Discrepancy and Energy on compact Riemannian manifolds
DPIA

DPIA

Have you performed a DPIA for the personal data processing activities for this project?

- Not applicable

Discrepancy and Energy on compact Riemannian manifolds
GDPR

GDPR

Have you registered personal data processing activities for this project?

- Not applicable

Discrepancy and Energy on compact Riemannian manifolds
Application DMP

Questionnaire

Describe the datatypes (surveys, sequences, manuscripts, objects …) the research will collect and/or generate and /or (re)use. (use up to 700 characters)

I will try to construct algorithms to distribute points on SO(n) or the sphere (in dimension two). Research on multivariate kernels might involve the construction of computer code to test hypotheses and examples. I will not work with personal data. The data I construct consists of computer programs written for Octave/Matlab, SageMath (Python based) or Wolfram Mathematica. The data formats are *.m, *.py, *.nb. I write about 20 programs per year, each having at most 2kb - sometimes "movies" are generated from many consecutive plots (those can have 100Mb). All together the Data I will produce fits neatly on a regular thumb drive with room to spare...

Specify in which way the following provisions are in place in order to preserve the data during and at least 5 years after the end of the research? Motivate your answer. (use up to 700 characters)

1. Designation of responsible person (If already designated, please fill in his/her name.) I will be responsible to save data. Most of the program will be written by myself and collected in the project related folder on my personal computer.
2. Storage capacity/repository (as mentioned above, storage capacity is not an issue)
    - during the research I will save data on my personal computer and/or office computer (thumb drives will work as backup devices)
    - after the research (on my personal computer, thumb drives)
3. Programs that seem useful for researchers will be printed on a pdf file and publicly available on my website. I might also put it on github. Besides this, all software just serves to confirm my findings, support my hypotheses or find counter examples (this would be of greater importance but happens rarely).

What’s the reason why you wish to deviate from the principle of preservation of data and of the minimum preservation term of 5 years? (max. 700 characters)

Some code I write is a "warm up" for the problem at hand and only serves me to improve or recall my programming skills if they become rusty. Such snippets serve no real purpose so that strict data preservation or documentation for these examples would cost effort in no relation to its value.

Are there issues concerning research data indicated in the ethics questionnaire of this application form? Which specific security measures do those data require? (use up to 700 characters)

There are none.

Which other issues related to the data management are relevant to mention? (use up to 700 characters)

There are none.

Discrepancy and Energy on compact Riemannian manifolds
FWO DMP (Flemish Standard DMP)

1. 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.

				Only for digital data	Only for digital data	Only for digital data	Only for physical data
Dataset Name	Description	New or reused	Digital or Physical	Digital Data Type	Digital Data format	Digital data volume (MB/GB/TB)	Physical volume
		Please choose from the following options: • Generate new data • Reuse existing data	*Please choose from the following options:* • Digital • Physical	*Please choose from the following options:* • Observational • Experimental • Compiled/aggregated data • Simulation data • Software • Other • NA	*Please choose from the following options:* • .por, .xml, .tab, .csv,.pdf, .txt, .rtf, .dwg, .gml, … • NA	*Please choose from the following options:* • <100MB • <1GB • <100GB • <1TB • <5TB • <10TB • <50TB • >50TB • NA	
S2 curves	Octave program to parametrize boundaries of spherical caps under the Lambert map.	• Generate new data	• Digital	• Software	• NA	• <100MB	
Points in SO(3)	SageMath program to generate points in SO(3) and compute their Log Energy.	• Generate new data	• Digital	• Software	• NA	• <100MB	
Point Sequences	Octave program to generate long lists of points that are parts of sequences with small discrepancy on the sphere.	• Reuse existing data	• Digital	• Software	• NA	• <100MB	

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:

I reuse octave (.m) files from previous projects that construct points on the 2 sphere. There is no persistent identifier and the software is written by myself.

Are there any ethical issues concerning the creation and/or use of the data (e.g. experiments on humans or animals, dual use)? Describe these issues in the comment section. Please refer to specific datasets or data types when appropriate.

- No

Will you process personal data? If so, briefly describe the kind of personal data you will use in the comment section. Please refer to specific datasets or data types when appropriate.

- 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

Some results of mine have a potential to be used in real life applications and the code that I would provide could be used for commercial purposes. One example is my construction of infinite sequences on the sphere with small discrepancy. I don't think there should be any restrictions on sharing this data tough, since it is neither optimized nor hard to implement by an average mathematician.

Do existing 3rd party agreements restrict exploitation or dissemination of the data you (re)use (e.g. Material/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

2. 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).

The software I write is neither complex to understand nor very long. I further provide description of code snippets to remember what each part is doing.

Will a metadata standard be used to make it easier to find and reuse the data? If so, please specify (where appropriate per dataset or data type) which metadata standard will be used. If not, please specify (where appropriate per dataset or data type) which metadata will be created to make the data easier to find and reuse.

- No

Code files are saved in a specific folder "programs", and each specific code is itself saved in a folder with a descriptive name found in "programs".
The programs folder is copied to 3 computers and I regularly make a copy of it on my thumb drive.

3. Data storage & back-up during the research project

Where will the data be stored?

The data is stored on my office and home computers and additionally on various portable mediums.

How will the data be backed up?

I have redundant copies on various computers and thumb drives that are updated after additions of new software or changes.

Is there currently sufficient storage & backup capacity during the project? If yes, specify concisely.
If no or insufficient storage or backup capacities are available, then explain how this will be taken care of.

- Yes

The programs I write are of the order <1MB and there is enough space on my office and home computers for storage.

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

The data is not sensitive to begin with (and will be made publicaly available if it provides to be useful), but it is stored on computers with different passwords and they are locked in buildings.
I use Linux operating systems which makes it less prone to viruses and attacks.
Thumb drives with copies of the programs are on my person or locked at home.

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

There is no cost.

4. Data preservation after the end of the research project

Which data will be retained for at least five 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 my programs are saved for 10 years or longer.

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

My "programs" folder follows me with every job change and increases in volume. The data barely takes up space. Useful programs are made publicaly available as ".pdf" files on my website (damirferizovic.wordpress.com) so they can be copied into ".m" files for instance.

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

There is no cost.

5. Data sharing and reuse

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

- Yes, in an Open Access repository

Each program that proves useful in conveying the correctness of my theorems will be made avialable on my website for download.

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

N/A

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 in the comment section 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.

Some of my programs are made available on my homepage:

damirferizovic.wordpress.com

and in addition on homepages of collaborators potentially or open access sites like github.

When will the data be made available?

upon publication of research results

Which data usage licenses are you going to provide? If none, please explain why.

GNU General Public License as published by the free Software Foundation (version 3).

Do you intend to add a PID/DOI/accession number to your dataset(s)? If already available, you have the option to provide it in the

comment section.

- No

This might happen if I decide to upload some programs to github, but I have no intent to add a persistent and unique identifier.

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

No cost.

6. Responsibilities

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

Damir Ferizovic

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

Damir Ferizovic

Who will manage data preservation and sharing?

Damir Ferizovic

Who will update and implement this DMP?

Damir Ferizovic