
TRISCANNER: A FLUORESCENCE MICROSCOPE FOR HIGH-CONTENT HIGH-THROUGHPUT 3D IMAGING.

A Data Management Plan created using DMPonline.be

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Template: KU Leuven BOF-IOF

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Project abstract:

The "TriScanner" is an elegant fluorescence microscope (module) that has been designed to keep costs low, overall dimensions small and reproducibility and performance high. It essentially entails imaging like a wide field system, but with the added sectioning of a confocal. It brings together the speed and contrast of both imaging techniques, which make it an ideal system for 3D imaging. Inherently, the TriScanner allows for super-resolution 3D imaging which make it a multipurpose system and at a very modest (4000 euro) cost.

In the application we will perform several adaptations to the existing prototype: WP1 entails the construction of a robust and user-friendly TriScanner 'demonstrator' for high-performance 3D microscopy. WP2 describes the extension of this system towards multiparameter imaging and deep in-tissue imaging. WP3 will dramatically enhance the imaging speed of the TriScanner instrument, and more generally any optical microscopy, through a novel scheme for optical stabilization. Finally, WP4 will showcase the developed capabilities in selected image-intensive applications including high-throughput high-resolution neuron imaging and in-tissue single-cell spatial 'omics'.

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Research Data Summary

List and describe all datasets or research materials that you plan to generate/collect or reuse during your research project. For each dataset or data type (observational, experimental etc.), provide a short name & description (sufficient for yourself to know what data it is about), indicate whether the data are newly generated/collected or reused, digital or physical, also indicate the type of the data (the kind of content), its technical format (file extension), and an estimate of the upper limit of the volume of the data.

Dataset name / ID	Description	New or reuse	Digital or Physical data	Data Type	File format	Data volume	Physical volume
		Indicate: N (ew data) or E (xisting data)	Indicate: D (igital) or P (hysical)	Indicate: A udiovisual I mages S ound N umerical T extual M odel S oftware Other (specify)		Indicate: <1GB <100GB <1TB <5TB >5TB NA	
Circulator revisions	Any data required for our revision with the Circulator manuscript.	N	D	I	.HIS .TIFF	<20GB	HD (150cm ³)
Resonator revisions	Any data required for our revision with the Resonator manuscript.	N	D	I	.HIS .TIFF	<20GB	HD (150cm ³)

If you reuse existing data, please specify the source, preferably by using a persistent identifier (e.g. DOI, Handle, URL etc.) per dataset or data type:

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Are there any ethical issues concerning the creation and/or use of the data (e.g. experiments on humans or animals, dual use)? If so, refer to specific datasets or data types when appropriate and provide the relevant ethical approval number.

- No

Will you process personal data? If so, please refer to specific datasets or data types when appropriate and provide the KU Leuven or UZ Leuven privacy register number (G or S number).

- No

Does your work have potential for commercial valorization (e.g. tech transfer, for example spin-offs, commercial exploitation, ...)? If so, please comment per dataset or data type where appropriate.

- Yes

Both devices, for which we might need additional data, have this potential. (We hold a patent on the Circulator.)

Do existing 3rd party agreements restrict exploitation or dissemination of the data you (re)use (e.g. Material or Data transfer agreements, Research collaboration agreements)? If so, please explain in the comment section to what data they relate and what restrictions are in place.

- No

Are there any other legal issues, such as intellectual property rights and ownership, to be managed related to the data you (re)use? If so, please explain in the comment section to what data they relate and which restrictions will be asserted.

- Yes

We hold a patent on the Circulator.

Documentation and Metadata

Clearly describe what approach will be followed to capture the accompanying information necessary to keep data understandable and usable, for yourself and others, now and in the future (e.g. in terms of documentation levels and types required, procedures used, Electronic Lab Notebooks, README.txt files, codebook.tsv etc. where this information is recorded).

*All experiments are planned in advance and are written out on paper. Of this paper a picture is taken which is on my google photos account, which I can access anywhere easily.

*In the data folders there will be a typed document (made during the experiment) describing conditions and true experimental details. This follows the pre-made document and will always remain with the data folder.

Will a metadata standard be used to make it easier to find and reuse the data?

If so, please specify which metadata standard will be used.

If not, please specify which metadata will be created to make the data easier to find and reuse.

- No

*In the data folders there will be a typed document (made during the experiment) describing conditions and true experimental details. This is all that is required.

Data Storage & Back-up during the Research Project

Where will the data be stored?

- Other (specify below)

Until the paper is submitted all data will remain on the PC where the experiment was performed. We will have a copy on a physical hard drive and of the usefull data we will have another 'work' copy on another drive.

How will the data be backed up?

- Other (specify below)

We will have a copy on a physical hard drive and of the usefull data we will have another 'work' copy on another drive.

Is there currently sufficient storage & backup capacity during the project?

If no or insufficient storage or backup capacities are available, explain how this will be taken care of.

- Yes

How will you ensure that the data are securely stored and not accessed or modified by unauthorized persons?

The drives are in locked rooms/desks.

What are the expected costs for data storage and backup during the research project? How will these costs be covered?

The cost of the hard drives <200 euros. We have some hard drives that I can reuse, or I can use the money that is allocated to me during the PDM.

Data Preservation after the end of the Research Project

Which data will be retained for 10 years (or longer, in agreement with other retention policies that are applicable) after the end of the project?

In case some data cannot be preserved, clearly state the reasons for this (e.g. legal or contractual restrictions, storage/budget issues, institutional policies...).

- All data will be preserved for 10 years according to KU Leuven RDM policy

All usefull data we keep.

Where will these data be archived (stored and curated for the long-term)?

- Other (specify below)

On the hard drives that will be passed on to my Promotor.

What are the expected costs for data preservation during the expected retention period? How will these costs be covered?

No costs.

Data Sharing and Reuse

**Will the data (or part of the data) be made available for reuse after/during the project?
Please explain per dataset or data type which data will be made available.**

- Yes, as open data
- Yes, as restricted data (upon approval, or institutional access only)

We intend to make the data available upon reasonable request or might place some of it on Zenodo, accompanying the paper.

If access is restricted, please specify who will be able to access the data and under what conditions.

Upon reasonable request this data is available.

Are there any factors that restrict or prevent the sharing of (some of) the data (e.g. as defined in an agreement with a 3rd party, legal restrictions)?

Please explain per dataset or data type where appropriate.

- No

Where will the data be made available?

If already known, please provide a repository per dataset or data type.

- Other (specify below)

Possibly Zenodo.

When will the data be made available?

- Other (specify below)

We intend to make the data available upon reasonable request or might place some of it on Zenodo, accompanying the paper.

Which data usage licenses are you going to provide?

If none, please explain why.

- Other (specify below)

No need. People can freely use our data, upon reasonable request.

Do you intend to add a persistent identifier (PID) to your dataset(s), e.g. a DOI or accession number? If already available, please provide it here.

- No

What are the expected costs for data sharing? How will these costs be covered?

No costs.

Responsibilities

Who will manage data documentation and metadata during the research project?

Robin Van den Eynde

Who will manage data storage and backup during the research project?

Robin Van den Eynde

Who will manage data preservation and sharing?

Peter Dedecker

Who will update and implement this DMP?

Robin Van den Eynde/Peter Dedecker

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