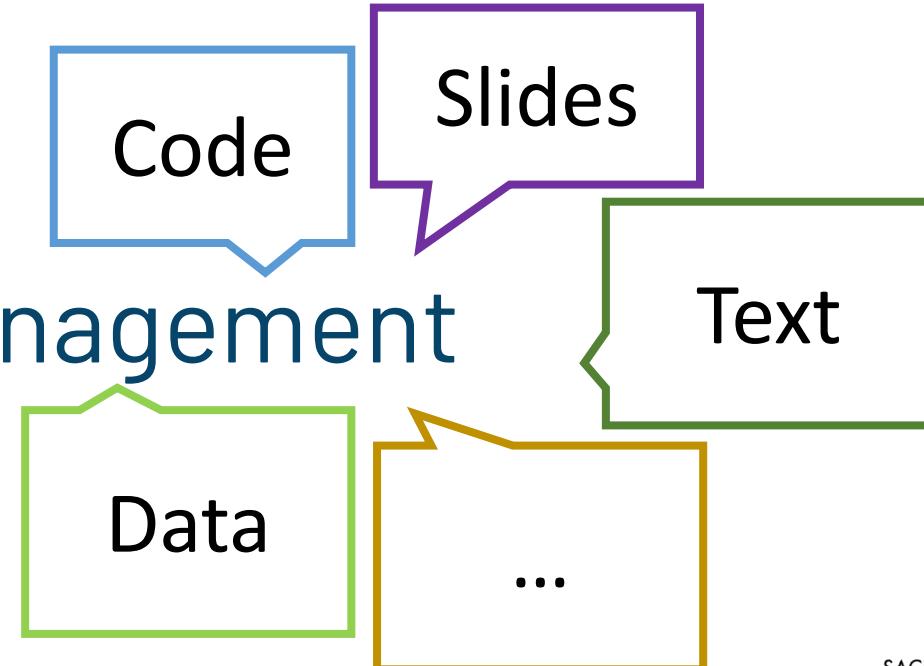




Research Data Management

Robert Haase



GEFÖRDERT VOM



Bundesministerium
für Forschung, Technologie
und Raumfahrt



Diese Maßnahme wird gefördert durch die Bundesregierung
aufgrund eines Beschlusses des Deutschen Bundestages.
Diese Maßnahme wird mitfinanziert durch Steuermittel auf
der Grundlage des von den Abgeordneten des Sächsischen
Landtags beschlossenen Haushaltes.

Quiz

- When you shared materials over the internet, which *platform* did you use?

Onedrive/Google
cloud/Dropbox/etc.

Zenodo/Figshare/
arxiv/F1000

Email

Other



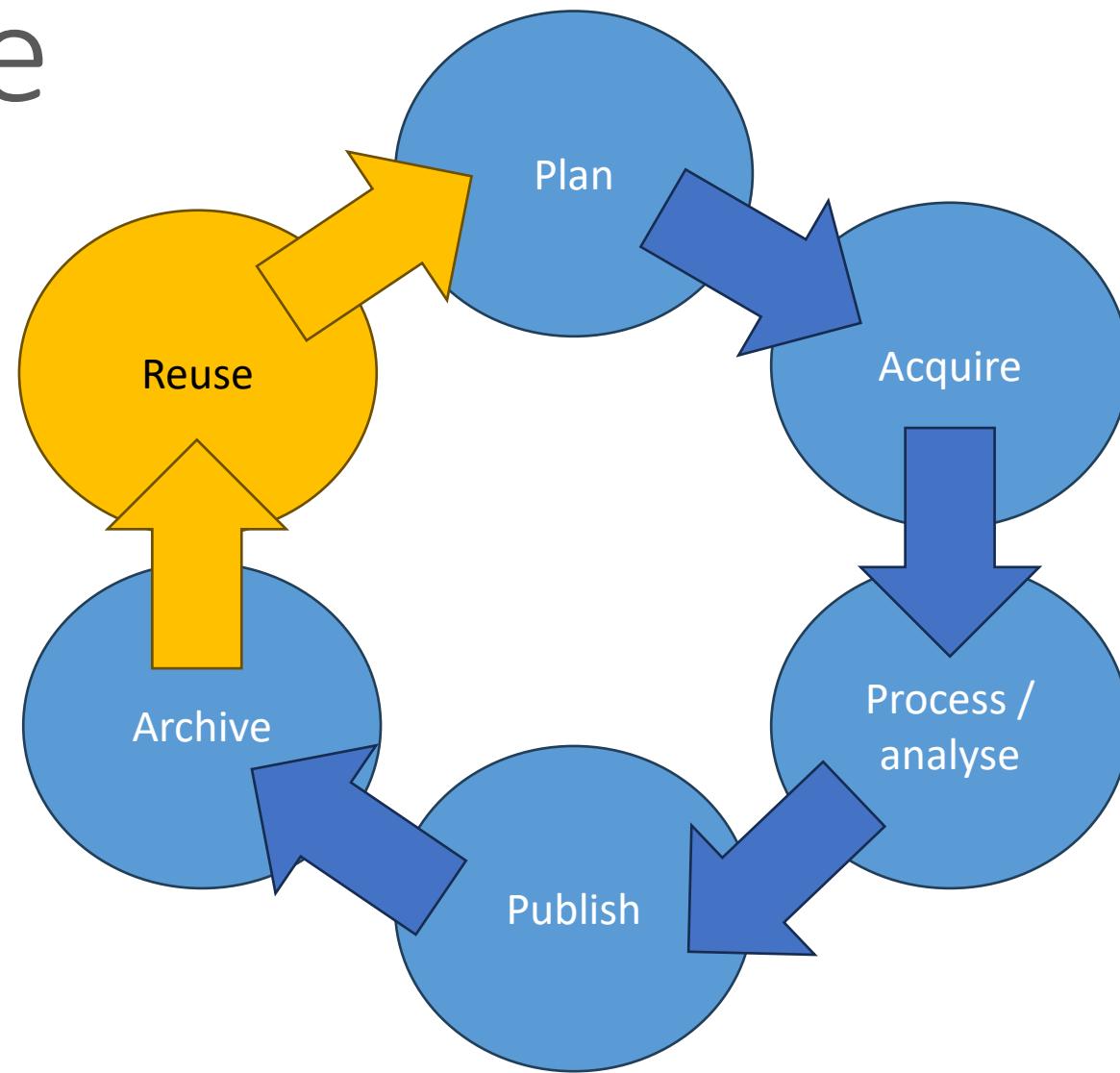
Research Data Management (RDM)

- All activities, processes, terms, persons which have relationships with data
 - Processing
 - Storage
 - Organization
 - Publication
 - ...
- In routine: working with data



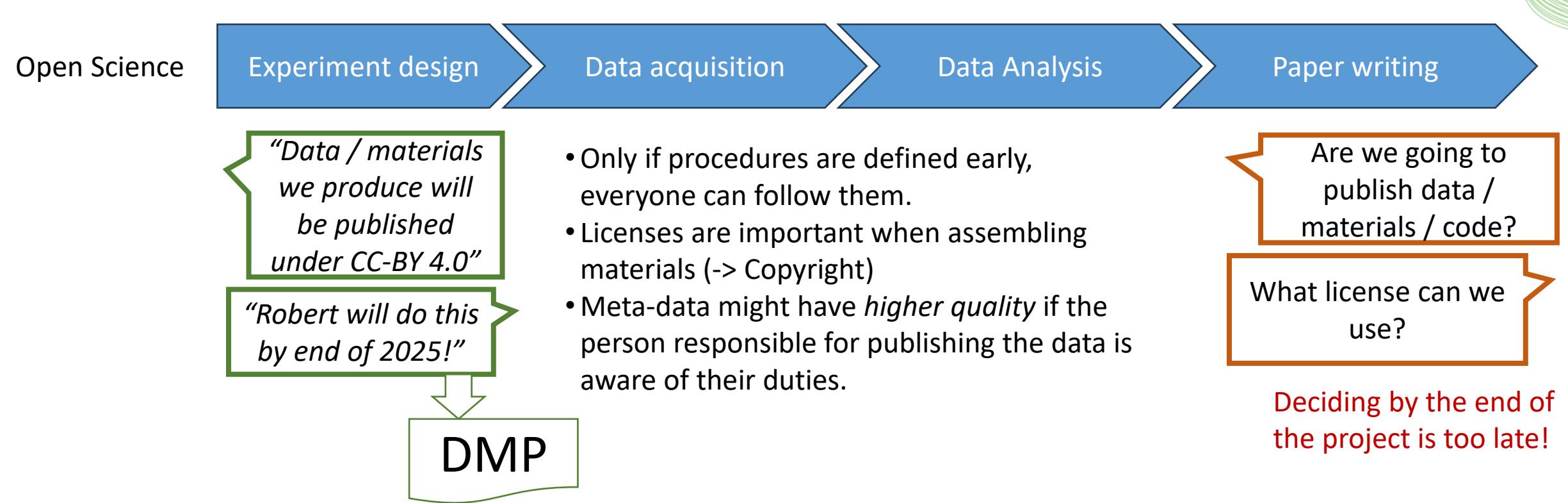
RDM Life Cycle

- Processes are ideally cyclic
- Closing the loop is a major challenge



Data Management Plans (DMPs)

- Define responsibilities and procedures early!



Closed science

Why are some science-related materials/data/code not shared?

- Risk of being scooped
- Fear of blaming oneself (imposter syndrome)
- Lack of awareness (who is allowed to publish *my work*?)
- Assumption: it's not worth the effort.

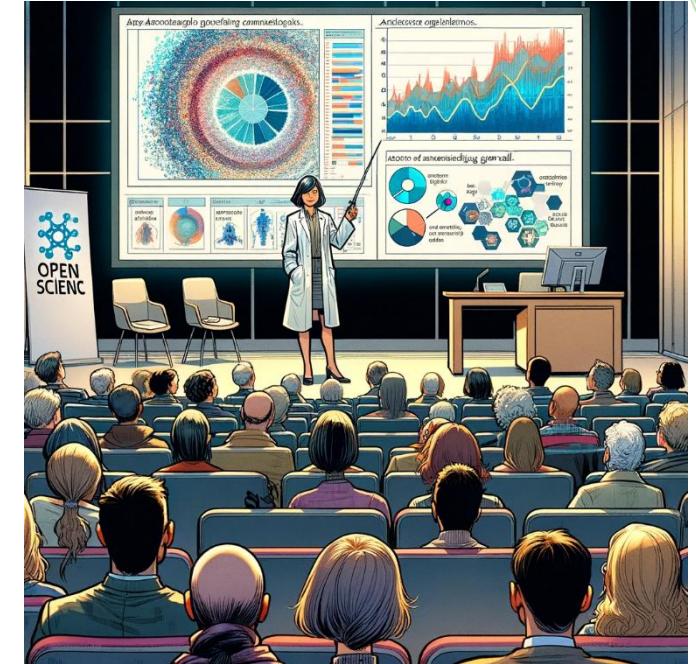


Open Science

- Research related
(hot topics)
- Often tailored towards
general audience
(science communication)
- Earliest at the time a
manuscript is published
(e.g. as preprint)

Open Training

- Routine tasks
(colder topics)
- Transfer of
domain-specific
knowledge



Scientific culture

Public access to research results -> Reusability



Guideline 13: Providing public access to research results

► As a rule, researchers make all results available as part of scientific/academic discourse. In specific cases, however, there may be reasons not to make results publicly available (in the narrower sense of publication, but also in a broader sense through other communication channels); this decision must not depend on third parties. Researchers decide autonomously – with due regard for the conventions of the relevant subject area – whether, how and where to disseminate their results. If it has been decided to make results available in the public domain, researchers describe them clearly and in full. Where possible and reasonable, this includes making the research data, materials and information on which the results are based, as well as the methods and software used, available and fully explaining the work processes. Software programmed by researchers themselves is made publicly available along with the source code. Researchers provide full and correct information about their own preliminary work and that of others.

Explanations:

In the interest of transparency and to enable research to be referred to and reused by others, whenever possible researchers make the research data and principal materials on which a publication is based available in recognised archives and repositories in accordance with the FAIR principles (Findable, Accessible, Interoperable, Reusable). Restrictions may apply to public availability in the case of patent applications. If self-developed

Scientific culture



About Us ▾ Funding ▾ Basics and Topics ▾ Funded Projects ▾ News ▾

DFG > News > News and Current Topics > Information for Researchers > Package of Measures to Support a Shift in the Culture of Research Assessment

Information for Researchers, No. 61 | September 1, 2022

Package of Measures to Support a Shift in the Culture of Research Assessment

DFG changes proposal forms and introduces mandatory CV template / The aim is to support a shift in the culture of research assessment / Improvement of equal opportunity practices

DFG changes proposal forms and introduces mandatory CV template / The aim is to support a shift in the culture of research assessment / Improvement of equal opportunity practices

Successful science and research require suitable framework conditions. The Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) ensures these conditions by regularly conducting analyses, providing the relevant information and adapting its procedures accordingly. The DFG set out the challenges and fields of action in a position paper on academic publishing published in May of this year: it sees both the academic community as a whole and itself as a funding organisation as being responsible for initiating a cultural shift towards research assessment that is geared more towards equal opportunity and attaches even greater importance to the substance of research. In the interests of bringing about such a shift, it is up to research funding organisations to broaden the spectrum of accepted publication formats, to attach greater value to content-based evidence of achievement and to strengthen the recipient side of publishing. The DFG has launched a comprehensive and far-reaching package of measures in order to fulfil this mandate.

Binding CV template across all funding programmes

For this reason, the assessment of a researcher's accomplishments must be holistic and based on substantive qualitative criteria. In order to strengthen qualitative evaluation criteria over quantitative indicators, the DFG will be introducing a curriculum vitae template that will be mandatory across all programmes from 1 March 2023 (the template will be adapted shortly for proposals under the Collaborative Research Centre and Research Training Group programmes; information will be provided separately in this regard). The template adopted by the DFG Senate allows applicants to provide both narrative and tabular information, thereby facilitating a holistic view of the applicant's academic career in the review and evaluation process.

In addition to the mandatory information required in order to assess eligibility, applicants may also provide details of special circumstances or additional services to scholarship such as committee activities or the establishment of research infrastructures. As such, the template provides the basis for a qualitatively sound assessment of academic performance that takes greater account of the respective stage of the individual's life and career. Accordingly, reviewers are now instructed to consider applicants' academic performance in the context of their individual curriculum vitae and career stage.

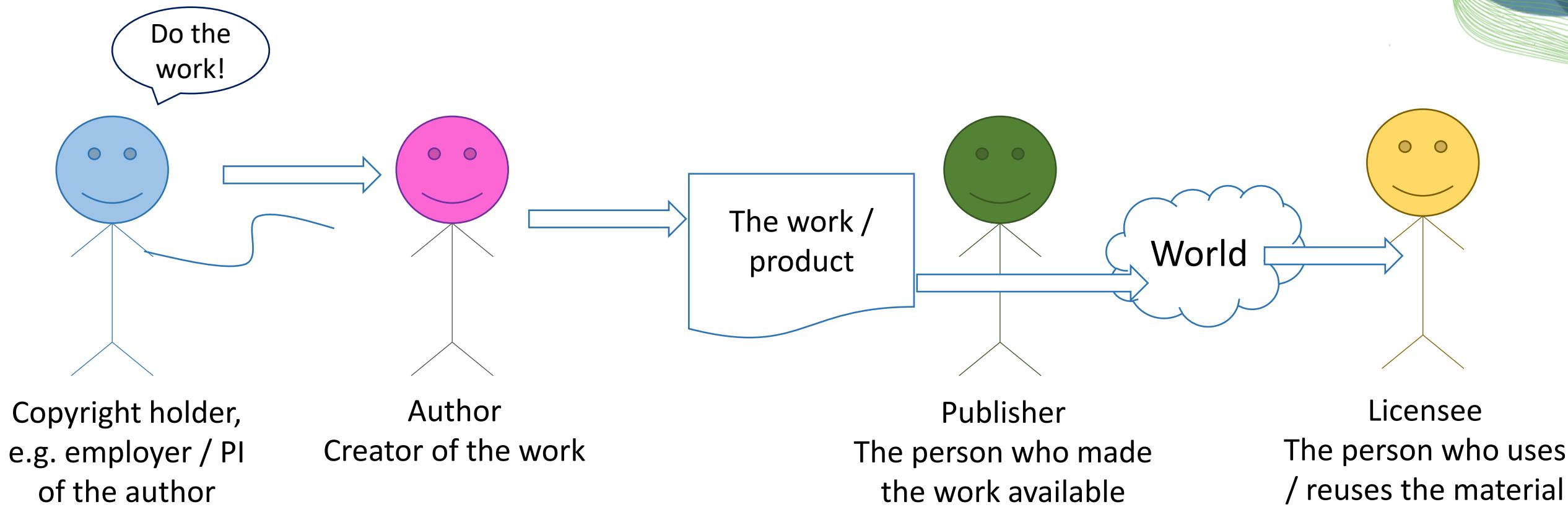
Publication details in proposals and CVs

Performance assessment based on content-related qualitative criteria also explicitly includes ensuring that the entire spectrum of academic publication types are equally displayed and acknowledged in funding proposals and CVs. In addition to a maximum of ten publications in the more common publication formats, the CV can therefore now list up to ten further sets of research outcomes and findings that have been publicised in a variety of other ways, including articles on preprint servers, data sets or software packages, for example. In DFG proposals, the project-specific list of publications will be included in the general bibliography. The intention here is to shift the focus of the review and the evaluation of a proposal away from the list of publications and towards the substance of the applicant's accomplishments. In order to document their own published preliminary work, applicants can typographically highlight (e.g. in bold) a maximum of ten of their own publications in the bibliography that are important for the project. No information on quantitative metrics such as impact factors and h-indices is required in the CV or the proposal, and such information is not to be considered in the review. The relevant details are included in DFG forms and review instructions.

These modifications and innovations reflect the fact that the DFG is continuing to promote the cultural shift in research assessment that was advocated in May with the publication of the position paper on academic publishing. The DFG hopes that this refocus – away from quantitative indicators and towards the substance of scholarship – will lead to improved equality of opportunity and a higher-quality basis for review overall.

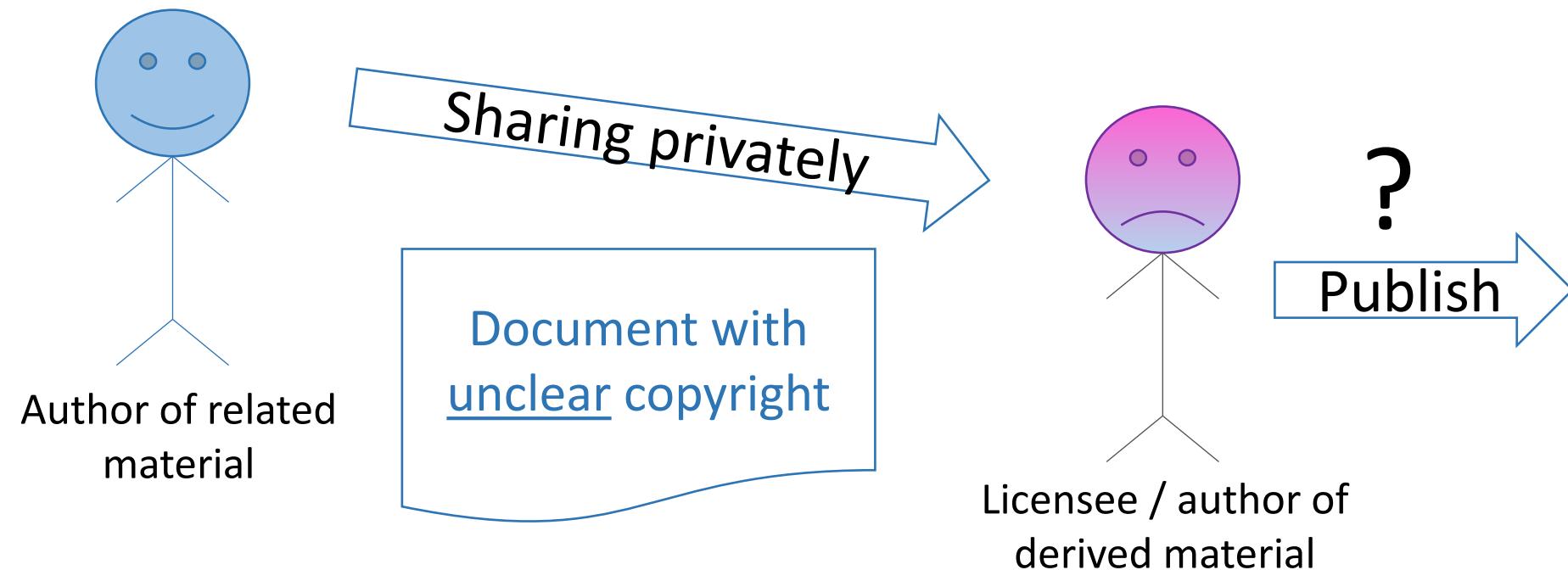
Am I allowed to publish my stuff?

- ... it depends... on who is responsible



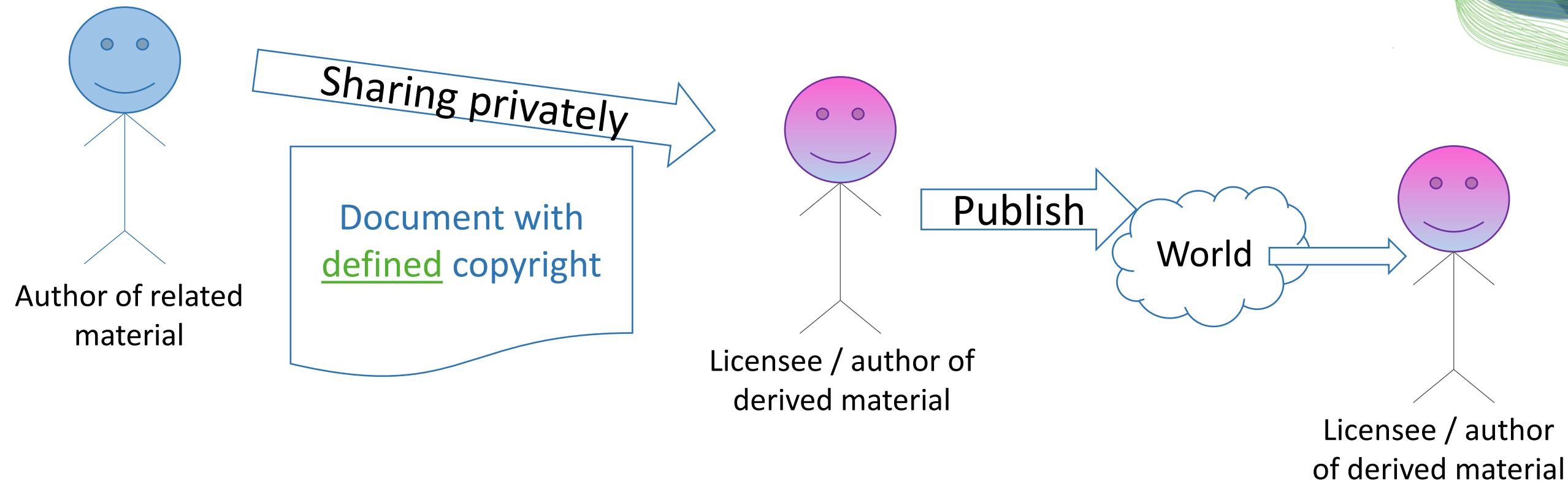
Am I allowed to publish my stuff?

- ... it depends... on what materials served as basis



Am I allowed to publish my stuff?

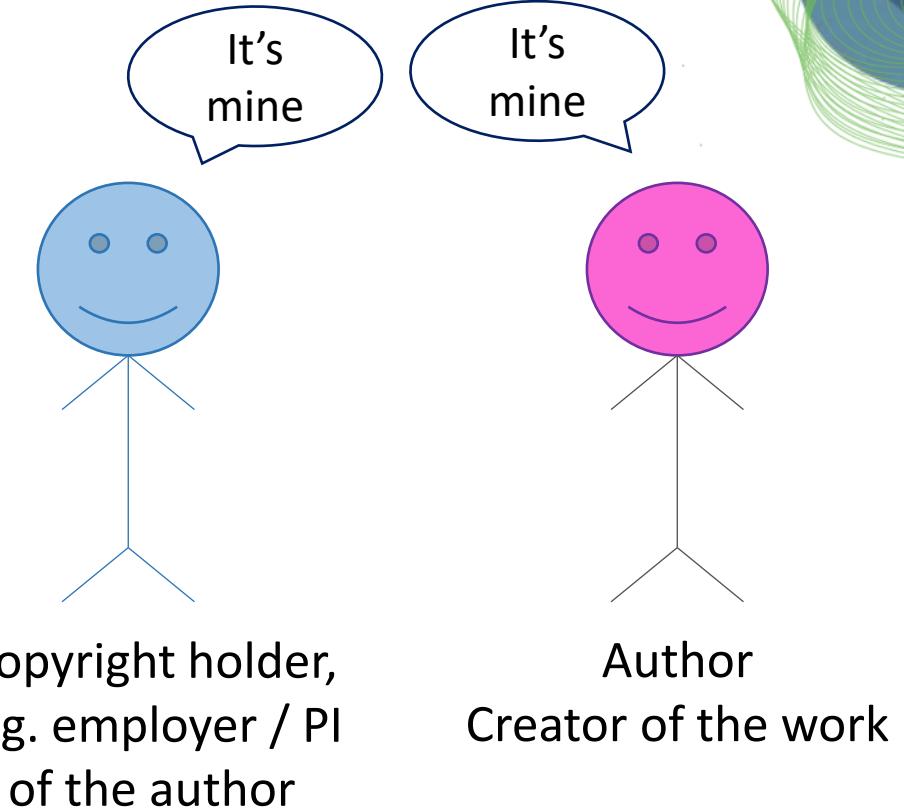
- ... it depends... on what materials served as basis



Public versus institutional repositories

Conflict of interest between employers and scientists

- Universities seek to keep things secret and potentially exploit them commercially (licenses, startups, ...)
- Scientists need to publish to advance their career.
- Hints:
 - Decide early during the project what will be published and by who (-> DMP)
 - Check your job description! (Is “Programming” or “model training” part of it?)



Standard for sharing: The FAIR-principles

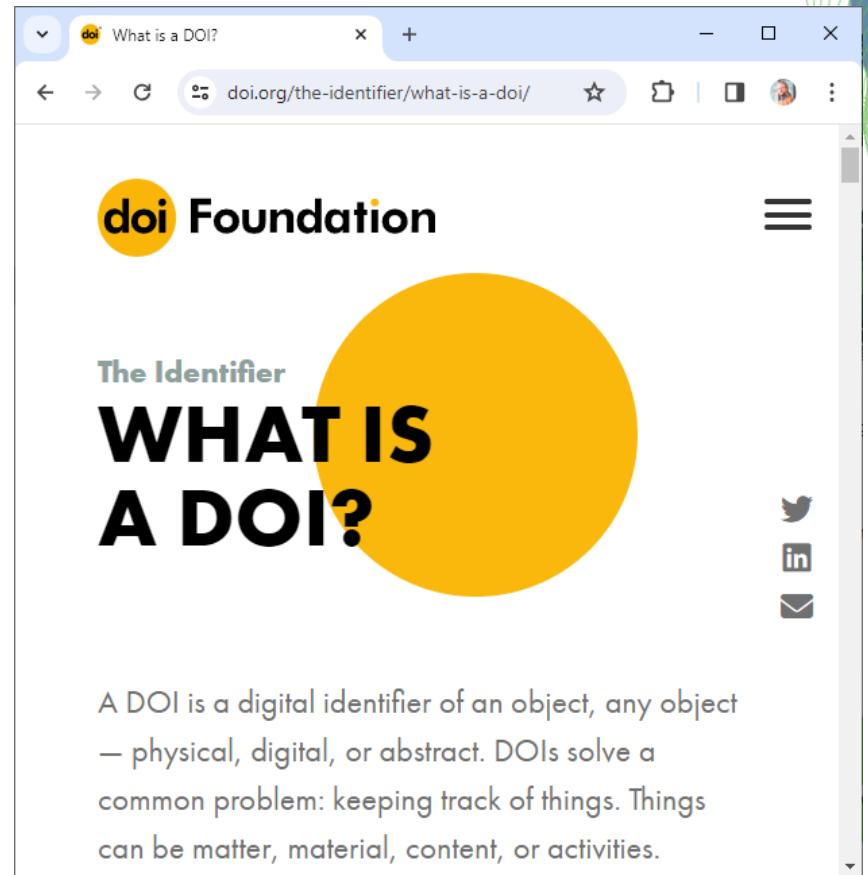
- Findable
- Accessible
- Interoperable
- Reusable



The FAIR-principles

Findable

- F1. (Meta)data are assigned a globally unique and persistent identifier
 - Universal Resource Identifier (URI)
 - Digital Object Identifier (DOI)
- F2. Data are described with rich metadata (defined by R1 below)
- F3. Metadata clearly and explicitly include the identifier of the data they describe
- F4. (Meta)data are registered or indexed in a searchable resource

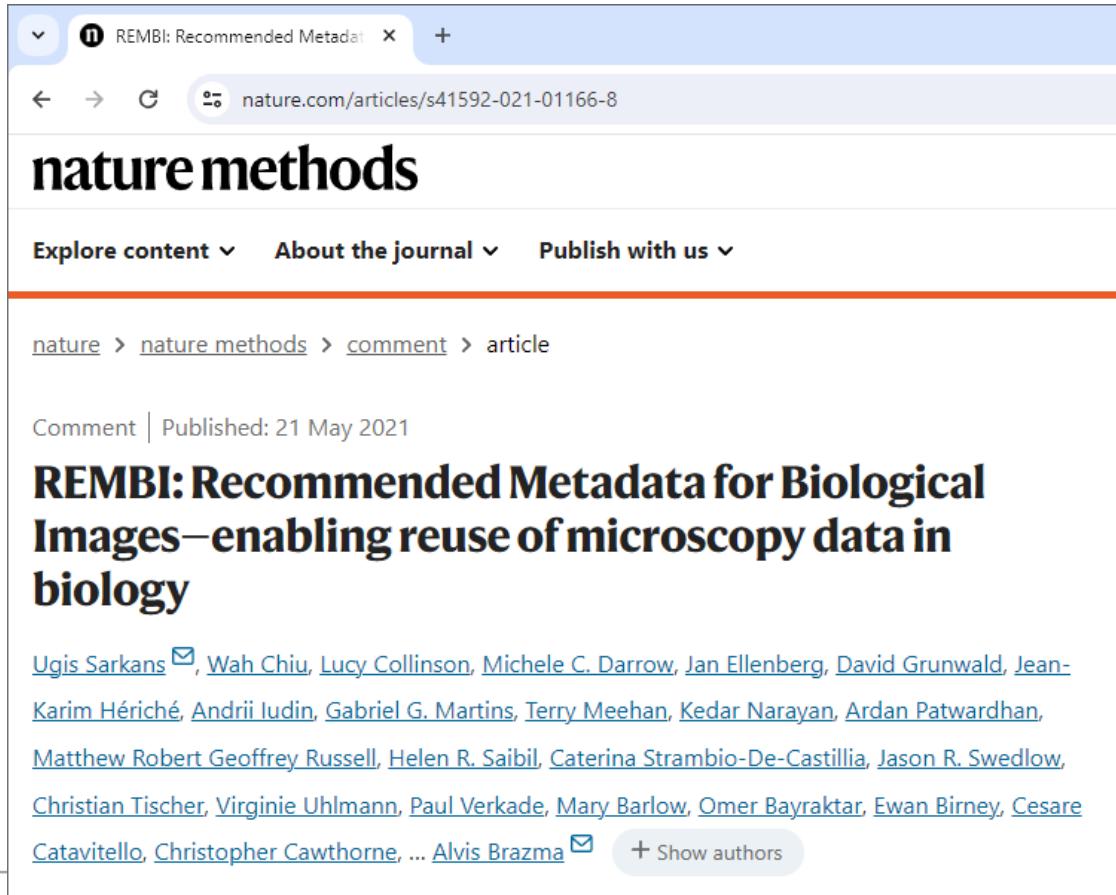


Meta data

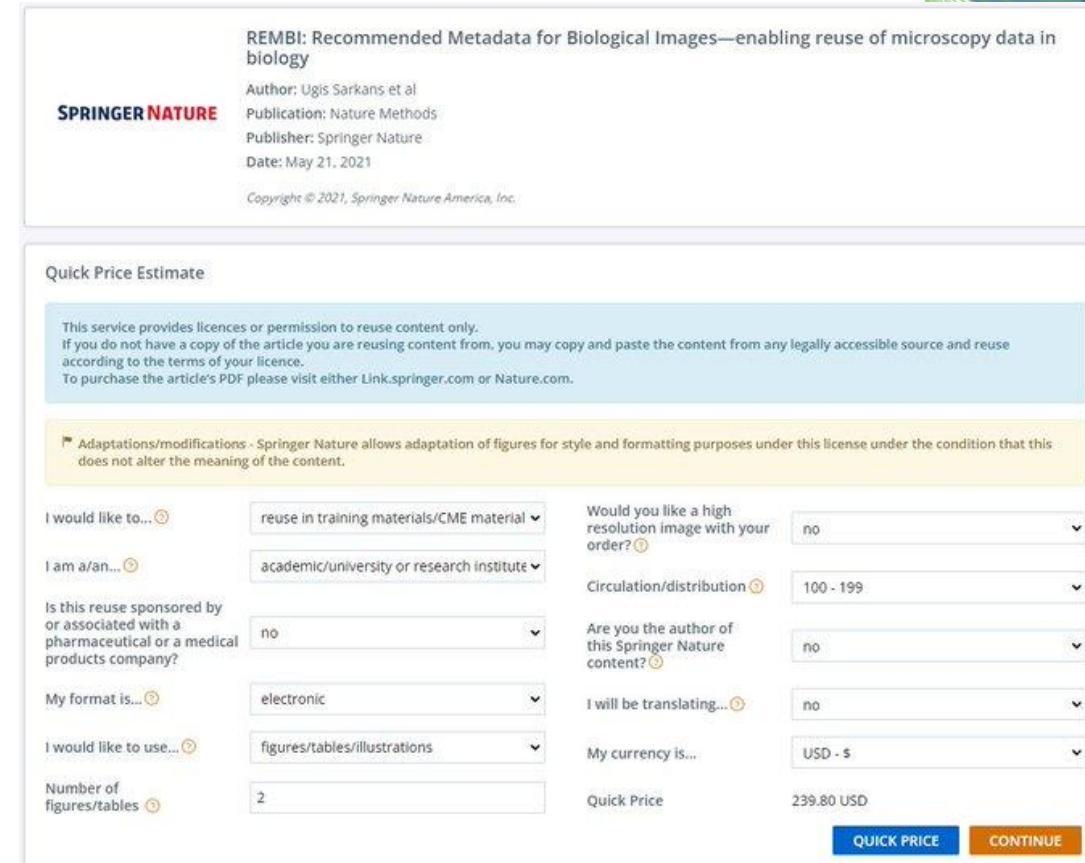
- Generic
 - Author
 - Usage license
 - Creation date
- Field-specific (microscopy)
 - Exposure time
 - Wavelength (colour)
 - Microscope type/vendor
- Field-specific (software)
 - Dependencies
 - Requirements
 - Purpose of the code
 - User documentation

REMBI: Recommended Metadata for Biological Images—enabling reuse of microscopy data in biology

- Read more:



A screenshot of a web browser showing the REMBI article on nature.com. The title bar says "REMBI: Recommended Metadata". The address bar shows "nature.com/articles/s41592-021-01166-8". The page header includes "nature methods" and navigation links for "Explore content", "About the journal", and "Publish with us". Below the header, the breadcrumb navigation shows "nature > nature methods > comment > article". A timestamp "Comment | Published: 21 May 2021" is visible. The main title of the article is "REMBI: Recommended Metadata for Biological Images—enabling reuse of microscopy data in biology". Below the title, a list of authors is provided, including Ugis Sarkans, Wah Chiu, Lucy Collinson, Michele C. Darrow, Jan Ellenberg, David Grunwald, Jean-Karim Hériché, Andrii Iudin, Gabriel G. Martins, Terry Meehan, Kedar Narayan, Ardan Patwardhan, Matthew Robert Geoffrey Russell, Helen R. Saibil, Caterina Strambio-De-Castillia, Jason R. Swedlow, Christian Tischer, Virginie Uhlmann, Paul Verkade, Mary Barlow, Omer Bayraktar, Ewan Birney, Cesare Catavitello, Christopher Cawthorne, and Alvis Brazma. A "Show authors" link is at the bottom right.



A screenshot of the REMBI article page on Springer Nature's website. The title is "REMBI: Recommended Metadata for Biological Images—enabling reuse of microscopy data in biology". It lists the author as Ugis Sarkans et al., publication in "Nature Methods", publisher as Springer Nature, and date as May 21, 2021. A copyright notice from Springer Nature America, Inc. is present. Below the title, there is a "Quick Price Estimate" section with a note about reuse rights. A form for requesting a price estimate is shown, with fields for reuse purpose (e.g., reuse in training materials/CME material, academic/university or research institute), sponsorship (no), format (electronic), use (figures/tables/illustrations), number of figures (2), currency (USD - \$), and price (239.80 USD). Buttons for "QUICK PRICE" and "CONTINUE" are at the bottom right.

Findability

Domain-specific

- Search repository registries for your field!

Guidelines

- Publish where your community publishes
- Publish where everyone publishes (beyond your community)
- Publish in your local institute's infrastructure

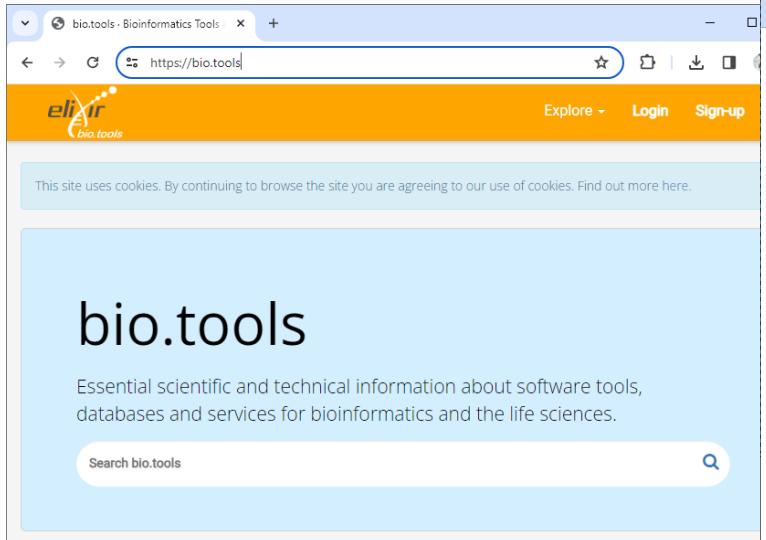


The top screenshot shows the re3data.org search results for 'seismology'. The URL is <https://www.re3data.org/search?query=seismology>. The results include filters for Subject(s) (Natural Sciences, Geosciences, Geophysics and Geodesy), Repository type(s) (disciplinary), and Provider type(s) (dataProvider). The results list includes the 'World Data Center for Solid Earth Physics'.

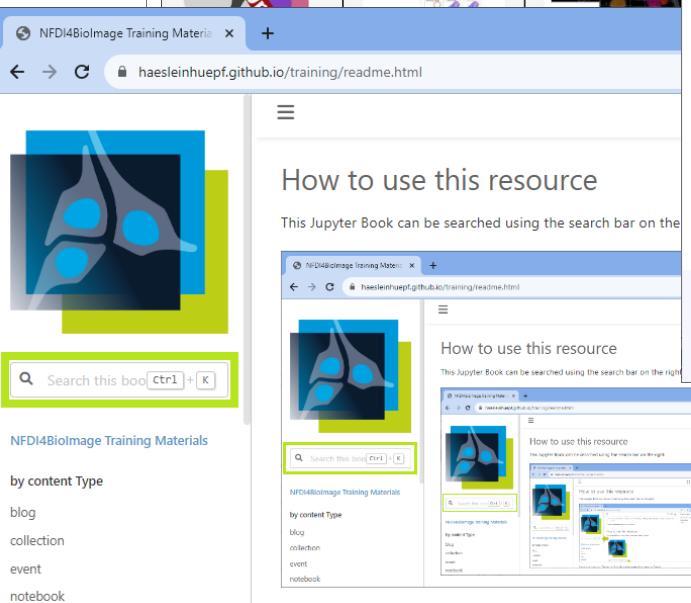
The bottom screenshot shows the FAIRsharing.org search results for 'seismology'. The URL is <https://fairsharing.org/search?fairsharingRegistry=Database&q=seismology>. The results list includes the 'Incorporated Research Institutions for Seismology Data' (IRIS Data), which is described as providing management of, and access to, observed and derived data for the global earth science community.

Indexing

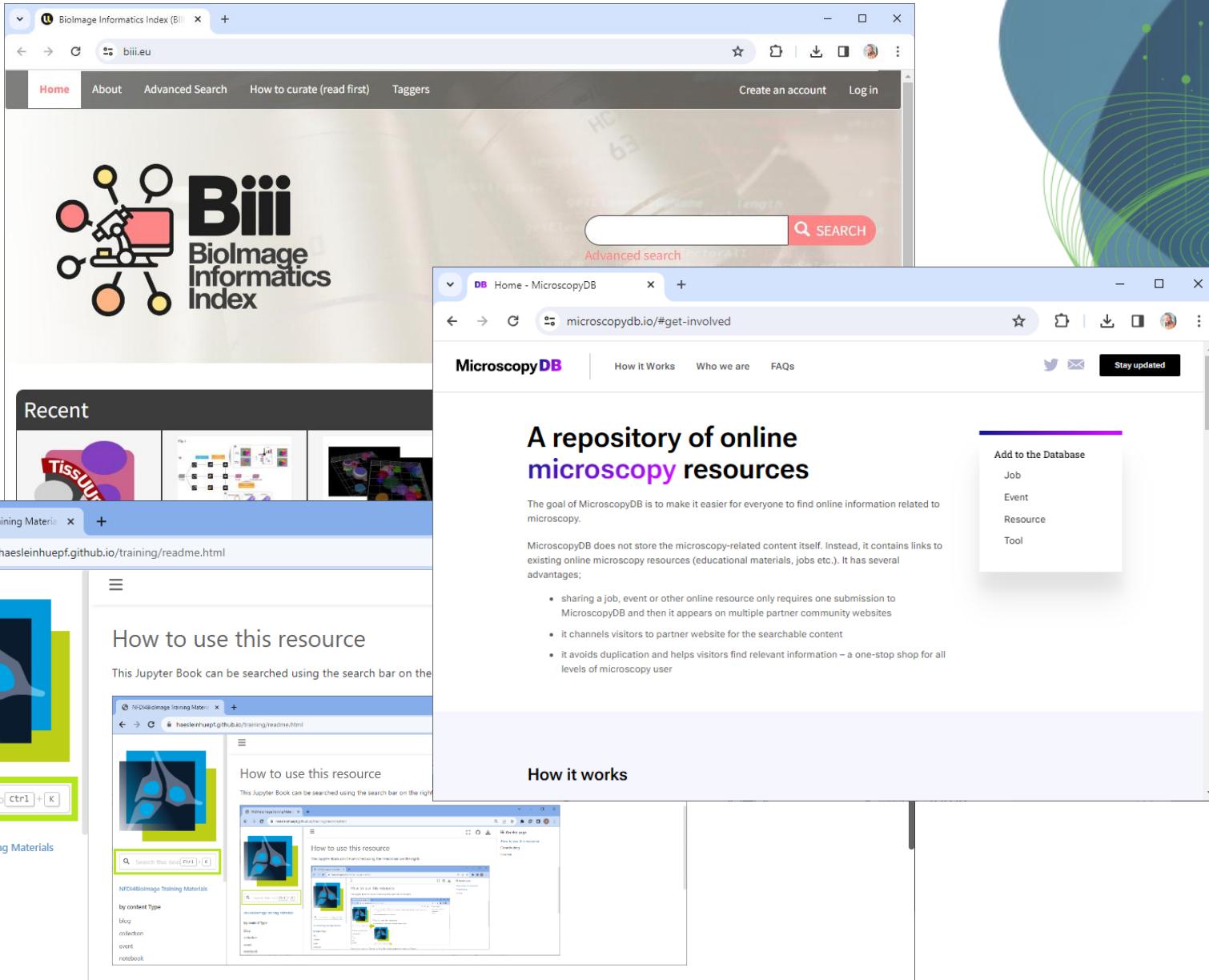
- Make sure your materials are listed in public search indices
- Do not trust google to make your stuff findable



The bio.tools homepage features the Elixir bio.tools logo at the top. Below it is a large search bar with the placeholder "Search bio.tools". A blue sidebar on the left contains the text "bio.tools" and "Essential scientific and technical information about software tools, databases and services for bioinformatics and the life sciences." At the bottom of the sidebar is another search bar.



A screenshot of a Jupyter Book titled "NFDI4BioImage Training Materials". The page includes a search bar with the placeholder "Search this book [ctrl + K]". Below the search bar, there's a section titled "How to use this resource" with the subtext "This Jupyter Book can be searched using the search bar on the right". On the left, there's a sidebar with a search bar and a "by content Type" dropdown menu containing options: blog, collection, event, and notebook.

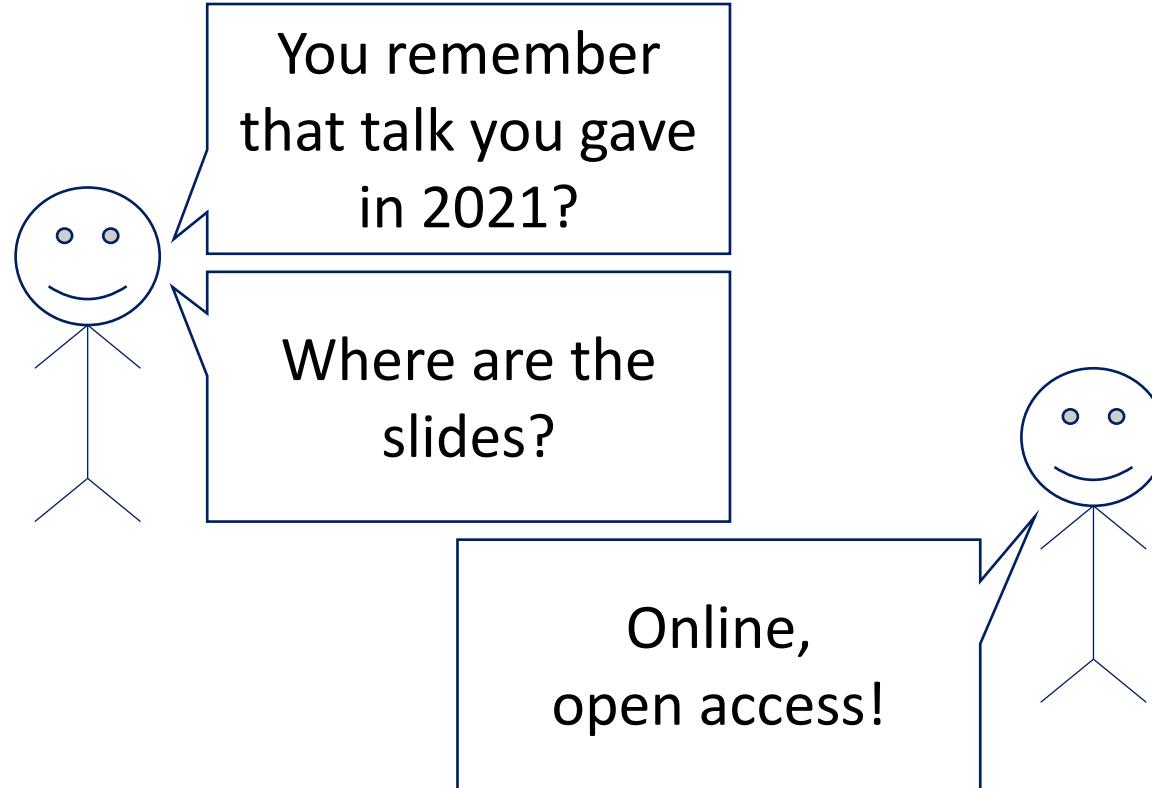


Three screenshots illustrating indexing and repository services:

- BiiI (Biolimage Informatics Index):** Shows the BiiI logo and a search bar. The "Recent" section displays thumbnails for "Tissue" and other microscopy-related content.
- MicroscopyDB:** Shows the MicroscopyDB homepage with a search bar and sections for "How it Works", "Who we are", and "FAQs". A sidebar on the right provides links to "Add to the Database", "Job", "Event", "Resource", and "Tool".
- NFDI4BioImage training materials:** Shows a screenshot of the NFDI4BioImage Training Materials Jupyter Book, demonstrating how it can be indexed and searched.

Incentives: Findability

- Your *future-self* will thank you, because they will find your work



Sharing and licensing material | f1000research.com/slides/10-519

f1000Research

BROWSE GATEWAYS & COLLECTIONS HOW TO PUBLISH ABOUT BLOG MY RESEARCH SIGN IN

Metrics | 411 Views | 60 Downloads

DOWNLOAD 30.92 MB

SHARE CITE

PART OF THE GATEWAY

neubias - the Bioimage Analysts Network

BROWSE BY RELATED SUBJECTS

Artificial intelligence

Computer and information sciences

Electrical engineering

Slides

Code

Text

Data

...

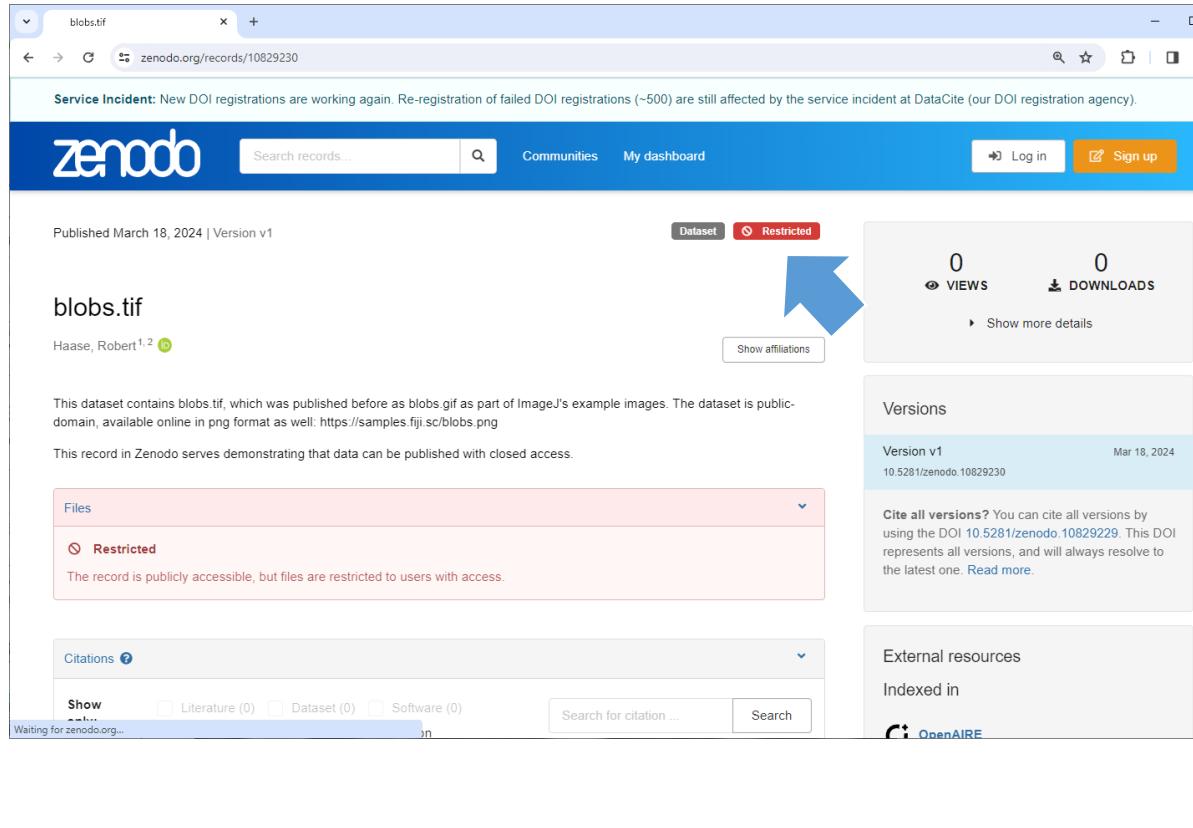
Sharing and licensing material
Robert Haase
June 30th 2021

This material is licensed by Robert Haase, PoL Dresden under the CC-BY 4.0 license <https://creativecommons.org/licenses/by/4.0/>

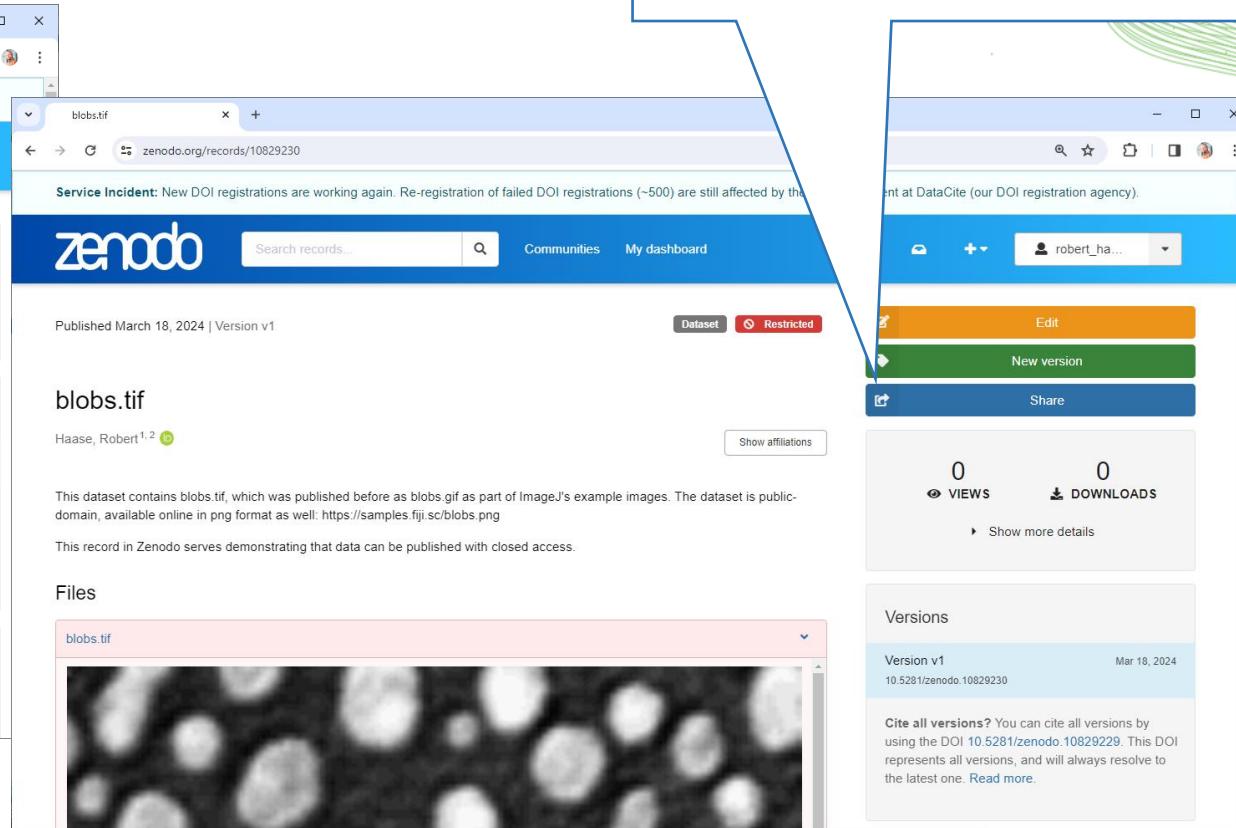
TECHNISCHE UNIVERSITÄT DRESDEN

Accessibility

- The A in FAIR does not necessarily stand for Open Access



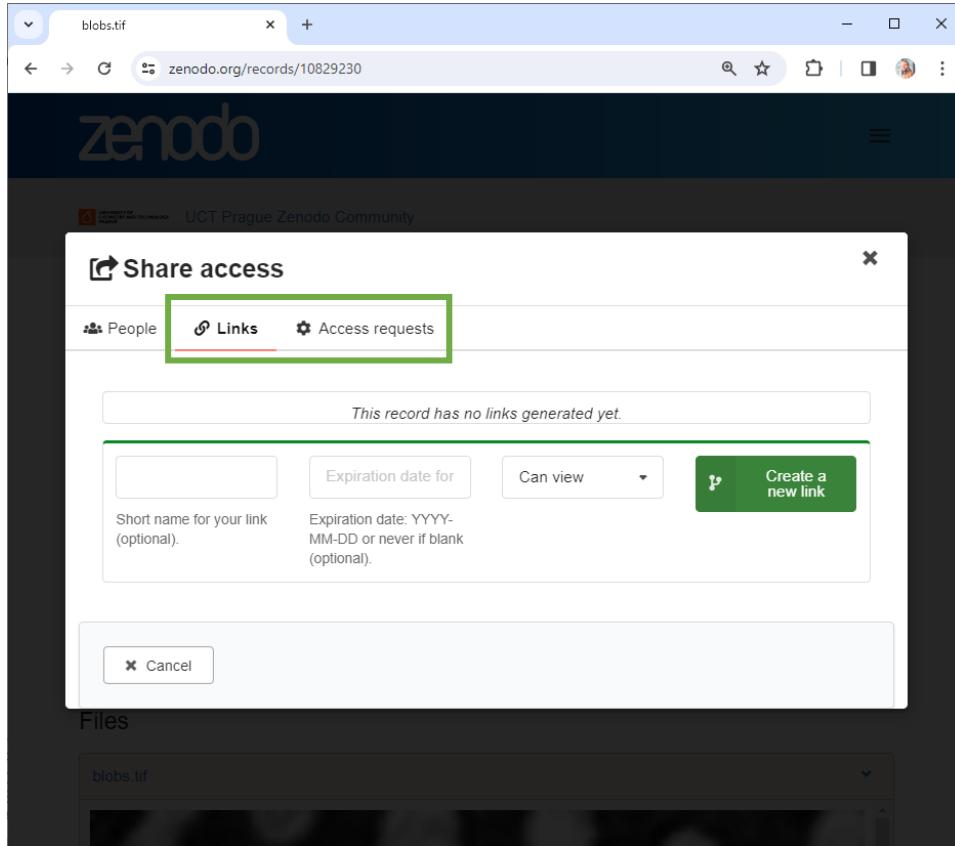
A screenshot of a Zenodo dataset page for 'blobs.tif'. The page shows basic statistics: 0 views and 0 downloads. A large blue arrow points from the 'Show more details' link under the stats to the 'Show affiliations' button. Below the stats, there's a 'Versions' section with one entry: 'Version v1' published on Mar 18, 2024, with the DOI 10.5281/zenodo.10829230. A 'Cite all versions?' link is present. The 'Files' section is highlighted with a pink background and shows a 'Restricted' status, with a note that the record is publicly accessible but files are restricted. The 'External resources' section lists 'Indexed in OpenAIRE'.



A screenshot of the same Zenodo dataset page for 'blobs.tif', but with a different user session. The 'Show affiliations' button is now visible. The 'Files' section is now highlighted with a green background and shows a 'Restricted' status, with a note that the record is publicly accessible but files are restricted. The 'External resources' section lists 'Indexed in OpenAIRE'.

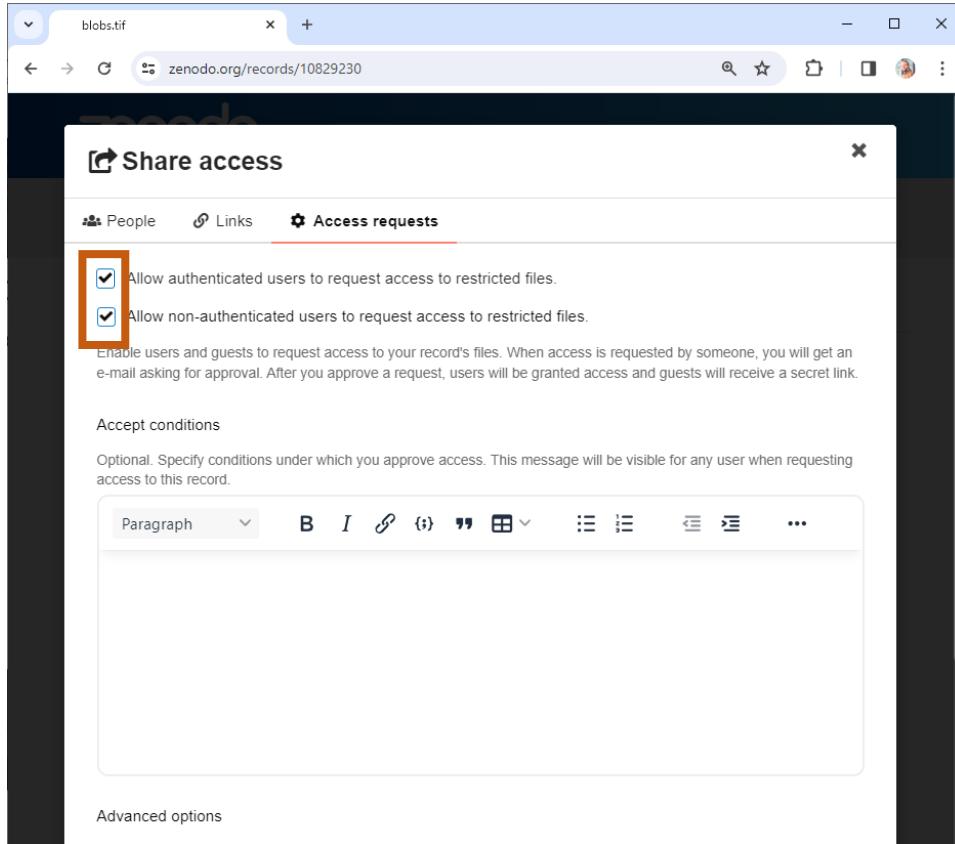
Accessibility

- The A in FAIR does not necessarily stand for Open Access



Accessibility

- The A in FAIR does not necessarily stand for Open Access



A screenshot of the Zenodo dataset page for blobs.tif. The top navigation bar shows the URL zenodo.org/records/10829230 and indicates the dataset is 'Restricted'. The main content area includes:

- blobs.tif** by Haase, Robert^{1,2} (ORCID), Schätzl, Martin
- Published March 18, 2024 | Version v1
- Files**: Shows a 'Restricted' status with the note: "The record is publicly accessible, but files are restricted to users with access."
- Request access**: A form for users to request access, including fields for 'Your email address' and 'Your full name', and a checkbox for 'I agree to that my full name and email address is shared with the owners of the record'.
- Statistics**: 26 views, 0 downloads.
- Versions**: Version v1 (Mar 18, 2024).
- Cite all versions?**: You can cite all versions by using the DOI 10.5281/zenodo.10829229. This DOI represents all versions, and will always resolve to the latest one. [Read more](#).
- External resources**: Indexed in OpenAIRE.
- Communities**: UCT Prague Zenodo Community.
- Details**: DOI 10.5281/zenodo.10829230.

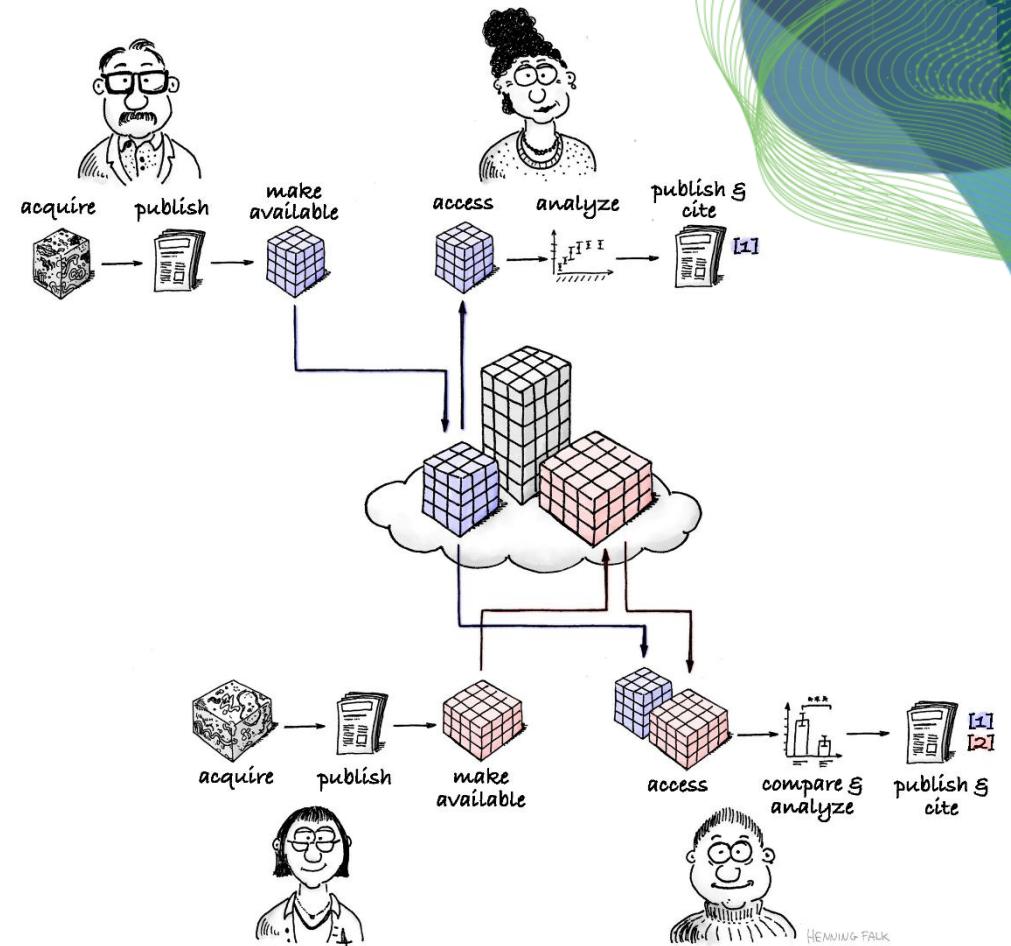
Interoperability

- I1. (Meta)data use a formal, accessible, shared, and broadly applicable language for knowledge representation.
- I2. (Meta)data use vocabularies that follow FAIR principles
- I3. (Meta)data include qualified references to other (meta)data



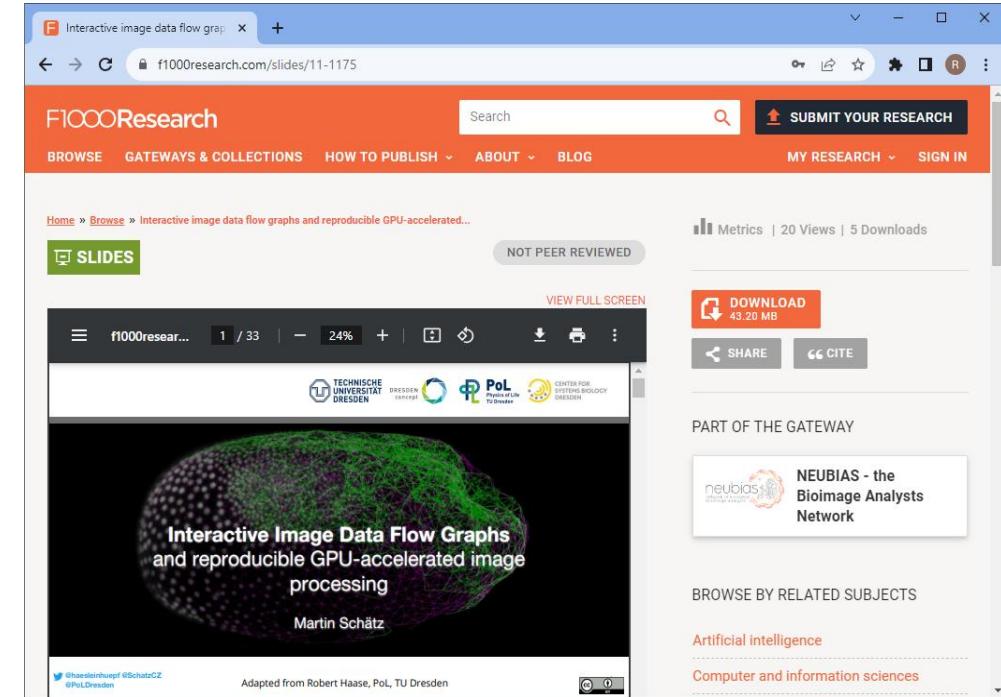
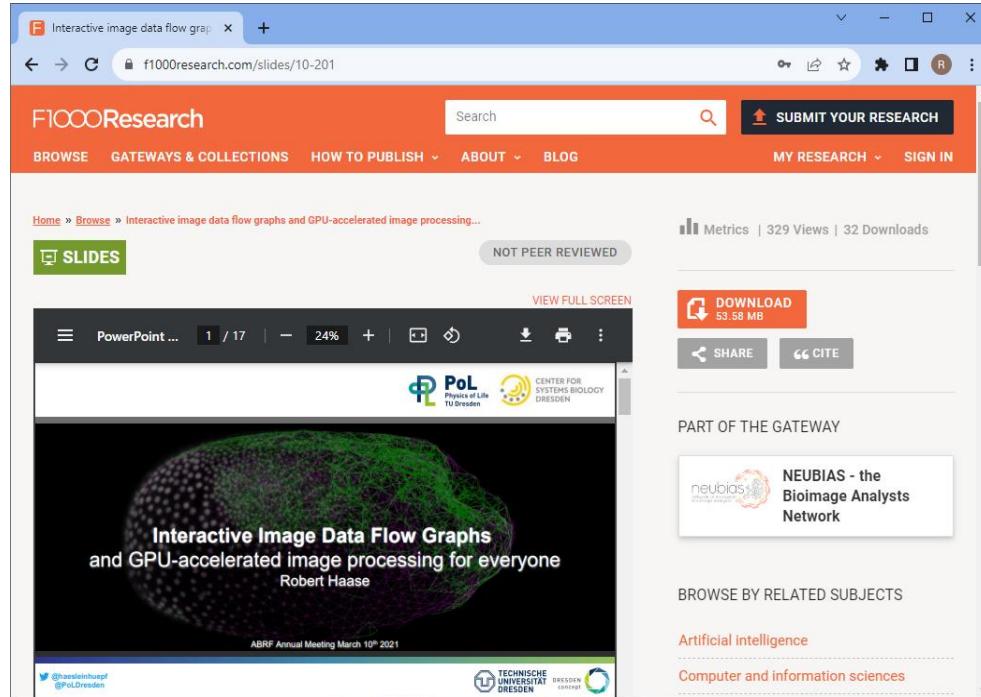
Reusability

- R1. (Meta)data are richly described with a plurality of accurate and relevant attributes
- R1.1. (Meta)data are released with a clear and accessible data usage license
- R1.2. (Meta)data are associated with detailed provenance
- R1.3. (Meta)data meet domain-relevant community standards



Incentives: Reusability

- Open Educational Resources
-> Others teach how to use your *tools & methods*



Incentives: Citability

The screenshot shows a Zenodo dataset page for a dataset associated with an article. The dataset has 240 views and 131 downloads. It contains three versions, with the latest being Version v1 (Sep 22, 2022). The dataset includes seismic data from Gornergletscher fieldtest, 2021, weather data from Monte Rosa, and MSR logger data. The citation section provides details for citing the dataset, and the export section allows for JSON export.

Dataset associated with article: Self-sufficient seismic boxes for monitoring glacier seismology in Greenland

Published September 22, 2022 | Version Uploaded at 2023-01-09

Dataset Open

240 VIEWS 131 DOWNLOADS

Versions

Version Uploaded at 2023-01-09 Sep 22, 2022
10.5281/zenodo.7516192

Version v1 Sep 22, 2022
10.5281/zenodo.7105051

Cite all versions? You can cite all versions by using the DOI 10.5281/zenodo.7105051. This DOI represents all versions, and will always resolve to the latest one. [Read more](#).

Weather_station_data_Greenland_2021.zip
md5:90d1bae30bde05352d97e09ee6897af1

23.8 kB

Rights

Creative Commons Attribution 4.0 International

Citation

Ana Nap, Fabian Walter, & Martin P. Lüthi. (2022). Dataset associated with article: Self-sufficient seismic boxes for monitoring glacier seismology in Greenland (Uploaded at 2023-01-09) [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.7516192>

Style APA Export

Export

JSON Export

Technical metadata

Created January 9, 2023
Modified April 3, 2023

Where to share?

- Open science related content
 - bioRxiv (manuscripts, no reviews)
 - Figshare
 - F1000
 - Bioimage Archive (data)
 - Github (code)
 - Zenodo
 - Focalplane
 - Institutional servers
(if there is no alternative)



Zenodo

- Publicly funded infrastructure @ CERN / Switzerland

The image displays two side-by-side screenshots of the Zenodo website. The left screenshot shows the homepage with a blue header and a 'Featured communities' section. It highlights the European Climate and Modelling Forum, which is associated with a circular logo composed of overlapping colored lines. A 'Browse' button is visible next to the forum's name. Below this, a text snippet reads: 'ECEMF is a Horizon 2020-funded project to establish a European forum for energy...'. The right screenshot shows the main navigation menu of the website. It includes links for 'About', 'Blog', 'Help', 'Developers', 'Contribute', and various documentation and support links. At the bottom of the page, there are logos for 'CERN', 'OpenAIRE', and the European Union, along with a note about being 'Powered by CERN Data Centre & InvenioRDM'. The footer also includes links for 'Status', 'Privacy policy', 'Cookie policy', 'Terms of Use', and 'Support'.

Sharing files on Zenodo

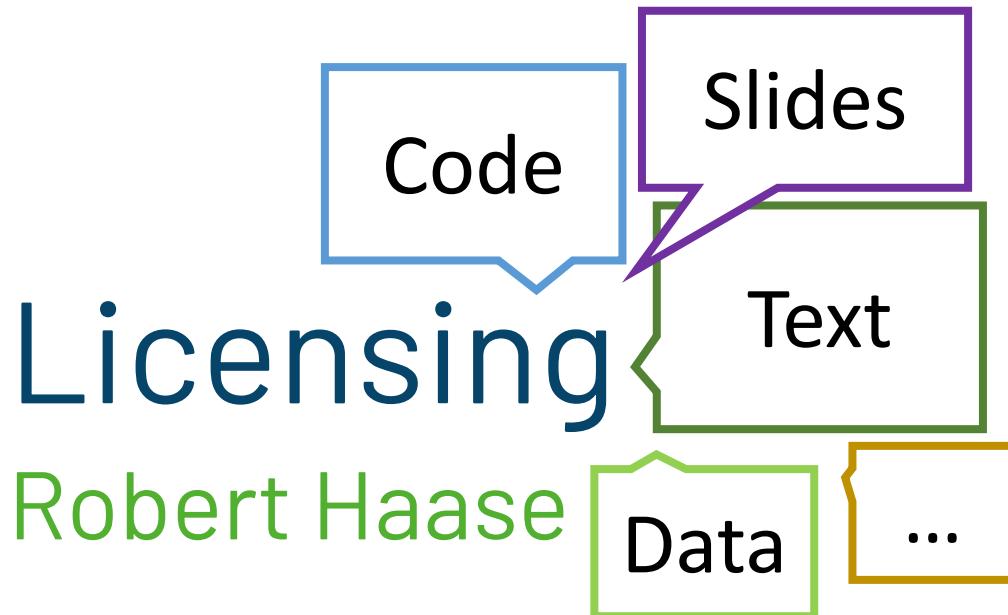
- ... is easier than you think

The image displays three screenshots of the FocalPlane website, illustrating the steps to share research data with Zenodo.

- Screenshot 1:** The homepage of FocalPlane (<https://focalplane.biologists.com/>). It features a banner for "Sharing research data with Zenodo".
- Screenshot 2:** A "How to" guide titled "Sharing research data with Zenodo". It includes a summary of the process: "Sharing data open access is good scientific practice. If data is shared via online portals such as <https://zenodo.org>, we can implement best practices for sharing, licensing, reusing and citing research data. In this blog post I guide through the minimal procedures that are necessary to share a dataset publicly following the FAIR principles; to make it Findable, Accessible, Interoperable and Reusable." It also shows a screenshot of a Zenodo dataset page.
- Screenshot 3:** The "Zenodo" section of the FocalPlane website. It describes Zenodo as a platform for sharing data openly for free, funded by CERN, OpenAIRE, and the European Union Horizon 2020 programme. It highlights the ability to see who were the authors of the dataset, meta data, and download frequency. It includes a "Log in/register" button and a "How to" sidebar.
- Screenshot 4:** The "Upload form" on the Zenodo website (<https://zenodo.org/deposit?&page=1&size=20&status=published&sort=-version>). It shows a list of uploaded files, including "BIAPol/Image-data-science-with-Python-and-Napari-EPFL2022: 2022.12.12", "haesleinhuepf/napari-ownloud: 0.1.2", "haesleinhuepf/napari-assistant-p: 0.1.0-for-zendodo", and "haesleinhuepf/napari-assistant: 0.4.4". A green arrow points to the "Upload" button.

Exercise!

<https://sandbox.zenodo.org/>



Licensing
Robert Haase



These slides can be reused under the terms of the
[CC-BY 4.0](#) license unless mentioned otherwise.



Quiz

- When you shared materials publicly on the internet, which *license* did you use?

None



Public
Domain



Creative
Commons



BSD/GPL/
MIT/...

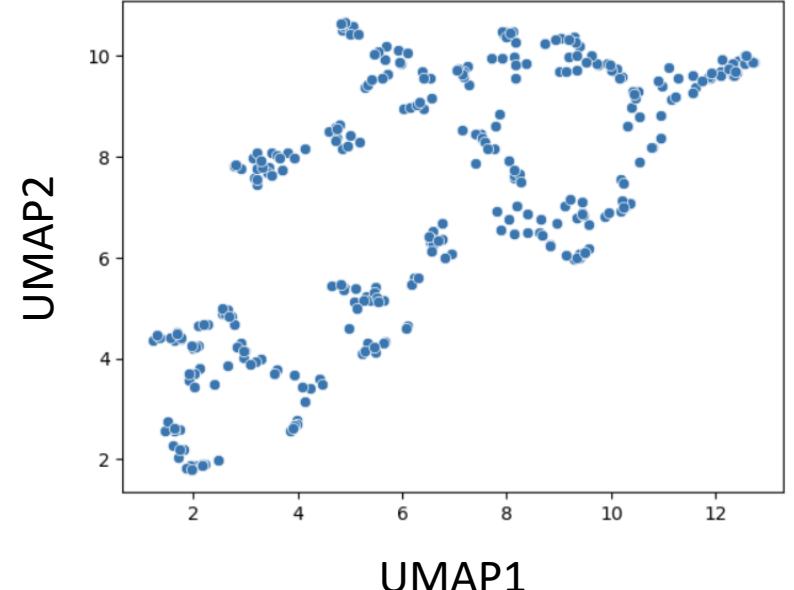


Quiz

How can you reuse
this plot?
What is allowed?

New Tab

Clustering objects can be challenging when working with many parameters, in particular when interacting with data manually. To reduce the number of parameters, dimensionality reduction techniques such as the Uniform Manifold Approximation Projection (UMAP) have been developed. In this notebook we use the technique to differentiate nuclei in an image which are mitotic from those which are not mitotic.



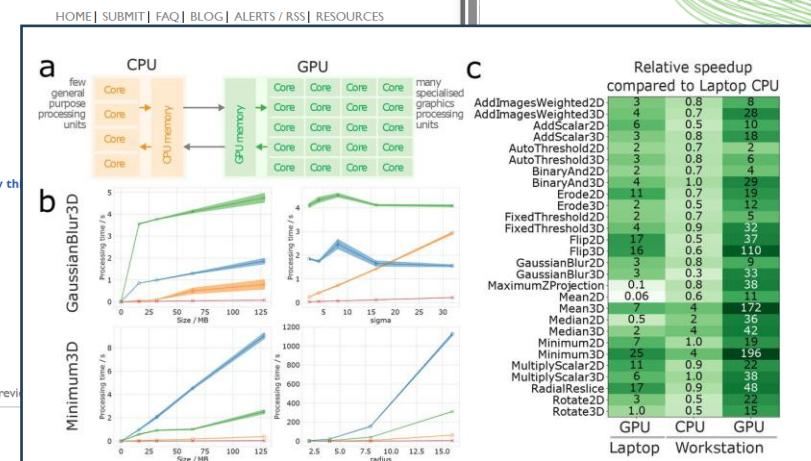
Copyright © 2025 Journal XYZ. All Rights Reserved.

Hint: Search for pre-prints

In case a journal doesn't allow reusing figures from a paper, search for the corresponding preprint!

The screenshot shows the Nature Methods website. The main article title is 'CLIJ: GPU-accelerated image processing for everyone'. It includes author information (Robert Haase, Loic A. Royer, Peter Steinbach, Deborah Schmidt, Alexander Dibrov, Uwe Schmidt, Martin Weigert, Nicola Maghelli, Pavel Tomancak, Florian Jug & Eugene W. Myers), publication details (Nature Methods 17, 5–6 (2020) | Cite this article), and access options. A note states 'Access to this article via Universitätsbibliothek Leipzig AG eMedien is not available.' Below the main content, there's a sidebar for 'Access options' and a promotional section for 'Nature and 54 other Nature Portfolio journals'.

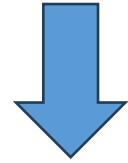
The screenshot shows the bioRxiv preprint server. The article title is 'CLIJ: GPU-accelerated image processing for everyone'. It includes the same author and publication information as the Nature Methods version. The bioRxiv interface includes sections for 'Abstract', 'Full Text', 'Info/History', and 'Metrics'. A note at the bottom states 'Now published in Nature Methods doi: 10.1038/s41592-019-0650-i'.



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I just would like to
make a point.

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Example

The screenshot shows a bioRxiv preprint page for "BiolImage Model Zoo: A Community-Driven Resource for Accessible Deep Learning in BiolImage Analysis". The page includes the CSHL logo, the bioRxiv header, and various sharing options. A red box highlights the "CC-BY-ND 4.0 International license" link under the "Copyright" section.

New Results Follow this preprint

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Wei Ouyang, Fynn Beuttenmueller, Estibaliz Gómez-de-Mariscal, Constantin Pape, Tom Burke, Carlos García-López-de-Haro, Craig Russell, Lucía Moya-Sans, Cristina de-la-Torre-Gutiérrez, Deborah Schmidt, Dominik Kutra, Maksim Novikov, Martin Weigert, Uwe Schmidt, Peter Bankhead, Guillaume Jacquemet, Daniel Sage, Ricardo Henriques, Arrate Muñoz-Barrutia, Emma Lundberg, Florian Jug, Anna Kreshuk

doi: <https://doi.org/10.1101/2022.06.07.495102>

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0 0 0 0 0 186

Abstract Full Text Info/History Metrics Preview PDF

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doi: <https://doi.org/10.1101/2022.06.07.495102>
History June 8, 2022.
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COVID-19 SARS-CoV-2 preprints from medRxiv and bioRxiv

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The screenshot shows a bioRxiv preprint page. The title is "Omnipose: a high-precision morphology-independent solution for bacterial cell segmentation" by Kevin J. Cutler, Carsen Stringer, Paul A. Wiggins, Joseph D. Mougous. The DOI is <https://doi.org/10.1101/2021.11.03.467199>. The page includes sharing options (Email, Share, Data/Code, Citation Tools, Revision Summary), a "Post" button, and a sidebar for COVID-19 SARS-CoV-2 preprints from medRxiv and bioRxiv. At the bottom, there is a copyright notice: "The copyright holder for this preprint is the author/funder, who has granted bioRxiv a license to display the preprint in perpetuity. It is made available under a CC-BY-NC-ND International license."

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Example

The screenshot shows a bioRxiv preprint page for "napari-threede: a toolkit for human-in-the-loop 3D image analysis in napari". The page includes the CSHL logo, the bioRxiv header "THE PREPRINT SERVER FOR BIOLOGY", and a search bar. The main content area displays the article title, authors (Kevin A. Yamauchi, Alister Burt), DOI, and a note that it is a preprint. Below this are social media sharing icons and navigation links for Abstract, Full Text, Info/History, Metrics, and Preview PDF. The "Info/History" tab is selected. In the "ARTICLE INFORMATION" section, there is a "Copyright" notice: "The copyright holder for this preprint is the author/funder, who has granted bioRxiv a license to display the preprint in perpetuity. It is made available under a CC-BY-ND 4.0 International license." This text is highlighted with a red rectangular box. To the right of the main content, there is a sidebar with links to "HOME", "SUBMIT", "FAQ", "BLOG", "ALERTS / RSS", "ABOUT", "CHANNELS", and "Search" (with "Advanced Search" below it). There are also links for "Download PDF", "Print/Save Options" (which is checked), "Email", "Share", and "Citation Tools". A "Post" button is located below these. At the bottom of the sidebar, there are links for "COVID-19 SARS-CoV-2 preprints from medRxiv and bioRxiv", "Subject Area" (Bioengineering), "Subject Areas", and "All Articles".

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The screenshot shows a web browser displaying a bioRxiv preprint page. The title is "BIAFLows: A collaborative framework to reproducibly deploy and benchmark bioimage analysis workflows". The authors listed are Ulysse Rubens, Romain Mormont, Lassi Paavolainen, Volker Bäcker, Gino Michiels, Benjamin Pavie, Leandro A. Scholz, Martin Maska, Devrim Ünay, Graeme Ball, Renaud Hoyoux, Rémy Vandaele, Ofra Golani, Anatole Chessel, Stefan G. Stanciu, Natasa Sladoje, Perrine Paul-Gilloteaux, Raphaël Marée, Sébastien Tosi. The DOI is <https://doi.org/10.1101/707489>. The preprint was posted on February 06, 2020. On the right side, there is a sidebar with download options: PDF, Print/Save Options (selected), Email, Share, Citation Tools, Supplementary Material, Data/Code, and Revision Summary. Below these are buttons for Post and Share. A red box highlights the copyright notice at the bottom of the page: "Copyright: The copyright holder for this preprint is the author/funder, who has granted bioRxiv a license to display the preprint in perpetuity. All rights reserved. No reuse allowed without permission." The page also includes sections for Article Information (DOI, History), Article Versions (Version 1, Version 2, Version 3), and Subject Areas (Bioinformatics).

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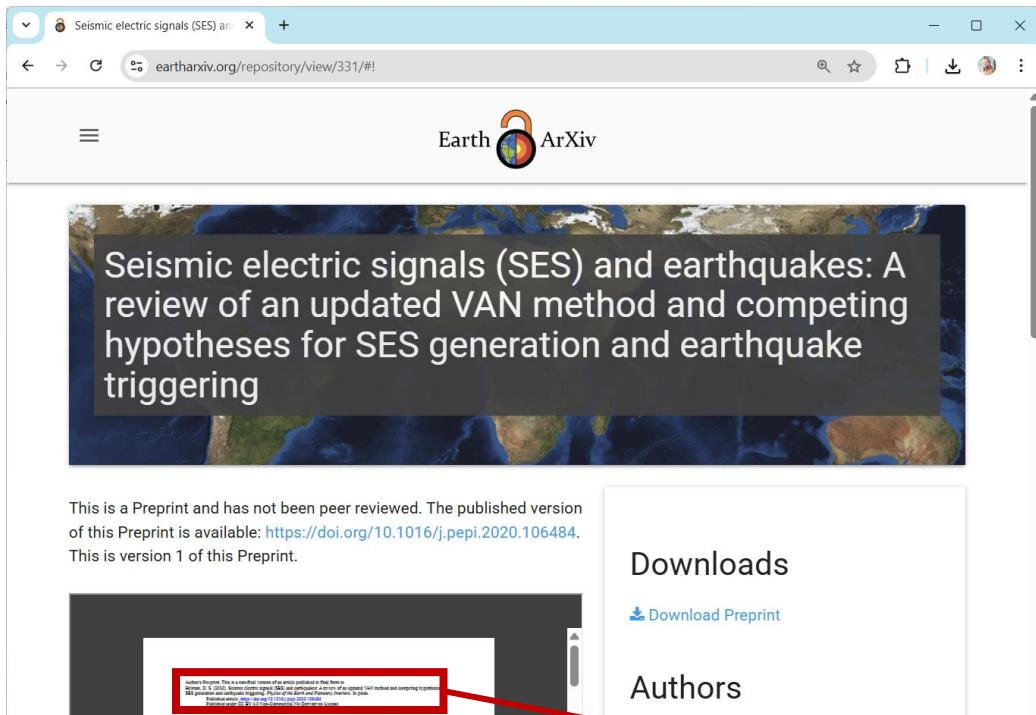
The screenshot shows a bioRxiv preprint page for "ModularImageAnalysis (MIA): Assembly of modularised image and object analysis workflows in ImageJ". The page includes author information (Stephen J. Cross, Jordan D. J. R. Fisher, Mark A. Jepson), a DOI, and a note about publication in the Journal of Microscopy. It features social sharing icons and navigation links for abstract, full text, and metrics. The "Info/History" tab is selected. In the "ARTICLE INFORMATION" section, there is a red box highlighting the copyright notice: "The copyright holder for this preprint is the author/funder, who has granted bioRxiv a license to display the preprint in perpetuity. All rights reserved. No reuse allowed without permission." Below this, a sidebar lists COVID-19 SARS-CoV-2 preprints from medRxiv and bioRxiv, and categories like Bioinformatics and Subject Area.

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Author's Pre-print. This is a non-final version of an article published in final form in
Helman, D. S. (2020). Seismic electric signals (SES) and earthquakes: A review of an updated VAN method and competing hypotheses for
SES generation and earthquake triggering. *Physics of the Earth and Planetary Interiors*. In press.

Published article: <https://doi.org/10.1016/j.pepi.2020.106484>

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Robert Haase, Hans-Joachim Böhme, Daniel Zips & Nasreddin Abolmaali

Conference paper

1628 Accesses | 2 Citations | 3 Altmetric

Part of the [Lecture Notes in Computer Science](#) book series (LNCS, volume 7006)

Abstract

For special applications in diagnostics for oncology the analysis of imaging data from Positron Emission Tomography (PET) is obfuscated by low contrast and high noise. To deal with this issue we propose a segmentation algorithm based on Ant Colony Optimization (ACO) and evolutionary selection of ants for self reproduction. The self reproduction approach is no standard for ACO, but appears to be crucial for volume segmentation. This investigation was focused on two different ways for reproduction control and their contribution to quantity and

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much paying 100 Eur,
but the related
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a community-wide issue.

*I presume due to lack of
awareness & training*

Train the trainers!

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CC-BY-ND	✓	✗	✗
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Bad for the progress of science

In particular in the context of training

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Example



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A unified framework for versatile bioimage analysis with deep learning

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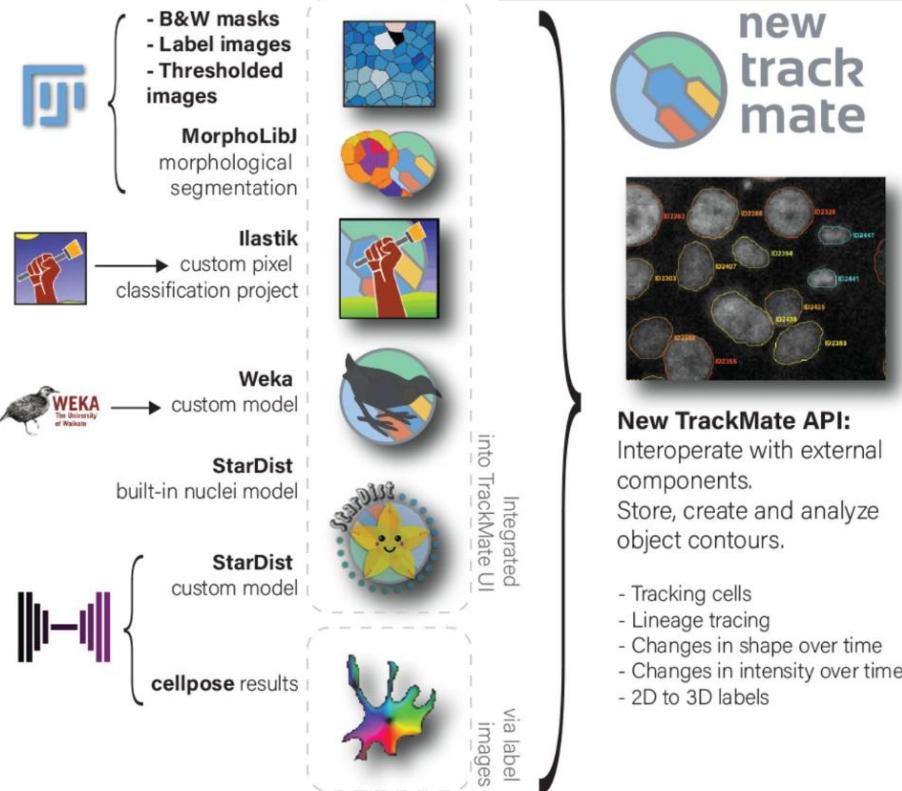
doi: <https://doi.org/10.1101/2024.02.03.576026>

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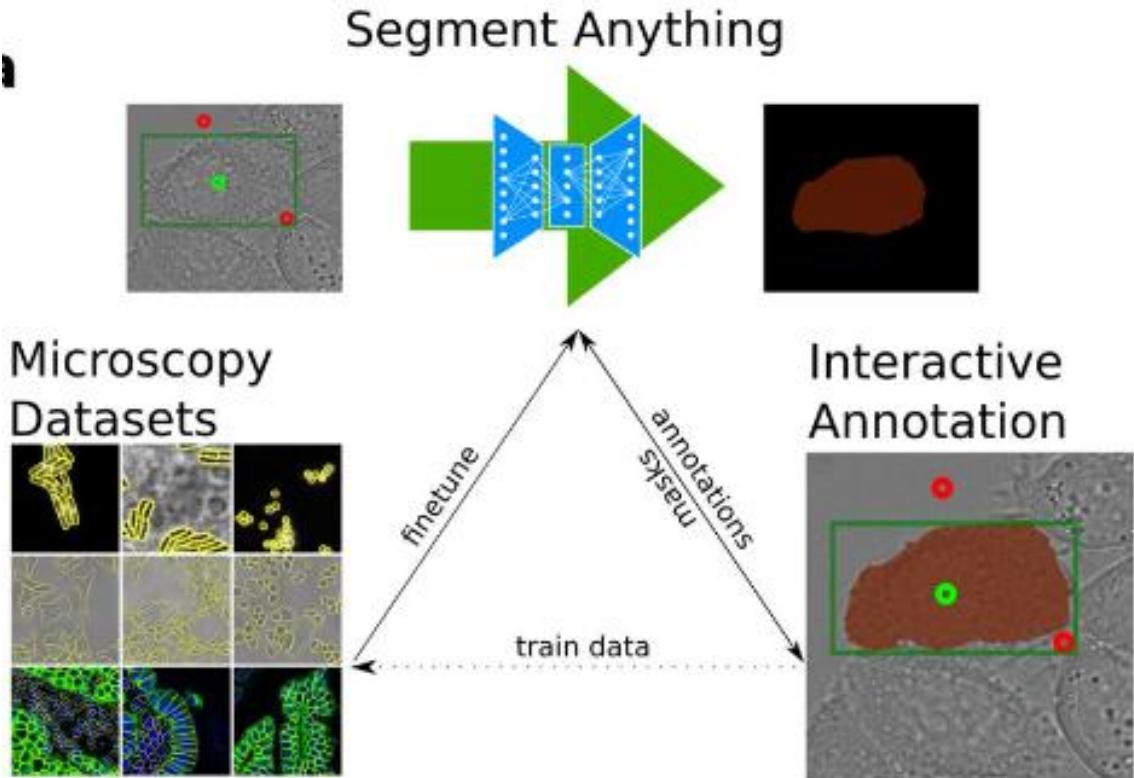
The screenshot shows the bioRxiv preprint page for the article "Bringing TrackMate into the era of machine-learning and deep-learning" by D. Ershov et al. The page includes the CSHL logo, the bioRxiv header, and the preprint details:

- New Results**
- Bringing TrackMate into the era of machine-learning and deep-learning**
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- doi**: <https://doi.org/10.1101/2021.09.03.458852>
- Metrics**: 196
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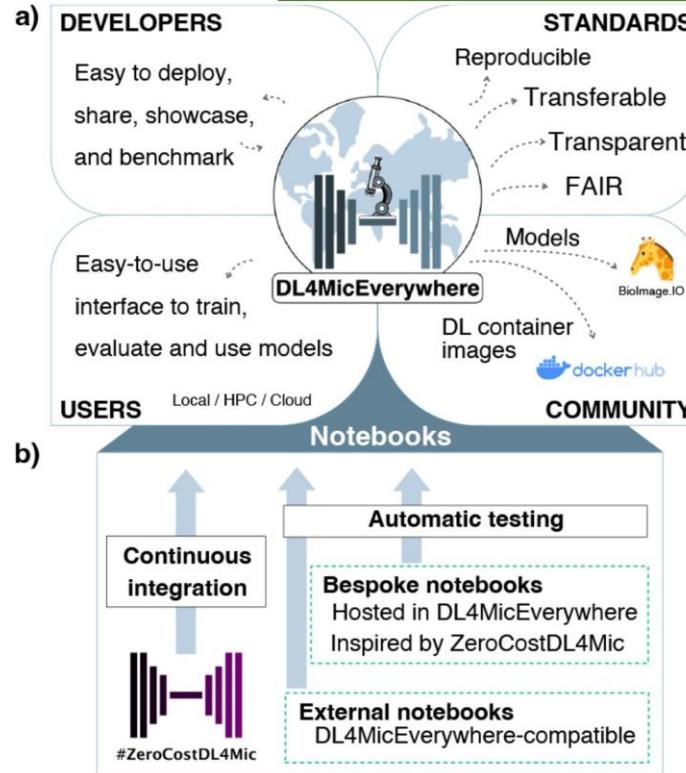
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The screenshot shows the bioRxiv preprint server interface for the article "DL4MicEverywhere: Deep learning for microscopy made flexible, shareable, and reproducible".

Header: DL4MicEverywhere: Deep learn... | bioRxiv.org/content/10.1101/2023.11.19.567606v1.article-info

Logo: CSHL Cold Spring Harbor Laboratory | bioRxiv THE PREPRINT SERVER FOR BIOLOGY

Article Summary: New Results | Follow this preprint | Previous | Next | Posted November 19, 2023.

Authors: Iván Hidalgo-Cenalmor, Joanna W Pylyväinäinen, Mariana G Ferreira, Craig T Russell, Ignacio Arganda-Carreras, AI4Life Consortium, Guillaume Jacquemet, Ricardo Henriques, Estibaliz Gómez-de-Mariscal

DOI: doi: <https://doi.org/10.1101/2023.11.19.567606>

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Metrics: 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 87 (Twitter)

Article Information: Abstract | Full Text | Info/History | Metrics | Preview PDF

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Subject Area: Bioinformatics

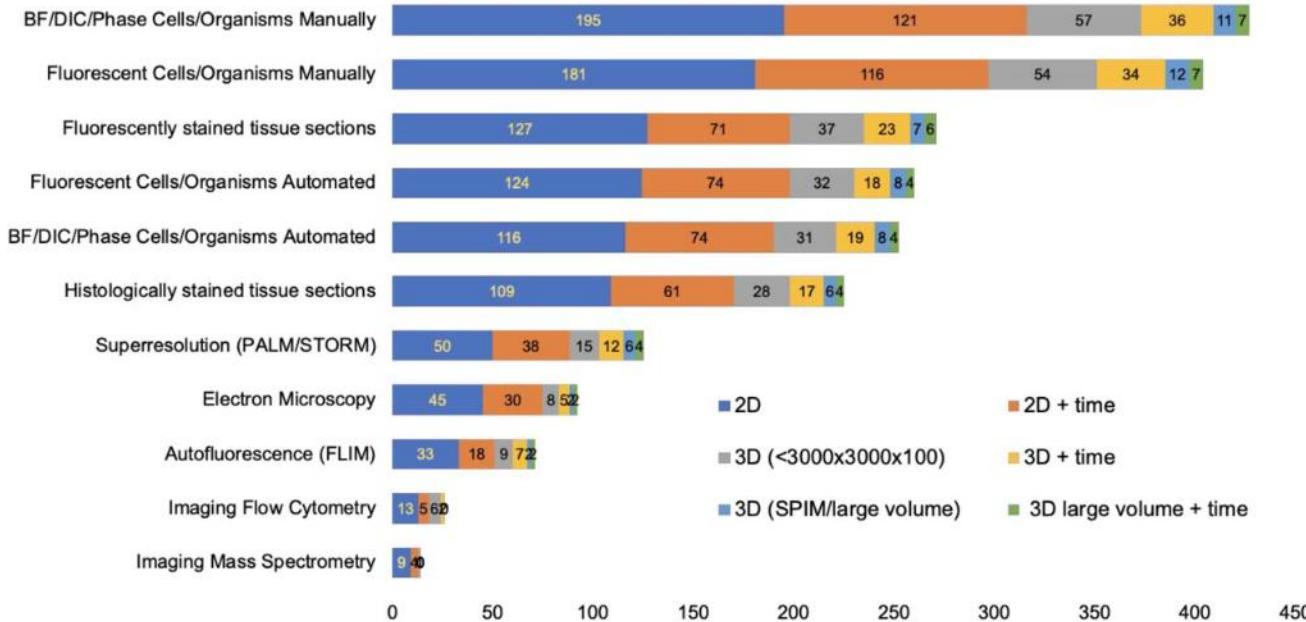
Subject Areas: All Articles | Animal Behavior and Cognition

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The screenshot shows the BioImage Archive homepage with a study details page overlaid. The study title is "The glucosylceramide synthase inhibitor PDMP causes lyso-somal lipid accumulation and mTOR inactivation". The study is attributed to Pia Hartwig and Doris Höglunger from Heidelberg University. The accession number is S-BIAD144. A data file list table is shown, with one row highlighted:

Name	Size	Section	staining	cells	labeling	treatment	Channel 1	Channel 2	timepoint
experimentA_11_WT_Miglustat.cz	1.6 MB	Study Component	click chemistry and IF	WT	pacSph	50 µM NB-DNJ (Miglustat)	pacSph	Lamp1	continuous labeling

The screenshot shows the bioRxiv preprint server page for the article "The BioImage Archive - building a home for life-sciences microscopy data" by Matthew Hartley, Gerard J. Kleywegt, Ardan Patwardhan, Ugis Sarkans, Jason R. Swedlow, Alvis Brazma. The article was posted on February 11, 2022, and is now published in the Journal of Molecular Biology with DOI 10.1101/2022.16.7505. The copyright notice states: "The copyright holder has placed this preprint in the Public Domain. It is no longer restricted by copyright. Anyone can legally share, reuse, remix, or adapt this material for any purpose without crediting the original authors."

Incentives

The system is changing currently towards more openness (thankfully)

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Lecturer*		
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Open Science

Open Training



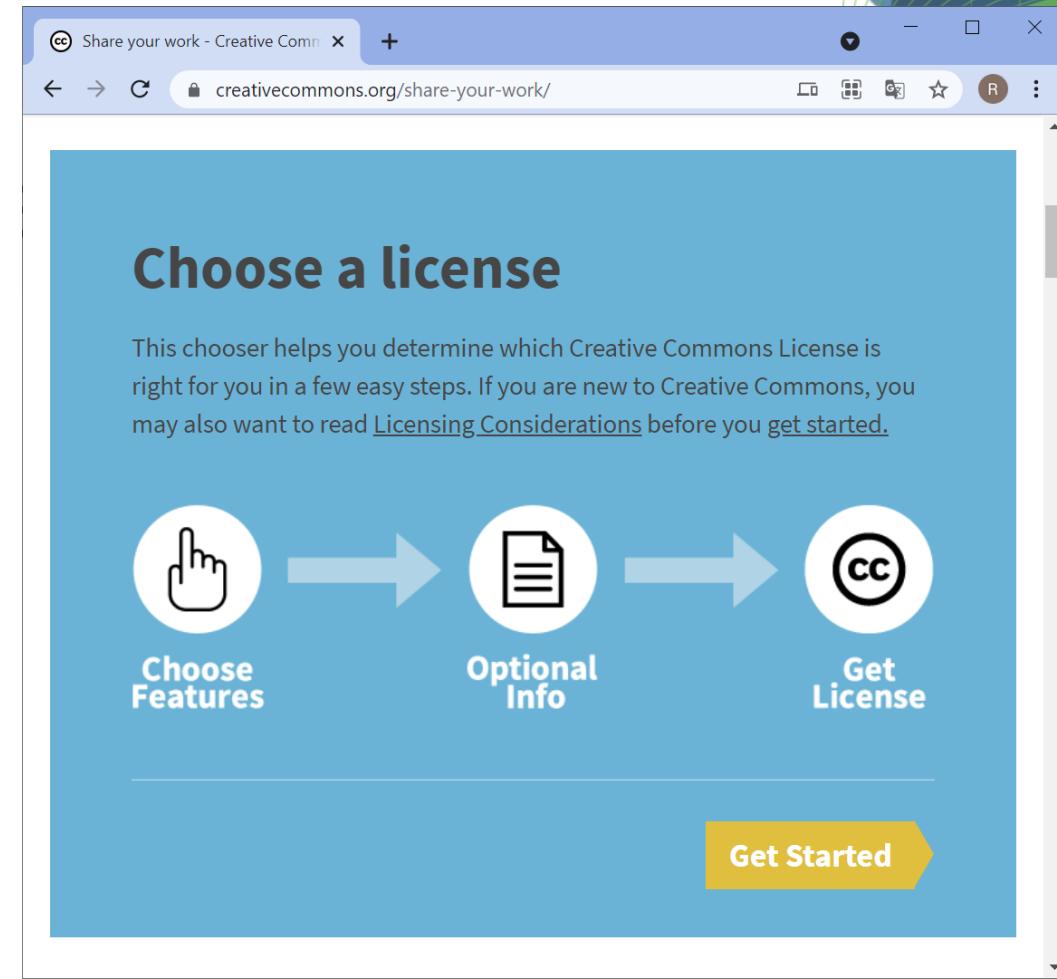
Also this seems to be changing thanks too new business models...

In industry, secrecy plays a key role because of \$\$

* Note: this may differ depending on the country. In the US, lecturer is a career path, in Germany not really.

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Example



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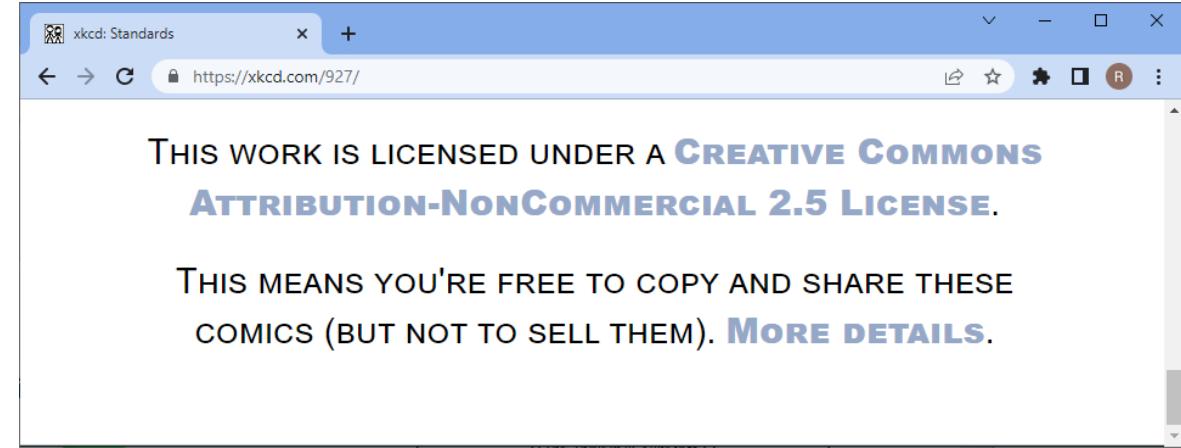
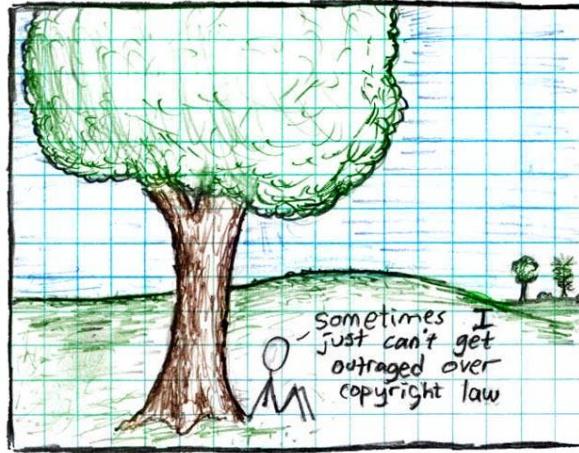
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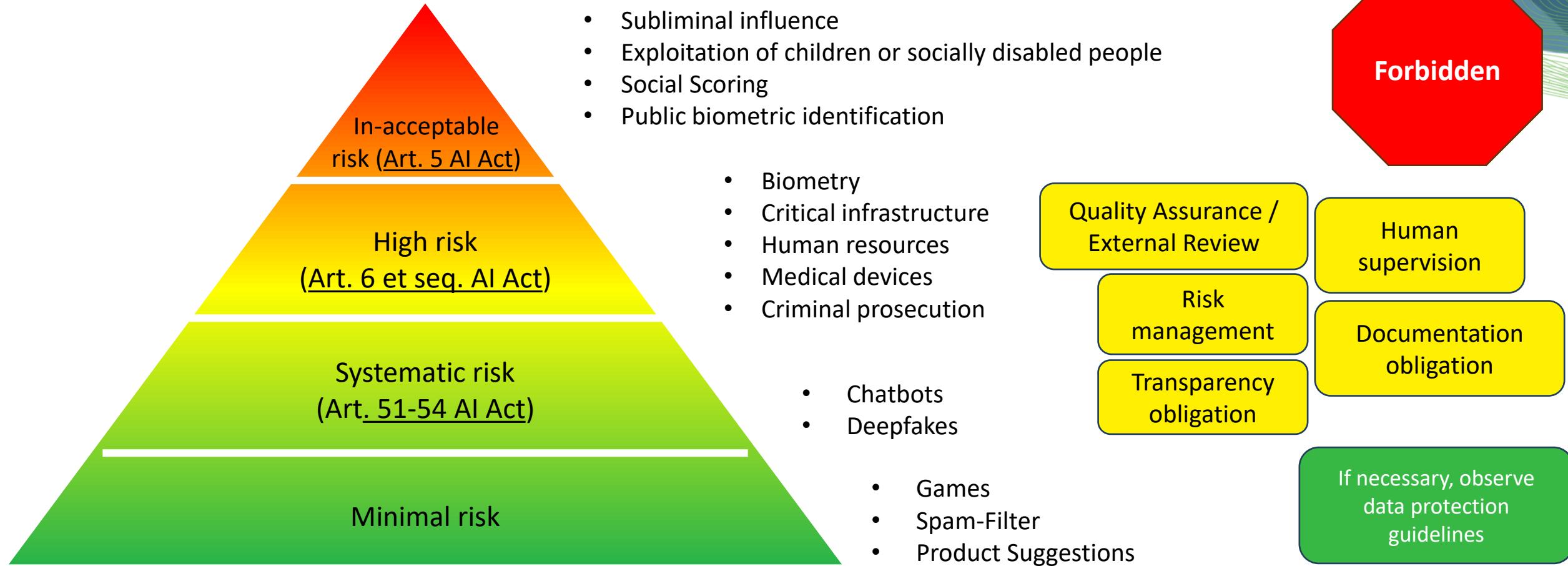
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EU AI Act – Risk-based approach

- Categorization of AI systems according to risk, consequences



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 - Sharing on Figshare
<https://focalplane.biologists.com/2023/07/26/sharing-your-poster-on-figshare/>
 - Collaborative work on github
<https://focalplane.biologists.com/2021/09/04/collaborative-bio-image-analysis-script-editing-with-git/>
 - Licensing
<https://focalplane.biologists.com/2023/05/06/if-you-license-it-itll-be-harder-to-steal-it-why-we-should-license-our-work/>

Acknowledgements

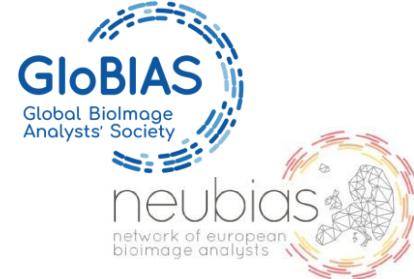
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NFDI4
BIOIMAGE



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und Forschung



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