Plan Overview

A Data Management Plan created using DMPonline

Title: NPL's photoacoustic microscopy capability

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Affiliation:

Template: NPL DMP Project Template

Project abstract:

Data management plan for the Photoacoustic microscopy capability of the Ultrasound and Underwater Acoustics (UUA) Group at NPL. Project a part of the Quantitative imaging medical ultrasound project funded through NMS.

ID: 81015

Start date: 01-04-2021

End date: 31-03-2022

Last modified: 22-07-2021

Copyright information:

NPL's photoacoustic microscopy capability - Pre-Project DMP

Project Data Details

1. Opportunity Owner / Project Manager/ Project Lead

Anant Shah (anant.shah@npl.co.uk) July 2021

2. Technical leader during bidding

Anant Shah

3. What data will be used during this project? Where possible, please list the type of data and the file format it is expected to be stored as.

The photoacoustic microscope generates data in the format of a binary file using a customer software. The binary file is converted to a '.mat' file and is stored along with the meta data on the NPL object store. The '.mat' file consists of the raster-scan waveforms acquired by the microscope.

The NPL Object Store is a storage system for scientific data. It's a Hitachi Content Platform (HCP) system. The matlab code for converting the data and uploading it to the object store is stored in this folder on M:.

The data in its binary format is also stored on M: as a back up, and stored temporarily on the PAM - PC (HPOWER) until it needs to be deleted due to limited storage issues.

4. Will any pre-existing data be used during the project?

- Yes

5. Please give details of the type of data and the origin of the data.

The details of the type and origin of data are provided in Q3. above.

6. Who owns the data that will be used or created? If more than one institution owns the data, please give details.

- NPL

The data will be owned by NPL. For collaborative work, the data will be shared with the other institution.

Commercial Questions

7. Does this project require an NDA? If yes is selected, details must be given in the text box below.

- Yes

For collaborative research work, an NDA is required between NPL and the other institution. An NDA is in place with Bath University and GSK for planned experiments.

8. Does NPL have any existing IP (Background IP) or will any IP be produced during this project (Foreground IP) which needs to be protected? If Yes – what type of IP will this data have?

- None

9. Does an entry in the IP Register relate to this project?

- No

10. Has this idea been captured in the NPI process, or should it be captured?

- No – products are not applicable

Data Security

11. Where do you intend to store the data?

- Internally

12. If internally, please give details (e.g., Object Store, T-drive, SharePoint).

The data is stored on NPL's Object Store: https://pam.npl-science.hcp-

p.npl.ad.local/browser/content_input
An additional back up of the data will be stored in the project folder on the NPL M-drive, which may be found here 'M:\Acoustics\Ultrasonics\Anant_data\PAM\Anant_PAM'

13. If externally, how will the security of the data be ensured?

The data will be stored internally.

14. What is the total size of the data that will be stored at NPL? If unknown, please approximate.

- 1 to 100 terabytes

15. How long will the data be retained after completion of the project? Please provide additional information below.

- > 7 years

To drive new research expected in the next 5-10 years.
To allow full exploitation of the data.

16. Are there any ethical issues that could impact on data sharing?

- No

GDPR

18. Will the project be processing personal data?

- No

19. Please provide a link to a completed Data Protection Impact Assessment (DPIA) form QF-10.

Not Applicable

NPL's photoacoustic microscopy capability - Project Start DMP

General information

1. Project Manager/Lead

Anant Shah (Anant.Shah@npl.co.uk) July 2021

2. Technical Lead

Anant Shah (Anant.Shah@npl.co.uk) July 2021

3. Name of person responsible for data management throughout this project

Anant Shah (Anant.Shah@npl.co.uk) July 2021

4. Project start date

2021-04-01

Making Data Findable

5. Where are the data stored during the project? Who will be able to access it?

- At NPL

Administrative data:
Including all meetings, presentations will be stored on the T: drive in thislocation.
The progress updates in a dedicated 'Teams site'.
Experimental data:
Will be stored in two locations above, on the NPL object store {location}. It is also stored on lab PC (HPower) and in this folder on M:
Software:
The microscope is operated using a software provided by the company (Kibero), which is stored on the lab PC. The output of the microscope is a binary file which is then converted to a mat file using software stored in this folder on M:. The mat files are then stored on the object store and M: locations mentioned above.

6. What metadata will be available for the data? If metadata standards exist in your discipline, please outline them.

Example metadata of a file is given below:

User: pam
ADQSerial: 'SPD-04355'
Averaging: 10
Date: '18-Dec-2018 11:57:57'
Delay: 3264
Excitation: 'acoustical'
Gain: 30
InputRange: 1000
LensID: 'easySAM'
NumberPixelX: 500
NumberPixelY: 500
NumberPixelZ: 0
Samplerate: 2.0000e+09
Samples: 512
ScanMode: 'Step Scan'
StepsizeX: 1.0000e-03
StepsizeY: 1.0000e-03
StepsizeZ: 0
SystemID: 'easySAM NPL SN002'
XOffset: -0.0462
YOffset: 0.3764
ZOffset: 0

7. How will the metadata be stored? E.g., alongside the data, as part of the data, in a separate folder.

Metadata will be stored alongside the data in the object store as an xml file.

8. Will the metadata be searchable? If YES - what metadata terms are key for searches?

- Yes

Filename and time/date. The data will be stored in the NPL Objectstore. The data can be searched and downloaded using MATLAB. An example script to do this is stored in a folder on the M:

9. What naming convention(s) will be used for the data files?

All files will follow the naming convention YYYY_MM_DD_Sample to be imaged.

10. How will you make your data discoverable (internally and externally)? Select all that

apply.

- Store data in a single designated location shared with the project team.
- Use file & folder naming conventions
- Use searchable data management software such as database, file server, web service, object store etc.

The ObjectStore allows metadata searching. A folder and file naming convention of YYYY_MM_DD_Sample to be imaged is used. The location of the data is shared with the project team.

11. How will different versions of the data be identified (version control)?

- Repository-controlled (e.g, Object Store, Gitlab/Subversion, OneDrive, SharePoint)

For larger datasets the ObjectStore will provide a version controlled history of the data.

Making Data Accessible

12. Do you intend to make your data available outside of NPL? Please expand below.

- With external collaborators

Only for collaborative projects involving external collaborators data will be shared. For NMS funded work, data will be only used by the NPL project team

13. How will the data be made accessible at the end of the project?

- Restricted internal repository

For collaborative projects, data will be shared depending on the collaborator's requirements. In most cases, raw data is not requested.

14. What methods or software tools are needed to access the data?

- Other - please specify in comment area

Kibero's commercial software and MATLAB .

15. How will access to the data be controlled?

- Open Internally (using Active Directory)

16. What documentation will be provided to help users access the data?

README files will be generated in the parent folder, clearly explaining what data is available in the sub folders, what software is required to open the it, and how to gain permission to access it.

Making Data Interoperable

17. Are the data used in this project interoperable? Select all that apply.

- Data documentation can be made available on request

18. Will you be using standard vocabularies for all of the data types present in your data set? Please specify any standards, methodologies, vocabularies, or ontologies that will be used.

- We will develop project-specific vocabularies/metadata

Currently, the image data is stored stored in '.mat' format , with defined metadata.

19. Are there data quality assurance processes in place? If yes please give details in the additional info, if not will you define them?

- Yes

Work - In progress

NPL's photoacoustic microscopy capability - Project End DMP

General information

1. Project completion date

2024-03-31

Making Data Reusable

2. When will the data be made available?

Data available internally throughout the course of the NMS project

3. How long will these data remain available?

- > 7 years

4. How is the data licenced?

- Not Licenced

6. Where will the data be stored after the conclusion of the project (if different from during the project)?

- Same as during project

The NPL locations are the same as highlighted in the plan.

7. Has the IP Register been completed and signed off by technical lead?

- N/A

NPL's photoacoustic microscopy capability - Feedback

Feedback

1. How easy did you find the form to complete?

- Neither easy nor difficult

2. Were there any questions you were unable to fully complete?

- No

3. Please give details, including question numbers and section title.

NA

4. Are there any additional questions that would have been useful to include to help you create the data management plan? If so please specify

NA

5. If you have any further suggestions or comments related to filling out these forms and improvements we could make, please enter them here.

NA