SpaCy
- Etc.

Programming languages

- R
- Python
- JavaScript
- PHP



Desktop Applications

- Gephi
- QGIS
- Tropy
- OxygenXML



Programming languages

- R
- Python
- JavaScript
- PHP

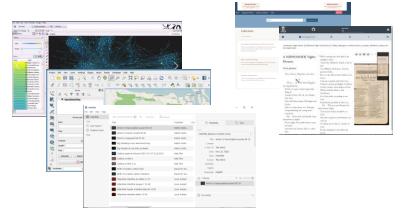


Desktop Applications

- Gephi
- QGIS
- Tropy
- OxygenXML

Self/IDG-hosted applications

Omeka S TEI Publisher



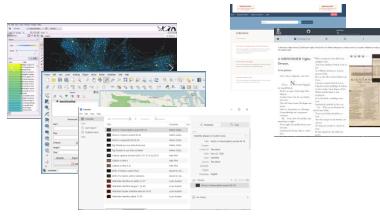
Programming languages

- R
- Python
- JavaScript
- PHP



Desktop Applications

- Gephi
- QGIS
- Tropy
- OxygenXML



Self/IDG-hosted applications

Omeka S TEI Publisher External applications

Gale Scholarly lab ArcGIS

<u>Voyant</u>

- Be careful using online tools where you upload data
- ► If you use non-standard in your research then complete <u>Software procurement</u> to check compliance
- ► This applies to links with <u></u>

Data Licenses

- Research data is often released under a license
- There is guidance on the library website
- If unsure:
 - check the guidance
 - ask your supervisor, the library, and peers

Licensing your research data

Licensing allows you to specify what people can and cannot do with your data and allows both you and the users of your data to be clear on what the rights situation is in relation to your data.

It is best to have an idea which license you plan to use before you start collecting the data. This will allow you to clarify the legal position and ownership of the data early on and can help in planning consent requests from research participants. If you are subject to <u>funder requirements</u> or collaborating with other researchers discuss your plans with them early on as well.

Available licenses

There are a number of different licensing schemes that you can use for research data depending on what the data is and how it is formatted. Please note: some data services/centres have specific recommended licenses for data you deposit with them that you must use.

- <u>Creative Commons licenses</u> are a range of open licenses allowing you to mix and match the level of rights
 you are retaining and are commonly used for research publications and other research outputs
- Open Data Commons offer two licenses that are often used for research data
- Open Government License is used for public sector databases and data. You may be using data subject to
 this license and so should be aware of it
- GNU General Public License 3.0 (GPLv3) is the license most often recommended for open source software releases

The DCC has published a best practice guide on how to license research data. Please see "How to License Research Data" guidance published by DCC.

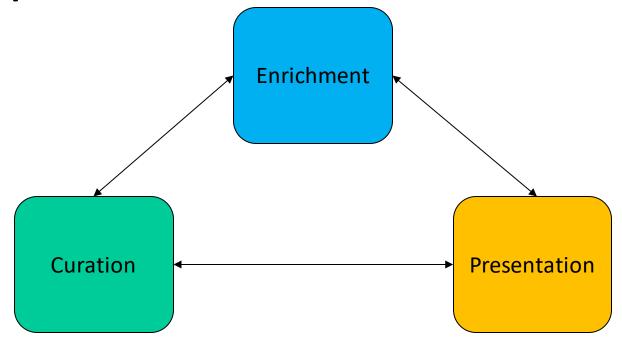
From the library website, 18/11/2022

Datatypes

- We work with a wide range of data
 - Text
 - Maps
 - Images
 - And more (music, video, etc.)

Tools enable us to create narratives and investigations

Corpora/data



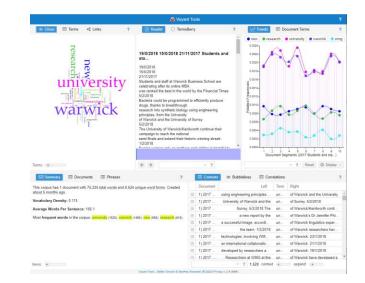


Computational text analysis

- Identify texts (sources/Gale database) and get into tool (Voyant, R/Python, Gale scholar lab)
- ► Clean data and run an analysis (word count, NLP, sentiment analysis, topic modelling)
- Create a visualisation or summary

Text

- For instance, working with unstructured and semi structured text
- Voyant Tools:
 https://voyant-tools.org/



Gale Scholar Lab

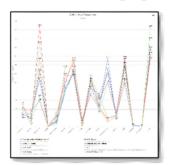
- Run text analysis over primary source collections provided by Gale via the Library (Including ECCO)
- 'Beyond search' Qual/Quant methods: Topic Modelling & Clustering, Natural Language Processing, Ngram, Parts of Speech
- Gale Scholarly lab @ Warwick

Analysis Tools in the Lab

QUANTITATIVE ANALYSIS

Parts of Speech uses natural language processing of syntax to recognize, and tag parts of speech. In this implementation of Parts of Speech Tagger you may review how authors use of speech varies over

Open Source developer: spaCv



Named Entity Recognition (NER) recognizes and extracts proper and common nouns from documents using a Parts of Speech tagging method. and outputs them as lists of grouped by entity "type". Some "entity types" available for extraction are: people (including fictional), groups (nationalities, religious, or political), organizations. locations, products, works of art, dates, among others. This implementation uses spaCv's Named Entity Recognition model. Learn more here>



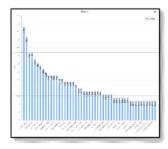
An Naram is a term, or collocation of terms. found in your content set. You set the range or number of terms ('N') you wish to consider in your analysis. Then, the frequency of those Norams is counted and displayed for analysis.

Naram examples:

N=1: Unioram "a" "the" "turtle" "frankenstein"

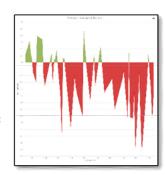
N=2: Bigram "on the". "turtle dove". "mary shelley"

Learn more here>



QUALITATIVE ANALYSIS

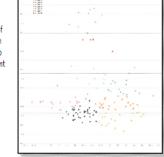
Sentiment analysis determines a tally of the positive or negative words within each document of a content set. It uses the AFINN lexicon (dictionary of words and their sentiment value) to compile sentiment scores for each phrase, which are then compiled to produce a document-level sentiment value. By establishing polarity within the texts (i.e. positive/negative word association), this tool can classify the documents in your content set between positive to negative sentiment.



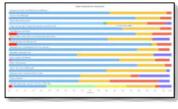
Clustering analyzes the documents from a content set using statistical measures and methods to group them around particular features or attributes. This implementation of clustering leverages the k-means algorithm to create clusters of documents according to similar words contained within each document of your content set.

Open Source developer: Scikit-Learn

Learn more here>



Topic modelling allows users to analyze a large corpus of unstructured (DCR) text. A "topic," often referred to as a "bag of words." is a collection of terms that frequently cooccur in your collection of documents. Mallet uses Latent Dirichlet allocation (LDA) models to extract contextual clues in order to connect words with similar meanings, as well as differentiate between words that are spelled similarly but have differing meanings. Learn more here>





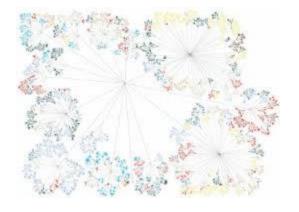






Distant reading

- "understanding literature not by studying particular texts, but by aggregating and analyzing massive amounts of data." Moretti (2000)
- Distant Reading (usc.edu)



Distant reading example shows the structure of and the themes in Jack Kerouac's "On the Road" from

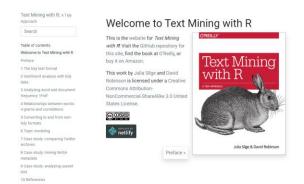
http://www.stefanieposavec.com/writing-without-words

Source: Intro to DH-HS3393

Distant reading

- R and Python have good text analysis support
- ► E.g., <u>Text Mining with R</u>

View book source O





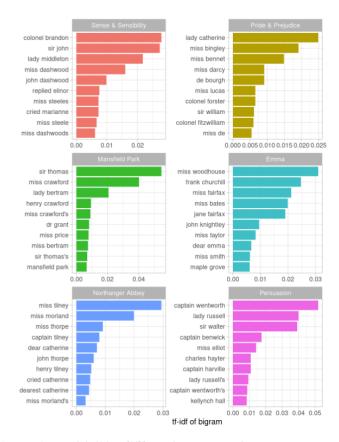


Figure 4.1: Bigrams with the highest tf-idf from each Jane Austen novel



Digital Editions

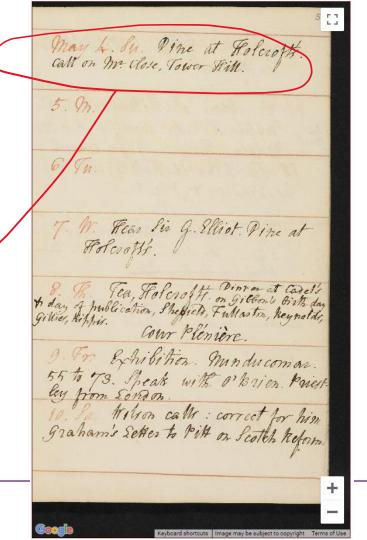
Digitisation

Digital Editions

- William Godwin's Diary (Mark Philp)
- http://godwindiary .bodleian.ox.ac.uk

Meetings -- Godwin on X

	Search Filter	Display 10 records	
	Diary Date	<u> </u>	D
	7 April 1788	Called at Webb's	
	22 April 1788	Call at B. Hollis's	
	27 April 1788	Call at Holcroft's	
`	4 May 1788	Call on Mr Close, Tower Hill	
	11 May 1788	Call on Wilson	
	6 June 1788	Call at Webb's	
	6 June 1788	doMiss Williams's	
	2 July 1788	Call on Kippis	
	7 July 1788	Call on Kippis	
	10 July 1788	Call at Miss Williams's	

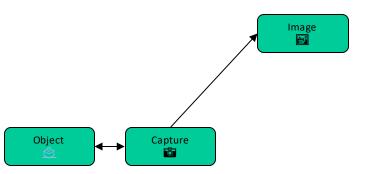


Digital Editions

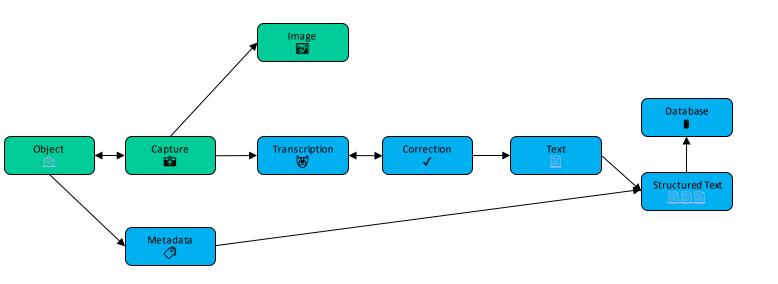
(Scholarly) Digital Editions

"Scholarly digital editions (or SDEs) offer the opportunity to overcome the limitations of print technology. The new possibilities have a fundamental impact on the theory and methodology of critical editing in general. The large corpus of research literature on digital scholarly editing is full of discussion about new features, functions, properties and characteristics of this kind of scholarly endeavour and how this changes our practices, our theoretical grounds and our goals." Sahle (2016)

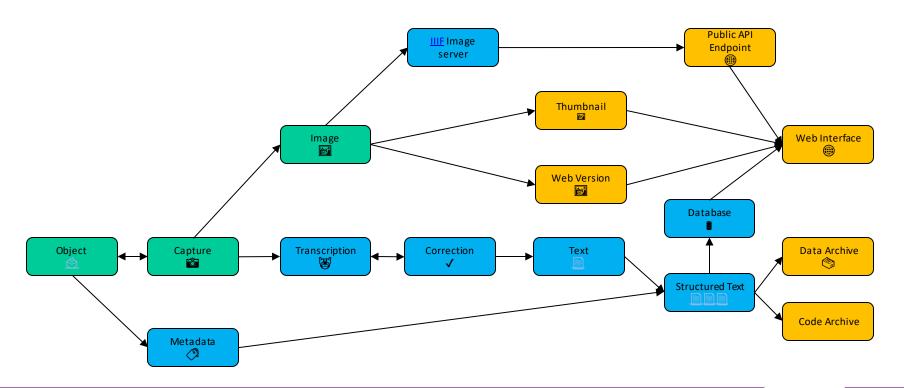
Digitisation workflow



Digitisation workflow



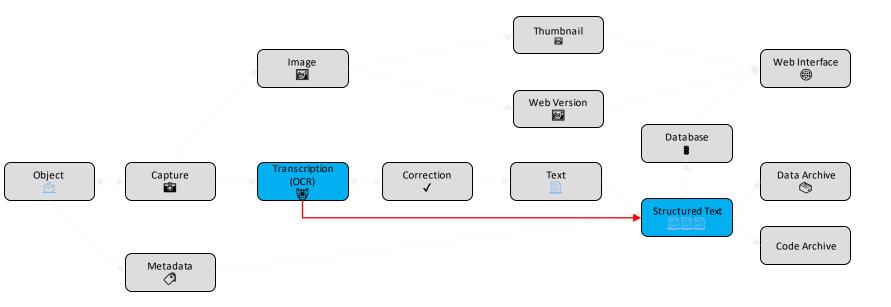
Digital Edition workflow



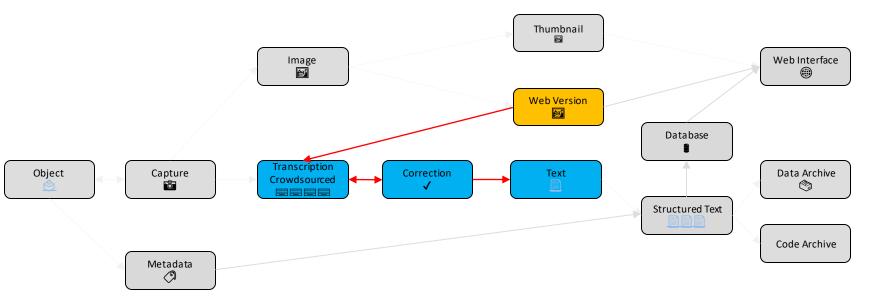
Digital Editions and Annotations

- Transkribus (AI handwriting recognition)
 - https://transkribus.eu ⚠
- ▶ TEI Publisher
 - https://teipublisher.com/
- Scripto (crowdsourced transcription)
 - https://scripto.org/
- Recogito (Semantic annotation of texts and images)
 - https://recogito.pelagios.org

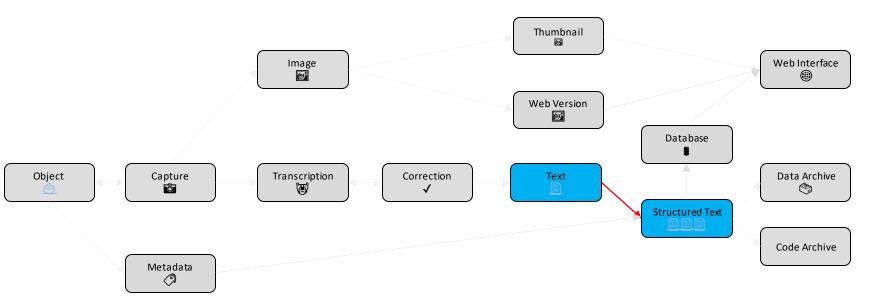
Digitisation workflow: Transkribus



Digitisation workflow: Scripto



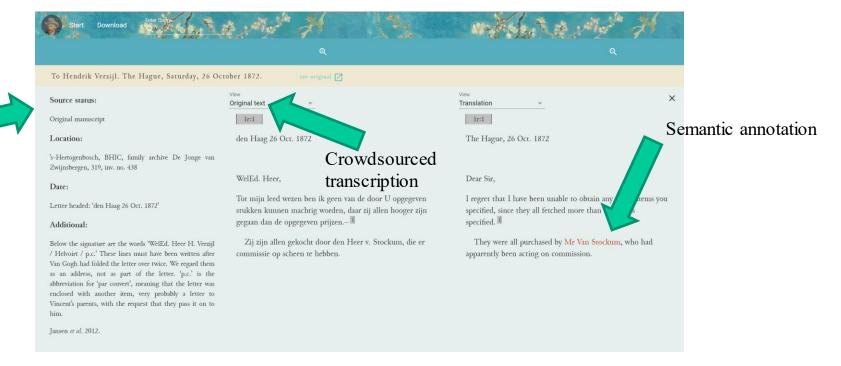
Digitisation workflow: Recogito



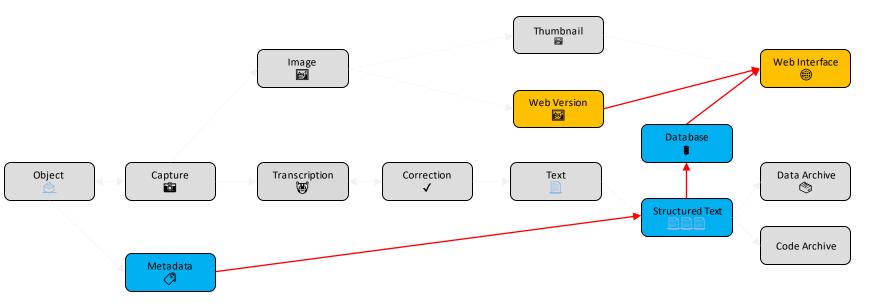
Digital Editions and Annotations

Text Encoding Initiative

XML Format and styling



Digitisation workflow: TEI Publisher



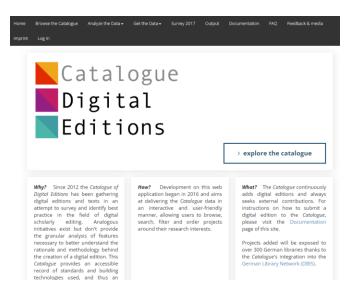
Digital Editions

- Carpentries: TEl training
- IDG hosted TEI publisher (future service)
- E Editiones community
- ► TEI by example

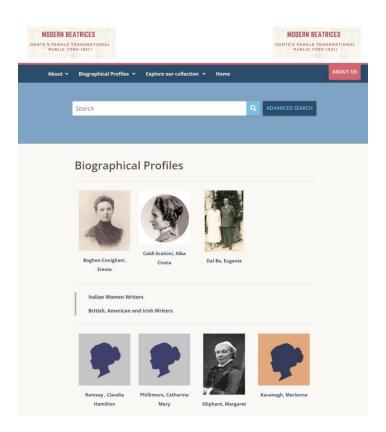


Online Exhibitions

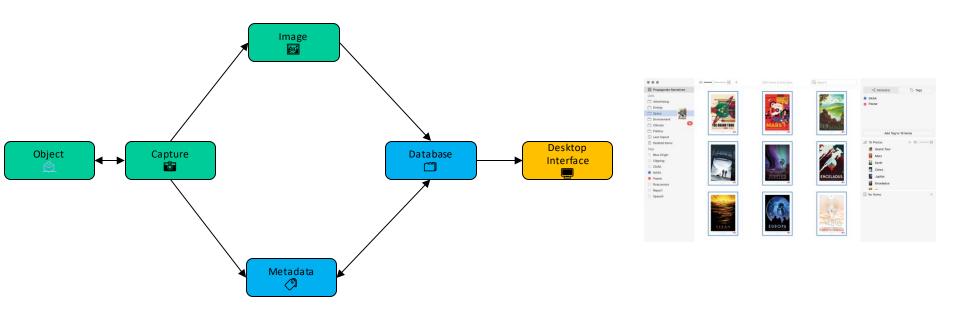
Online Exhibitions



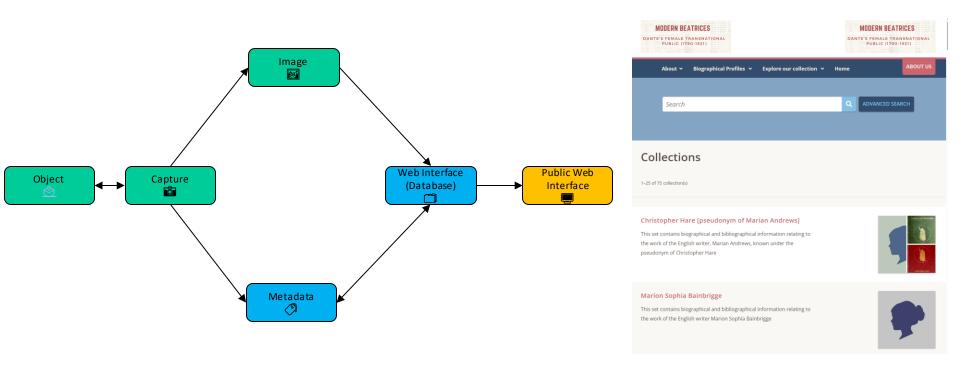
Dig-ed-cat



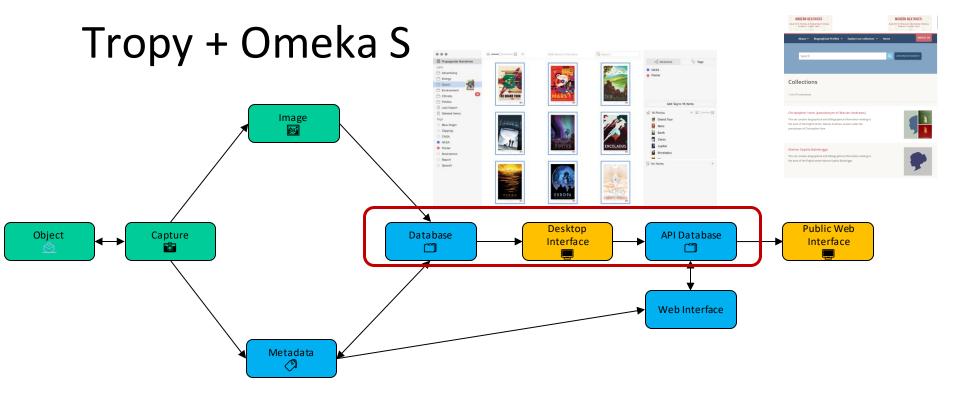
Exhibition workflow: Tropy



Exhibition workflow: Omeka S



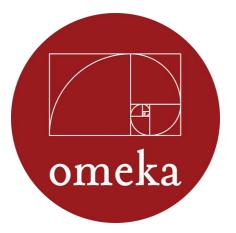
Exhibition workflow:



Omeka S + Tropy

- Create a local image archive with robust metadata
- Create online archives using Omeka S. We can provide Omeka S installs and guidance.
 - Form an online story around your data and research
 - Lots of different plugins!
 - Shape an academic or users journey through your work





Other Database Tools

- Palladio: Upload and database-ify spreadsheets in seconds
 - http://hdlab.stanford.edu/palladio/
 - Free online tool

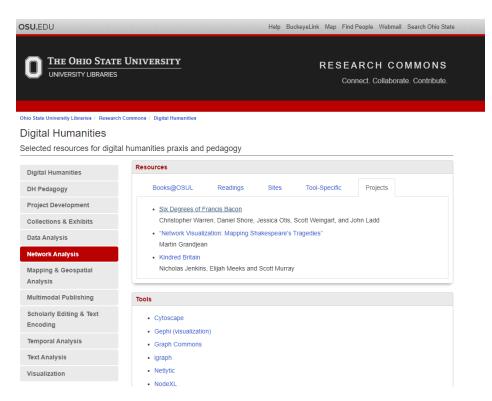


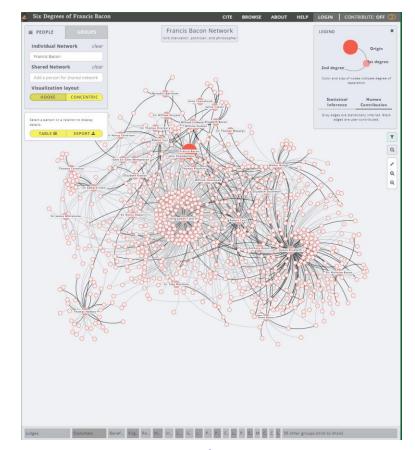
- Nodegoat: Store and visualise interconnected relational humanities data online
 - https://nodegoat.net/ https://nodegoat.net/
 - Free account



Network analysis

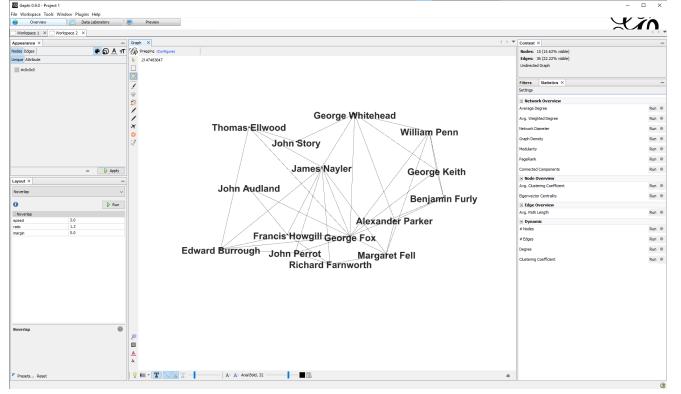
Explore relationships in data





Ohio State Network Analysis resources

Six Degrees of Francis Bacon



Quakers dataset used in CDI networking workshop



Mapping

Spatial turn

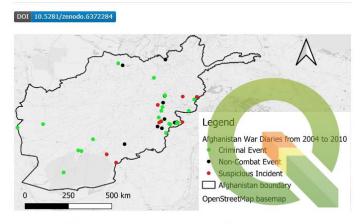
"Scholars in the humanities have a long tradition in the investigation of spatial theory and methods, as well as on the analysis of space and place within its multiple disciplines. Although technologies such as Geographic Information Systems have been used in Humanities fields such as Archaeology for over four decades, it has been only in recent years that the development of new technologies and methods have led to the emergence of the field that is now more commonly known as the Spatial Humanities, often also referred to as GeoHumanities."

Murrieta-flores & Martins (2019)

Spatial Examples

- Crossing the Mediterranean Sea by Boat
 - Interactive map stories of migration journeys
- Tourism in the Lake District in the 18th
 Century
 - Static maps representing two famous accounts of the English Lake District.

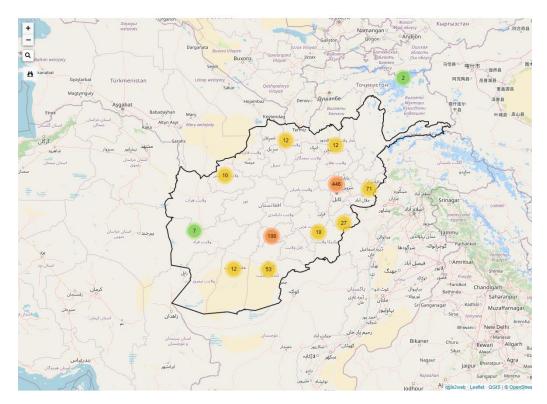
How to create a basic map for print and web using QGIS



By Dr Godwin Yeboah, IDG Technology for Research, Client Experience, Information & Digital Group (IDG), University of Warwick, UK.

CDI workshop:

How to create a basic map for print and web using QGIS

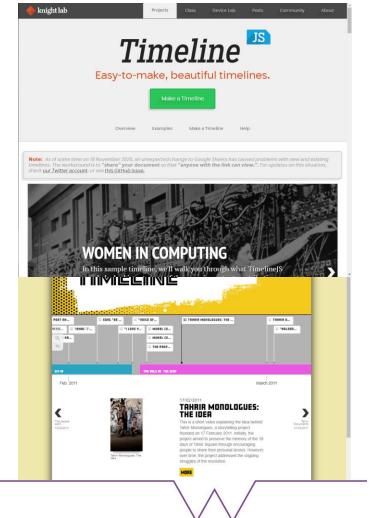




Time

Knightslab Timeline

- https://timeline.knightlab.com/
- Example:
 - Politics, Popular Culture and the
 2011 Egyptian Revolution





Opportunities at Warwick



warwick.ac.uk/cdi

Teams

Twitter

CDI Training

- Digital Editions: Introduction to TEI. Materials
- ► Mapping: How to create a map for print and web using QGIS. Materials
- Networks: Networks: A skills workshop. Materials

Alan Turing institute

- 2024/5 Enrichment Scheme
- ► Themes:
 - Al for Arts
 - Data ethics
 - Humanities and Data Science

References

Berry, D. M. (2012). Introduction: Understanding the digital humanities. In *Understanding digital humanities* (pp. 1–20). Springer. Moretti, F. (2013). *Distant Reading*. Verso Books.

Murrieta-Flores, P., & Martins, B. (2019). The geospatial humanities: Past, present and future. *International Journal of Geographical Information Science*, 33(12), 2424–2429. https://doi.org/10.1080/13658816.2019.1645336
Pierazzo, E. (2017). *The disciplinary impact of the digital: DH and "the Others"* [Doctoral]. University of Victoria - DHSI. https://hal.archives-ouvertes.fr/cel-01544594

Spinaci, G., Colavizza, G., & Peroni, S. (2022). A map of Digital Humanities research across bibliographic data sources. *Digital Scholarship in the Humanities*, *37*(4), 1254–1268.

Terras, M., Nyhan, J., & Vanhoutte, E. (2016). *Defining Digital Humanities: A Reader*. Routledge.