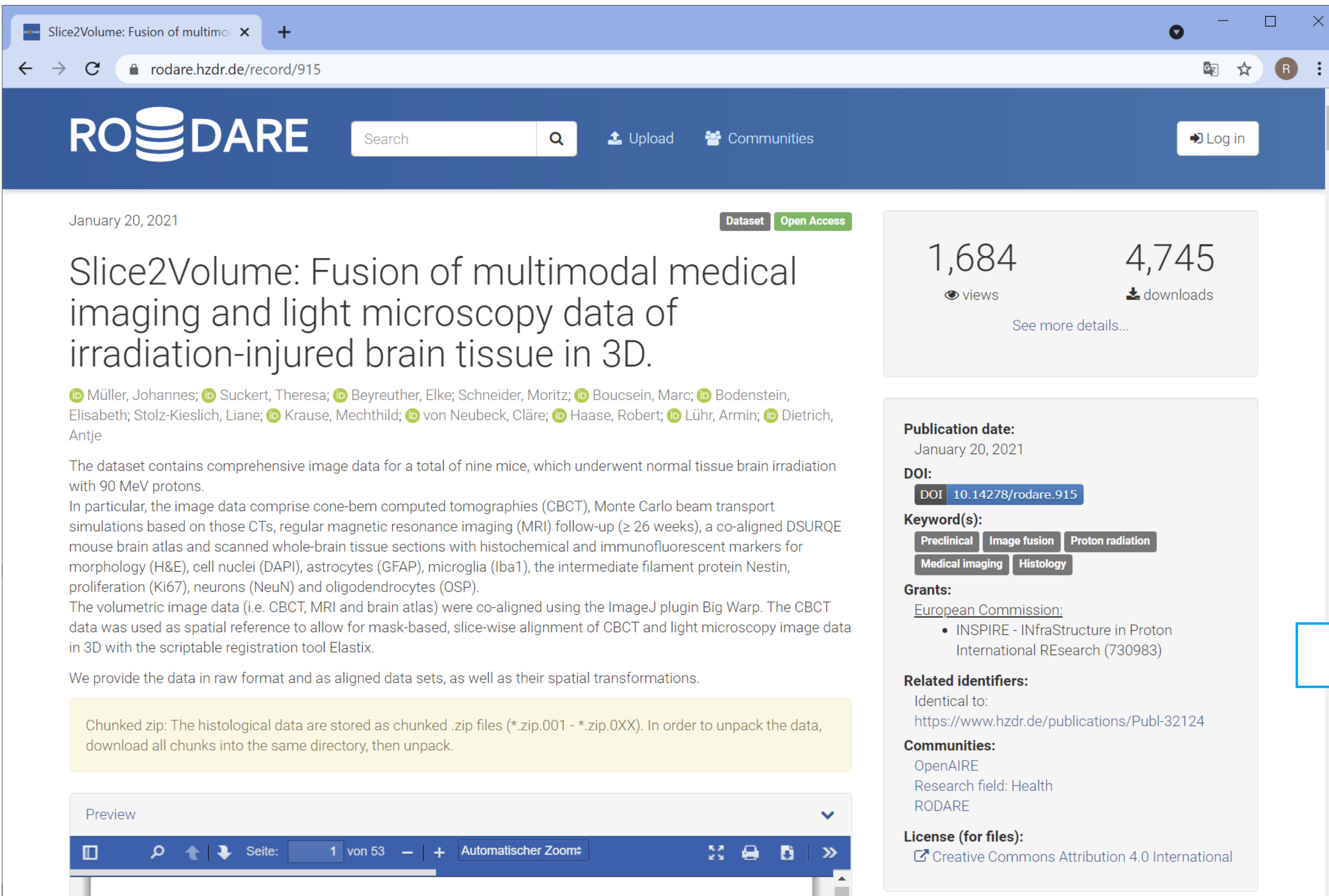


Use cases: Data













- Unique datasets
- Valuable for biologists
- Valuable for software developers
- Institutional servers / services
- <https://idr.openmicroscopy.org/>
- <https://zenodo.org>



January 20, 2021

Dataset **Open Access**

Slice2Volume: Fusion of multimodal medical imaging and light microscopy data of irradiation-injured brain tissue in 3D.

 Müller, Johannes;  Suckert, Theresa;  Beyreuther, Elke;  Schneider, Moritz;  Boucsein, Marc;  Bodenstein, Elisabeth;  Stolz-Kieslich, Liane;  Krause, Mechthild;  von Neubeck, Cläre;  Haase, Robert;  Lühr, Armin;  Dietrich, Antje

The dataset contains comprehensive image data for a total of nine mice, which underwent normal tissue brain irradiation with 90 MeV protons. In particular, the image data comprise cone-beam computed tomographies (CBCT), Monte Carlo beam transport simulations based on those CTs, regular magnetic resonance imaging (MRI) follow-up (≥ 26 weeks), a co-aligned DSURQE mouse brain atlas and scanned whole-brain tissue sections with histochemical and immunofluorescent markers for morphology (H&E), cell nuclei (DAPI), astrocytes (GFAP), microglia (Iba1), the intermediate filament protein Nestin, proliferation (Ki67), neurons (NeuN) and oligodendrocytes (OSP). The volumetric image data (i.e. CBCT, MRI and brain atlas) were co-aligned using the ImageJ plugin Big Warp. The CBCT data was used as spatial reference to allow for mask-based, slice-wise alignment of CBCT and light microscopy image data in 3D with the scriptable registration tool Elastix.

We provide the data in raw format and as aligned data sets, as well as their spatial transformations.

Chunked zip: The histological data are stored as chunked .zip files (*.zip.001 - *.zip.0XX). In order to unpack the data, download all chunks into the same directory, then unpack.

Preview

Seite: 1 von 53 — + Automatischer Zoom

1,684 views
4,745 downloads
See more details...

Publication date:
January 20, 2021


DOI:
DOI [10.14278/rodare.915](https://doi.org/10.14278/rodare.915)

Keyword(s):
Preclinical Image fusion Proton radiation
Medical imaging Histology

Grants:
[European Commission:](#)
• INSPIRE - INfraStructure in Proton International REsearch (730983)

Related identifiers:
Identical to:
<https://www.hzdr.de/publications/Publ-32124>

Communities:
OpenAIRE
Research field: Health
RODARE

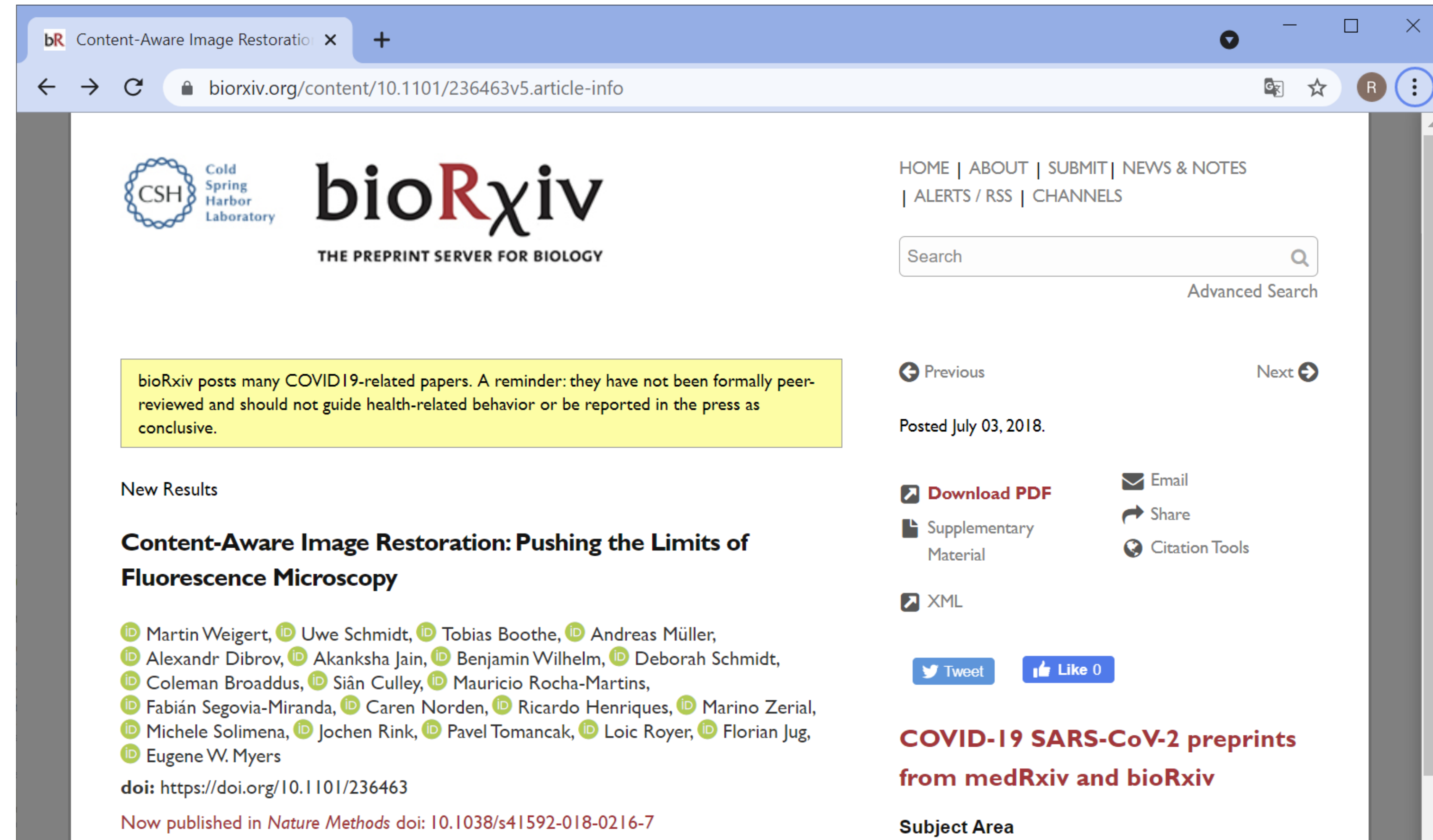
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<https://rodare.hzdr.de/record/915>

<https://twitter.com/nKiaru/status/1409194004219142148?s=20>

Use cases: Manuscripts

- Preprints
 - Accessible / reusable
 - <https://arxiv.org/>
 - <https://biorxiv.org/>
 - <https://medrxiv.org/>
- Journals

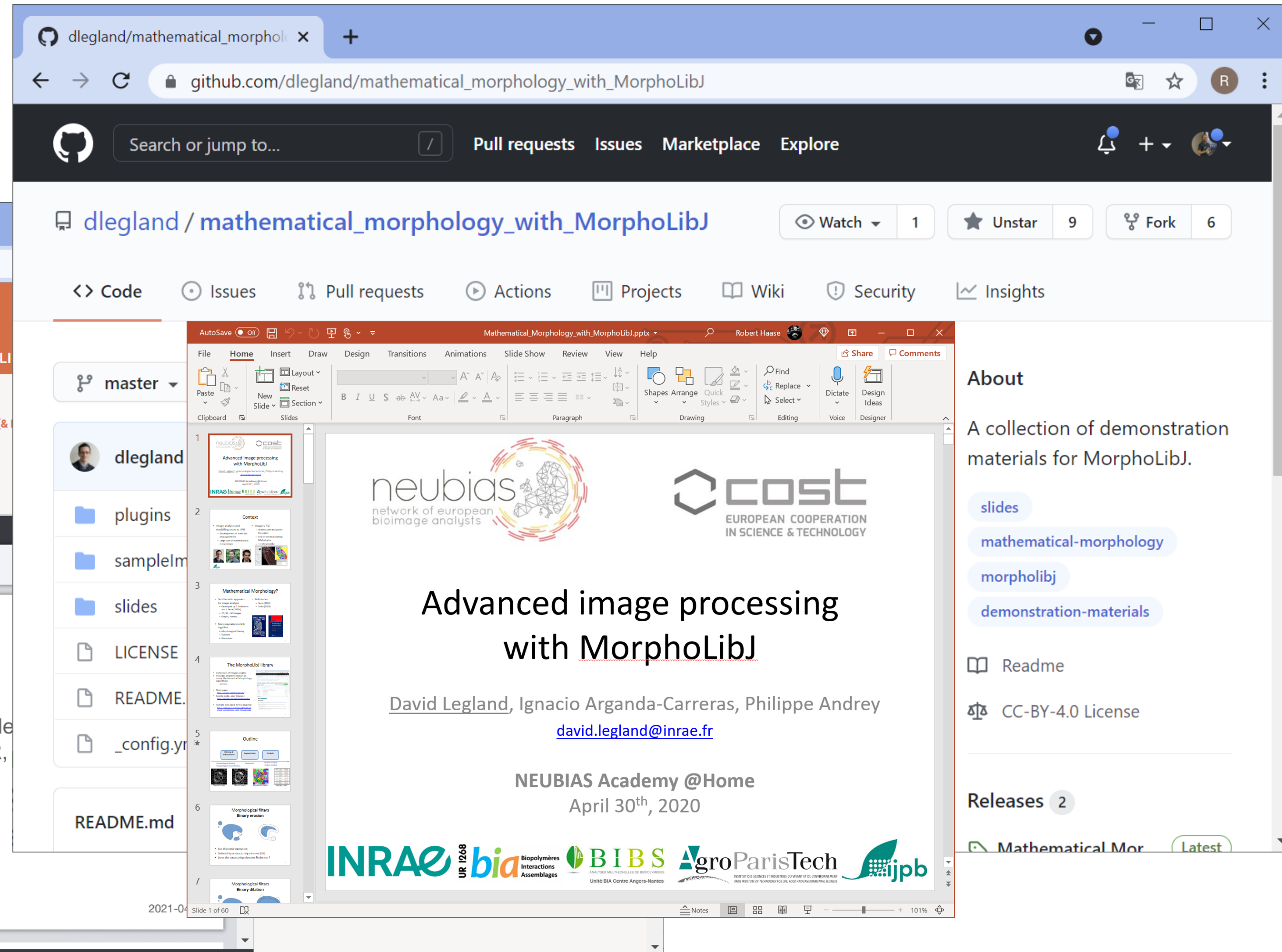
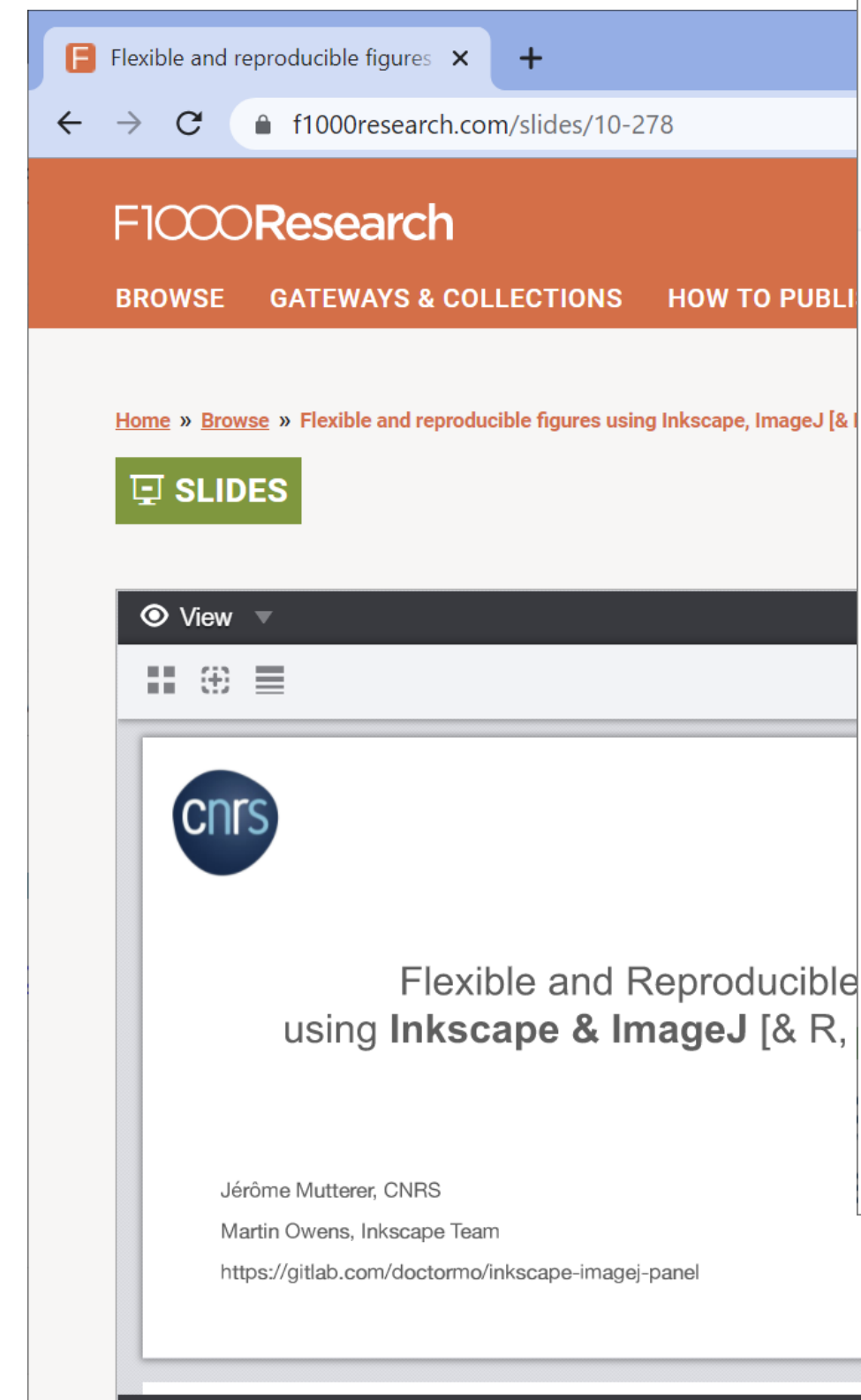


The screenshot shows a web browser window displaying a bioRxiv article. The address bar shows the URL <https://www.biorxiv.org/content/10.1101/236463v5.article-info>. The page header includes the Cold Spring Harbor Laboratory logo and the bioRxiv logo with the tagline 'THE PREPRINT SERVER FOR BIOLOGY'. A navigation bar on the right contains links for HOME, ABOUT, SUBMIT, NEWS & NOTES, ALERTS / RSS, and CHANNELS. Below this is a search bar and an 'Advanced Search' link. A yellow warning box states: 'bioRxiv posts many COVID19-related papers. A reminder: they have not been formally peer-reviewed and should not guide health-related behavior or be reported in the press as conclusive.' The article title is 'Content-Aware Image Restoration: Pushing the Limits of Fluorescence Microscopy'. The authors listed are Martin Weigert, Uwe Schmidt, Tobias Boothe, Andreas Müller, Alexandr Dibrov, Akanksha Jain, Benjamin Wilhelm, Deborah Schmidt, Coleman Broaddus, Siân Culley, Mauricio Rocha-Martins, Fabián Segovia-Miranda, Caren Norden, Ricardo Henriques, Marino Zerial, Michele Solimena, Jochen Rink, Pavel Tomancak, Loic Royer, Florian Jug, and Eugene W. Myers. The DOI is <https://doi.org/10.1101/236463>. A note indicates the article is now published in *Nature Methods* with DOI 10.1038/s41592-018-0216-7. On the right side, there are links for 'Download PDF', 'Supplementary Material', 'XML', 'Email', 'Share', and 'Citation Tools'. There are also social media buttons for 'Tweet' and 'Like 0'. At the bottom right, there is a section for 'COVID-19 SARS-CoV-2 preprints from medRxiv and bioRxiv' and a 'Subject Area' link.

Use cases: Teaching material

Re-using, advertising your work.

- <https://f1000research.com/neubias>
- <https://figshare.com>
- <https://github.com>

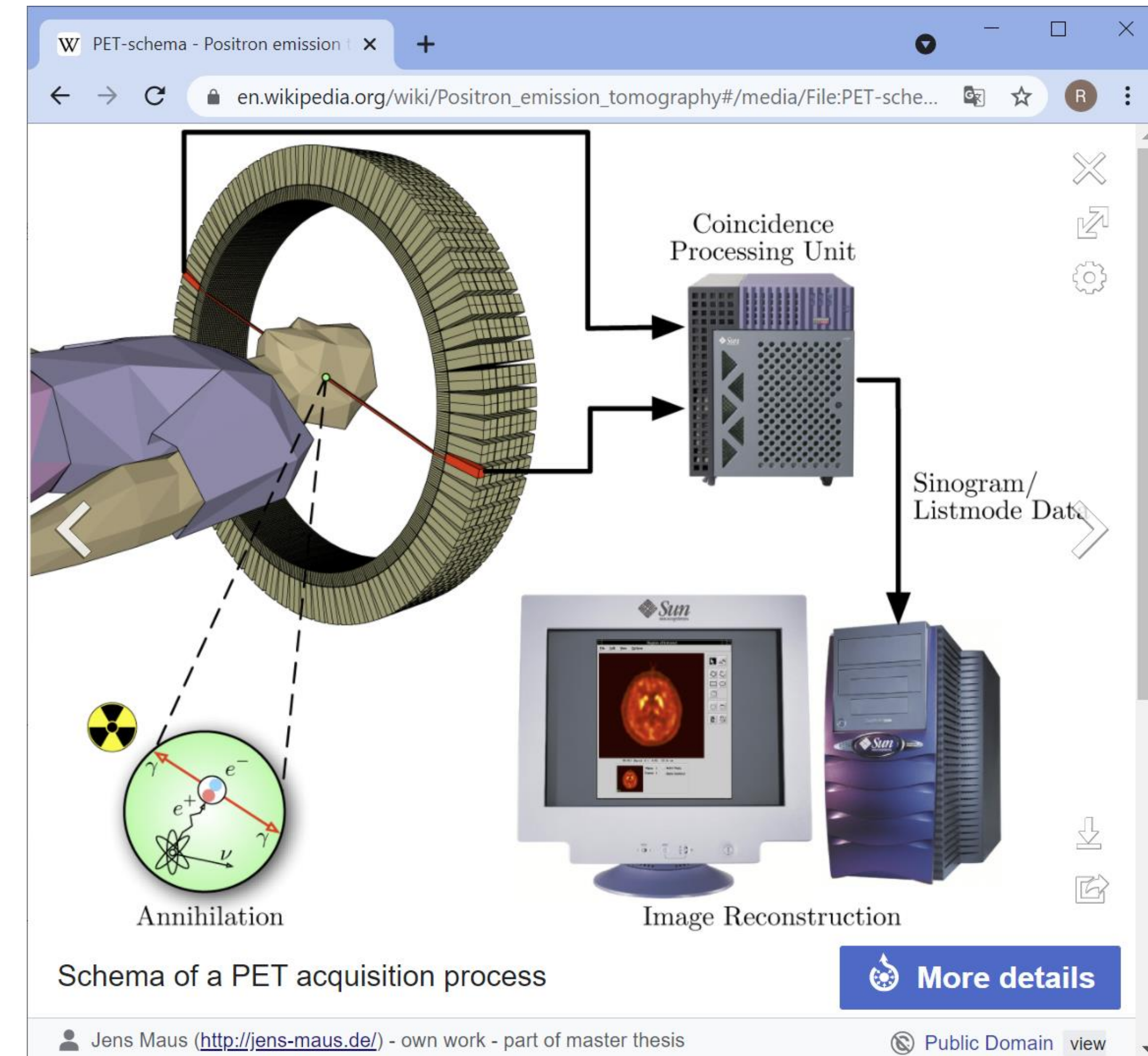


<https://f1000research.com/slides/10-278>

https://github.com/dlegland/mathematical_morphology_with_MorphoLibJ

Use cases: Figures

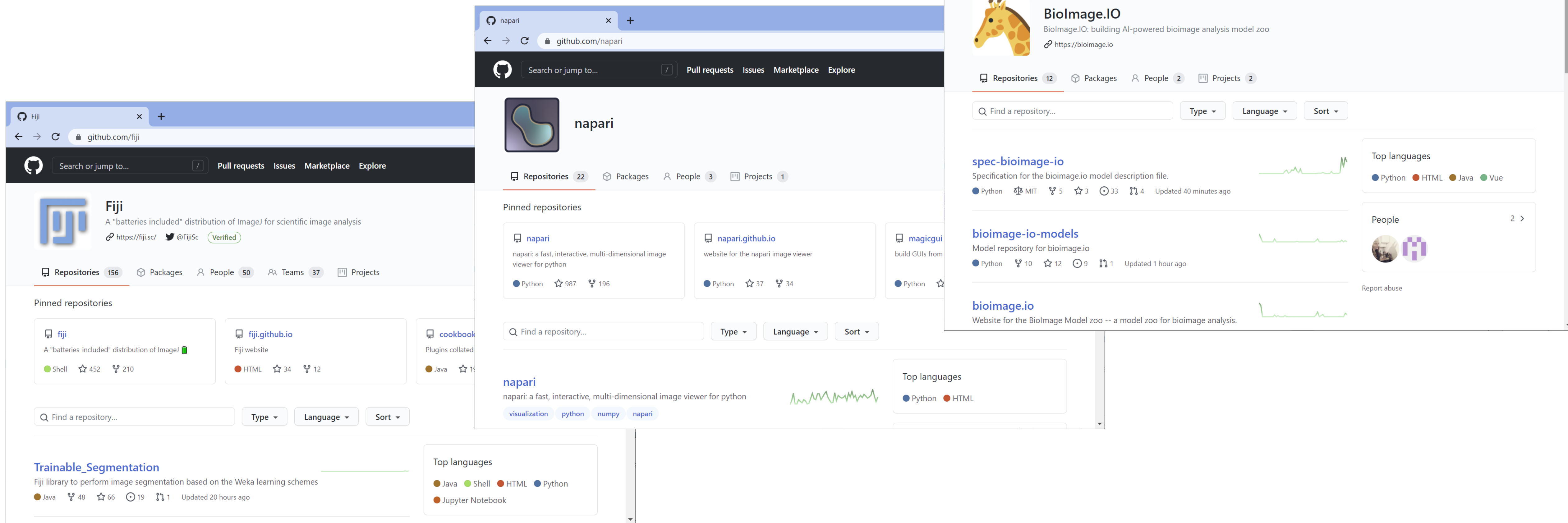
- Share efforts
 - Talk about each others' work
- Advertise your work
- ... because our work is often publicly funded
- https://commons.wikimedia.org/wiki/Main_Page
- <https://figshare.com>



https://en.wikipedia.org/wiki/Positron_emission_tomography#/media/File:PET-schema.png

Use cases: Code

Collaboration in open-source projects *unthinkable* without openly sharing and transparent licensing



The image displays three overlapping screenshots of GitHub repository pages, illustrating open-source collaboration in bioimage analysis.

- Fiji (Left):** The repository page for Fiji, described as a "batteries included" distribution of ImageJ for scientific image analysis. It shows 156 repositories, 50 people, and 37 teams. Pinned repositories include `fiji`, `fiji.github.io`, and `cookbook`. The `Trainable_Segmentation` repository is highlighted at the bottom, showing it is a Fiji library for image segmentation based on Weka learning schemes, with 48 forks, 66 stars, and 19 watchers.
- napari (Middle):** The repository page for napari, described as a fast, interactive, multi-dimensional image viewer for python. It shows 22 repositories, 3 people, and 1 project. Pinned repositories include `napari`, `napari.github.io`, and `magicgui`. The `napari` repository is highlighted at the bottom, showing it is a fast, interactive, multi-dimensional image viewer for python, with 987 stars and 196 forks.
- BioImage.IO (Right):** The repository page for BioImage.IO, described as building AI-powered bioimage analysis model zoo. It shows 12 repositories, 2 people, and 2 projects. Pinned repositories include `spec-bioimage-io`, `bioimage-io-models`, and `bioimage.io`. The `spec-bioimage-io` repository is highlighted at the bottom, showing it is a specification for the bioimage.io model description file, with 5 forks, 3 stars, and 33 watchers.

FAIR sharing

Findable

- Meta-data, unique identifiers, searchable databases

Accessible

- Open & free protocols
- Authentication / authorization

Interoperable

- [meta] data use a formal, accessible, shared, broadly accessible language
- References to other [meta]data

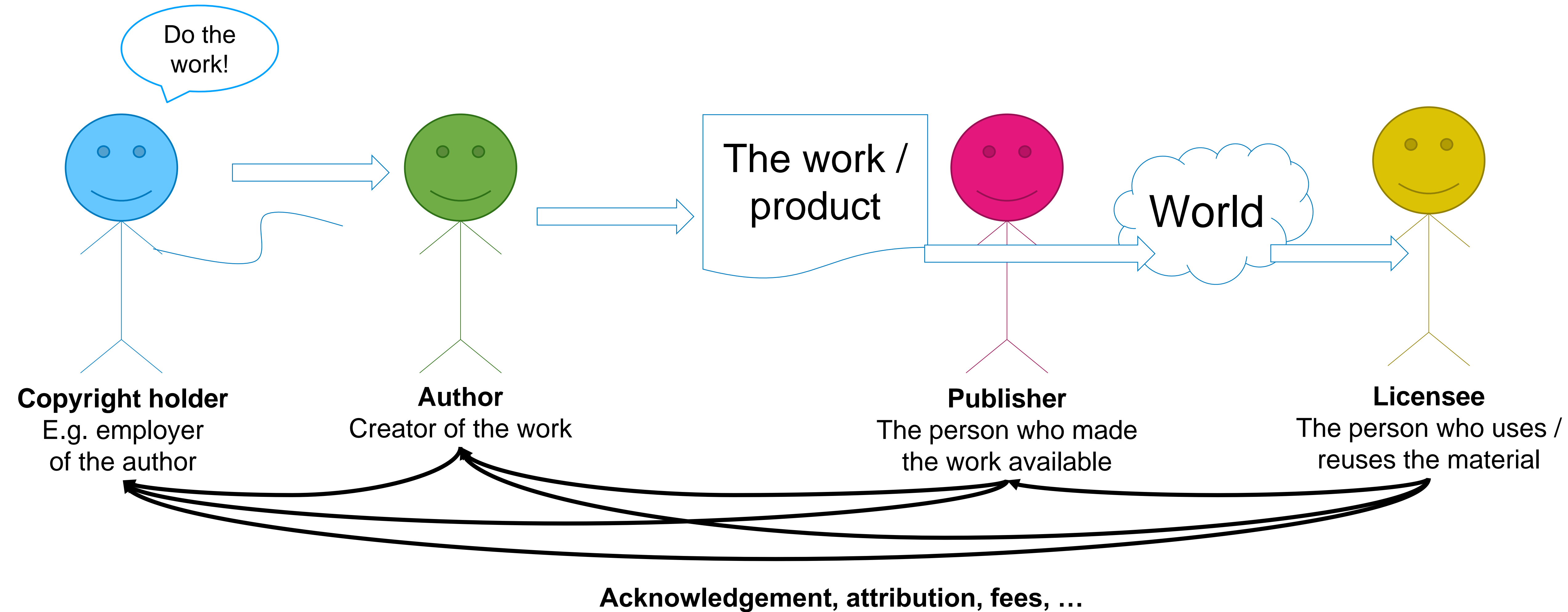
Reusable

- Properly licensed, associated relevant meta data, community-relevant community standards

~~Open Access~~

The FAIR principles have nothing to do with “Open Access”

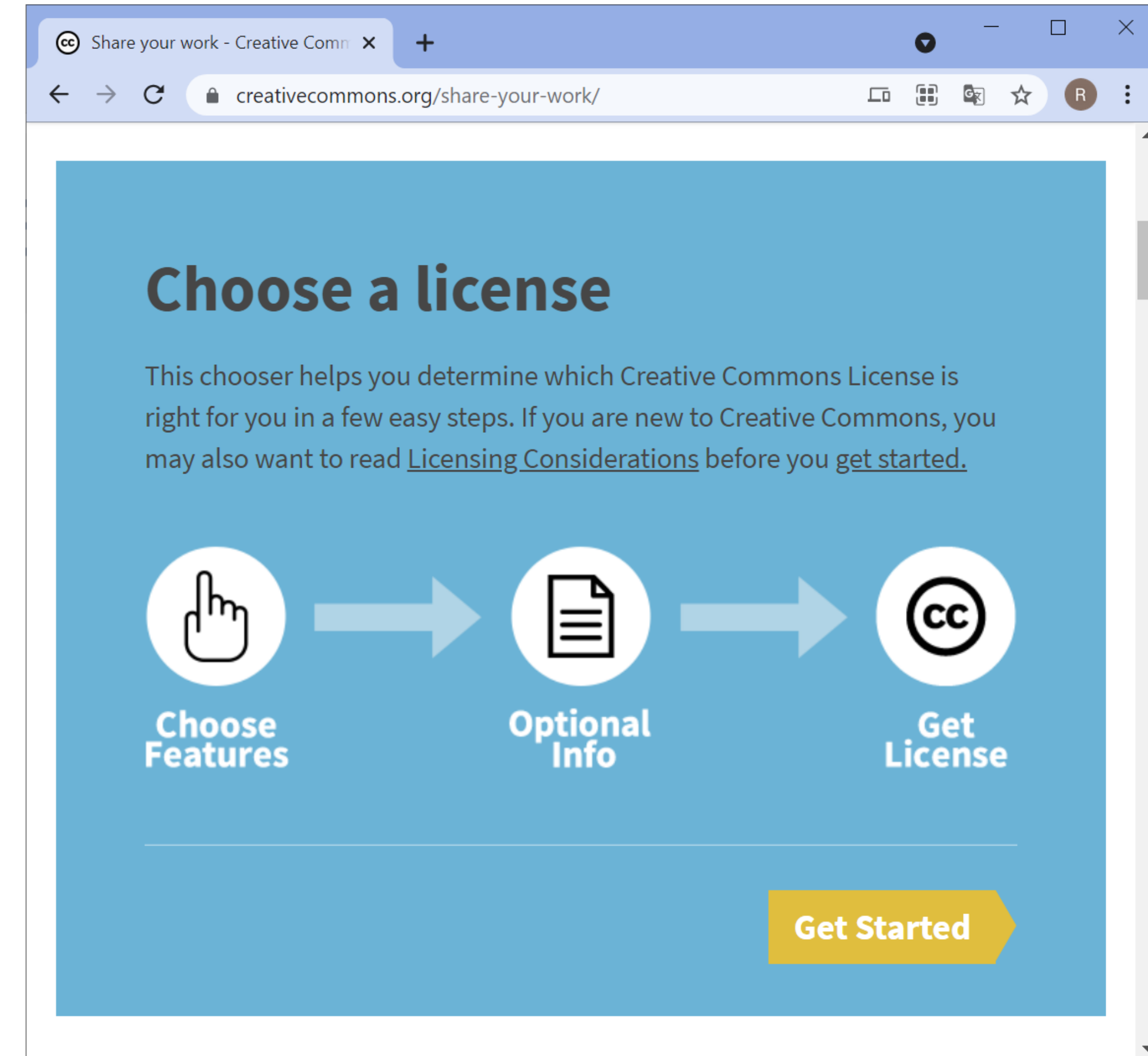
Terminology



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- Attribution ShareAlike Int. (CC-BY-SA)
- Attribution Non-Commercial Int. (CC-BY-NC)
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+ Combinations, e.g. CC-BY-NC-ND



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Employers don't like this one because you give away the rights to *exploit* your work.

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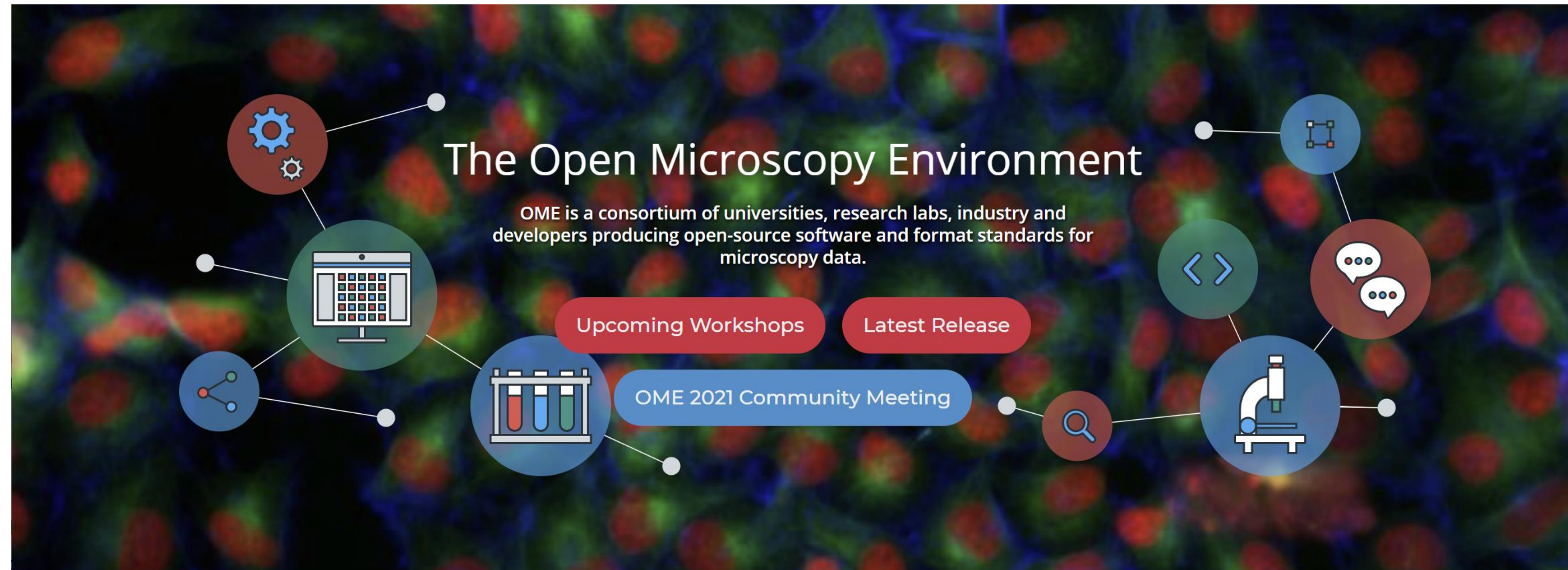
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- Example



You need to put such a sentence and keep the link to CC-BY

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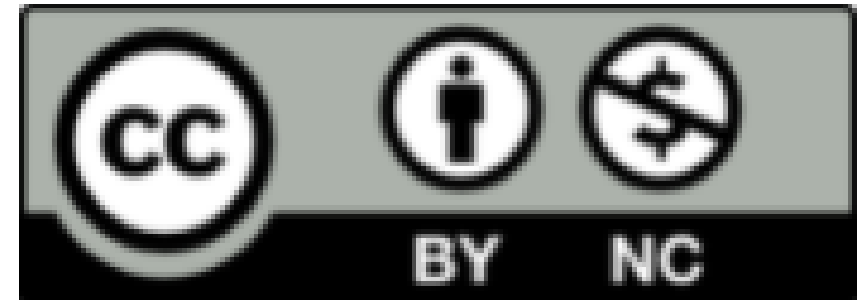
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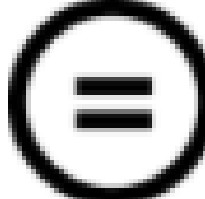
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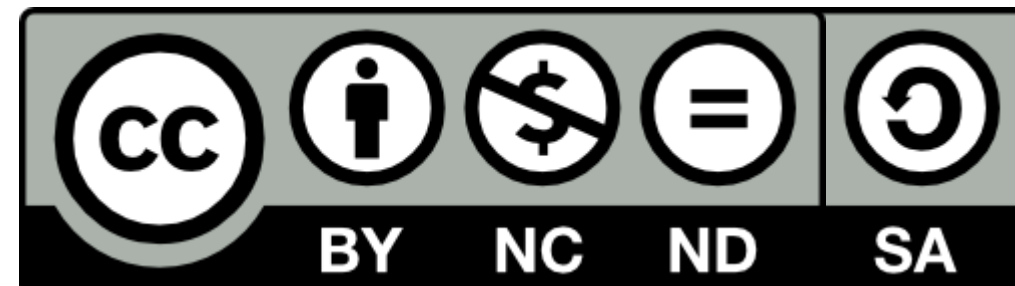
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What does CC-BY-NC-ND-SA stand for?




Combination of “NoDerivatives” and “ShareAlike” doesn’t make sense. CC-BY-NC-ND-SA doesn’t exist.

BY  – Credit must be given to the creator

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In the software world, other licenses are more popular, historically grown.

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GNU
General
Public
License

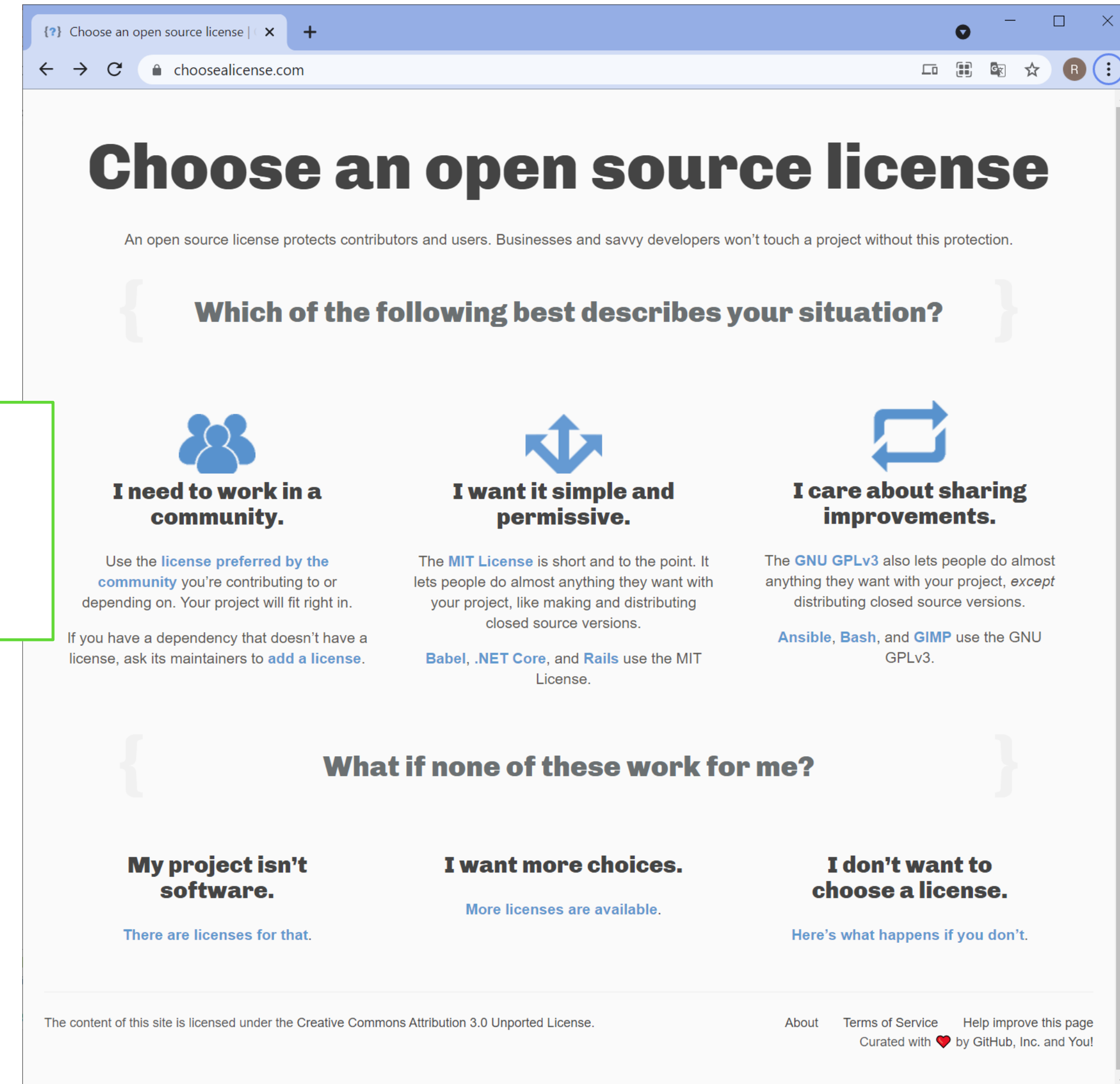
LGPL

Apache

BSD

Berkley
Software
Distribution

MIT



The screenshot shows the homepage of the "Choose an open source license" website. The page has a clean, modern design with a light blue and white color scheme. At the top, there's a navigation bar with the site's name and a search icon. Below the navigation bar, the main heading "Choose an open source license" is prominently displayed. A subheading explains that an open source license protects contributors and users. The page then asks the user "Which of the following best describes your situation?" and provides three options, each with an icon and a brief description. The first option is "I need to work in a community," the second is "I want it simple and permissive," and the third is "I care about sharing improvements." Each option includes a list of example projects that use that license. Below these options, there's a section titled "What if none of these work for me?" with three more options: "My project isn't software," "I want more choices," and "I don't want to choose a license." The page also includes a footer with links to "About," "Terms of Service," and "Help improve this page," along with a note about the site's license.


Choose an open source license | x +

choosealicense.com

Choose an open source license


An open source license protects contributors and users. Businesses and savvy developers won't touch a project without this protection.

Which of the following best describes your situation?

 **I need to work in a community.**


Use the [license preferred by the community](#) you're contributing to or depending on. Your project will fit right in.

If you have a dependency that doesn't have a license, ask its maintainers to [add a license](#).

 **I want it simple and permissive.**

The [MIT License](#) is short and to the point. It lets people do almost anything they want with your project, like making and distributing closed source versions.

[Babel](#), [.NET Core](#), and [Rails](#) use the MIT License.

 **I care about sharing improvements.**

The [GNU GPLv3](#) also lets people do almost anything they want with your project, *except* distributing closed source versions.

[Ansible](#), [Bash](#), and [GIMP](#) use the GNU GPLv3.

What if none of these work for me?

My project isn't software.

There are licenses for that.

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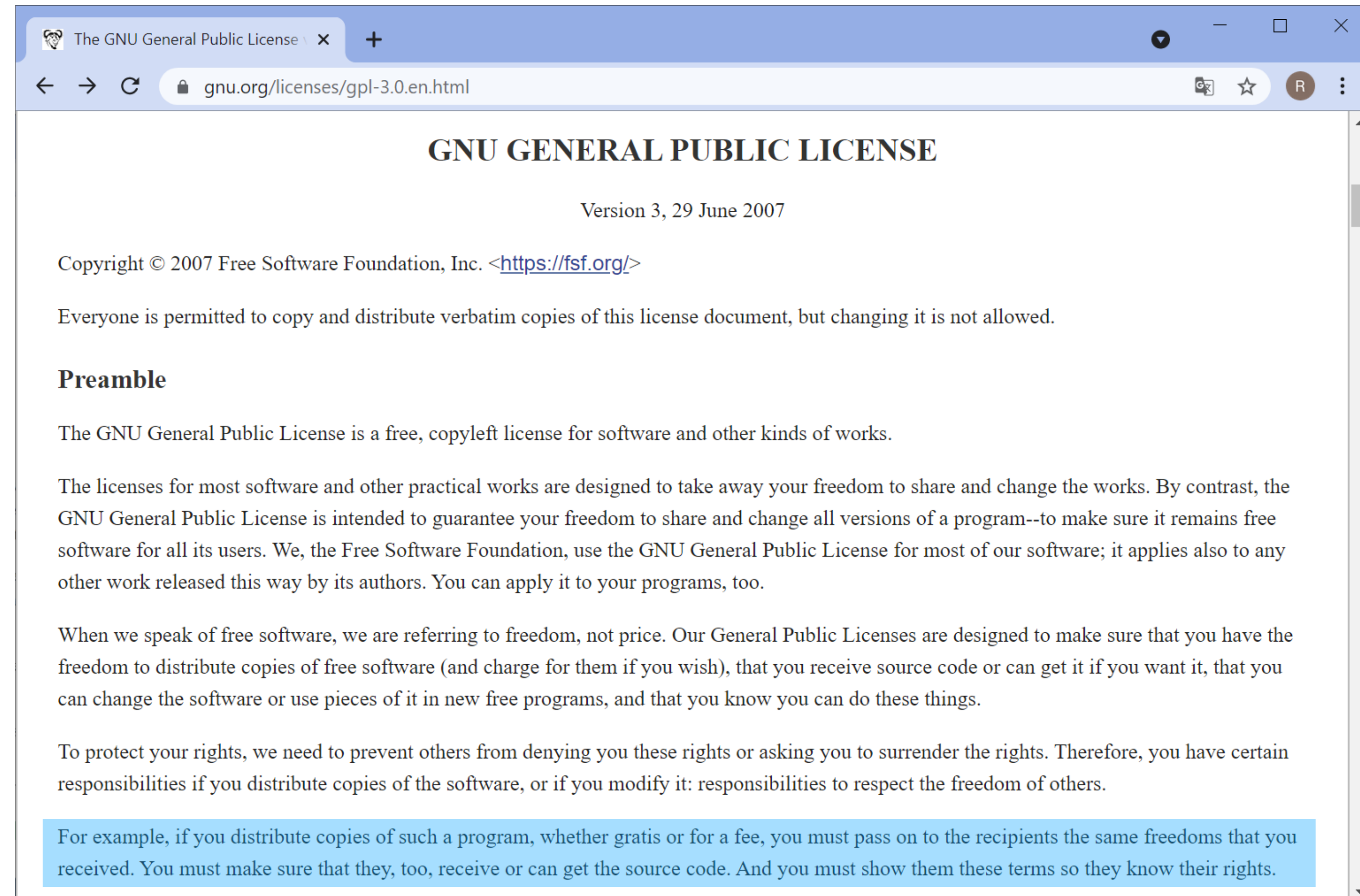
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- Derivatives must also be GPL-licensed

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- Lesser General Public License (LGPL)
 - Integrate LGPL-licensed code into not-LGPL-licensed code



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*You have to
acknowledge the
copyright holder.*

How/when to decide for a license

How?

- Choose a license compatible with your ecosystem

When?

- When the project starts
- As early as possible
- Changing the license later may be hard.
- Beware: Your employer might be the copyright holder. They have the final word on how to license, publish and make accessible your work!

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Proprietary







Editing the Wiki

Discuss

Explore

Project summary

The following table summarizes the dominant license of each project's components.

Basics				Required*			Permitted*						
Logo	Project	License	Type	Disclose source	License and copyright notice	State changes	Commercial use	Distribution	Modification	Patent grant	Private use	Hold liable	Sublicensing
ImageJ													
	ImageJ	Disclaimer	Public Domain†	✗	✗	✗	✓	✓	✓	-	✓	✗	✓
ImageJ2 software stack													
	SciJava	License											
	ImgLib2	License											
			BSD-2	✗	✓	✗	✓	✓	✓	-	✓	✗	-
	ImageJ2	License											
	SCIFIO	License											
Fiji projects													
	Fiji	Licenses											
	BigDataViewer	License	GPL	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
	TrakEM2	Readme											

Page contents

Project summary

Exceptions

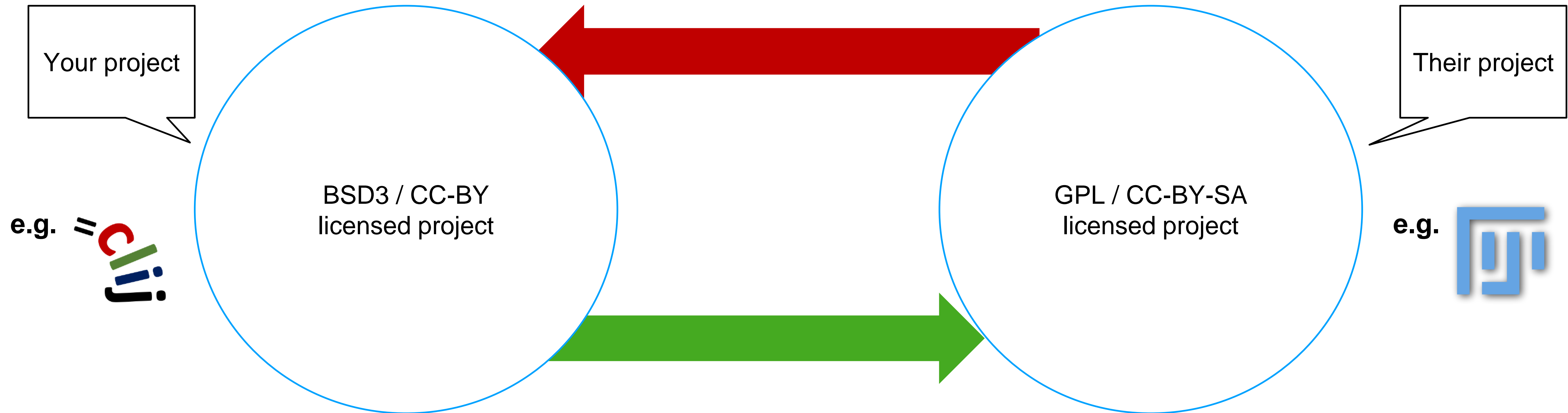
A note about ImageJ

Developers: How to use this page

Permissive versus restrictive

Use a license which

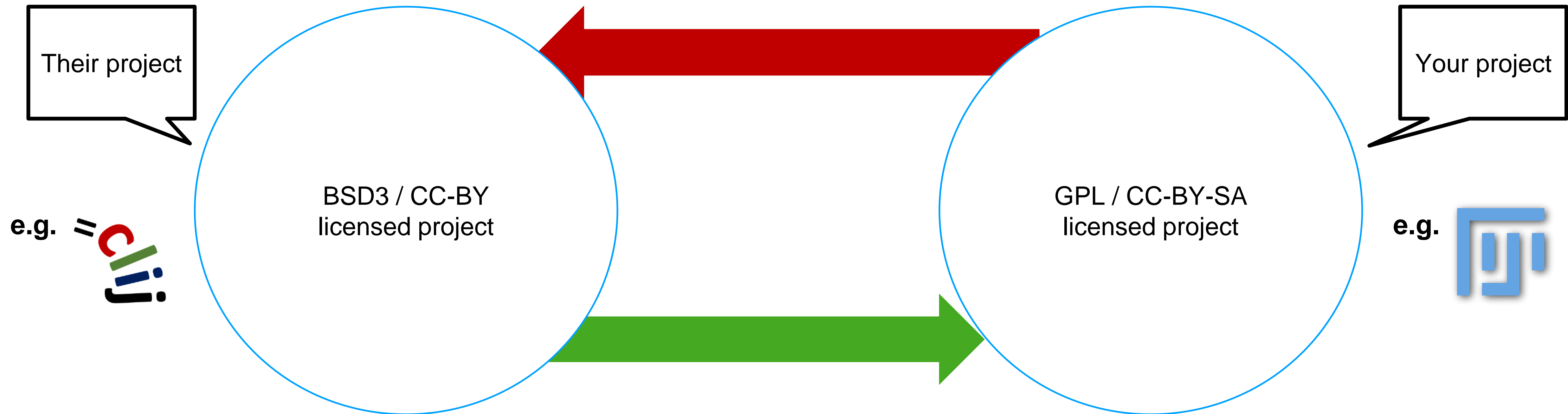
- is compatible to other projects you're collaborating with and
- fits to your needs / role.



Permissive versus restrictive

Use a license which

- is compatible to other projects you're collaborating with and
- fits to your needs / role.



Take home message

- If you share material (openly or not)

license it

and it'll be harder to steal it