RoboGuide - Robotic guidance for enhanced catheterization

A Data Management Plan created using DMPonline.be

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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 **SO**ftware Other (specify)		Indicate: <1GB <100GB <1TB <5TB >5TB NA	
operator_force_analysis	Force analysis of manual catheter operation	N	D	N	.bag	<100GB	
guidewire_bending	Bendable guidewire experiments to a target region.	N	D	N	.bag	<100GB	
guidewire_force_sensing	Analysis of guidewire force sensing algorithms	N	D	N	.bag	<100GB	
robotic_catheterization	Validations of the robotic catheter driver system	N	D	N	.bag	<100GB	

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:

NA

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.

- Yes, animal data (Provide ECD reference number below)

Ethical approval (ECD) will be requested once the experimental protocols are finalized.

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

The datasets "guidewire_bending", "guidewire_force_sensing", "robotic_catheterization" will evaluate the transferability of new

technology (and possibly IP) to a spin-off.

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.

- No

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).

Quantitative data will be stored in .bag files.
The .bag file structure allows to name variables (force, position, ...).
Each .bag file will be accompanied by a post-processing script (mainly Python).
In the post-processing script documentation will be provide about the contents of the .bag files, e.g. units of measurement, and the physical meaning of the data.

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

Metadata will be created by the post-processing scripts in .csv format.
Such .csv's might contain information about e.g. the study number, good and bad results, and weather the applied force levels were safe or not.

Data Storage & Back-up during the Research Project

Where will the data be stored?

- Shared network drive (J-drive)
- OneDrive (KU Leuven)

How will the data be backed up?

- Standard back-up provided by KU Leuven ICTS for my storage solution
- Personal back-ups I make (specify below)

External hard drive backups.

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?

Access to shared drives (OneDrive or J-drive) will only be granted to persons involved in the project.

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

There are no expected additional costs for data storage.

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

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

- Shared network drive (J-drive)

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

NA

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 restricted data (upon approval, or institutional access only)

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

Data will be made accessible to persons that continue (parts of) the research and after approval from the members involved in this

project.

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.

- Yes, intellectual property rights

Where will the data be made available?

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

- KU Leuven RDR (Research Data Repository)

When will the data be made available?

- Other (specify below)

After approval of the members involved in the project.

Which data usage licenses are you going to provide?

If none, please explain why.

- MIT licence (code)
- GNU GPL-3.0 (code)
- Data Transfer Agreement (restricted data)

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?

NA

Responsibilities

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

Jozef De Smet, Mirza Awais Ahmad

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

Jozef De Smet, Mirza Awais Ahmad

Who will manage data preservation and sharing?

Jozef De Smet, Mirza Awais Ahmad

Who will update and implement this DMP?

Jozef De Smet, Mirza Awais Ahmad