Neurospin DMP example

Plan de gestion de données créé à l'aide de DMP OPIDoR, basé sur le modèle "Horizon Europe DMP (english)" fourni par Commission européenne.

Plan Details

Plan title Neurospin DMP example

Deliverable 0.1

Version First version

Fields of science and

technology (from Health sciences, Biological sciences (Natural sciences)

OECD classification)

Language eng

Creation date 2024-01-17 Last modification date 2024-03-11

Identifier type URL

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Project Details

Project title Neurospin DMP example

Acronym Neurospin_DMP

Abstract [Here describe your own project]

The goal of this project is to provide a DMP example to start from, as a basis for your own Horizon Europe projects. The focus is on:

- · monocentric projects,
- data acquired at Neurospin,
- the kind of data we usually manipulate: MRI, MEG, EEG, demographics, omics, questionnaires, clinical data, ...

Multicentric projects that involve data transfers between partners and multiple IT infrastructures, warrant a specific detailed DMP

multiple IT infrastructures, warrant a specific detailed DMP.

Start date 2024-01-01 **End date** 2027-12-31

Research outputs:

- 1. Demographic information describing study participants (Dataset)
- 2. Functional and structural MRI images, using 3 T MRI (Image)
- 3. High-resolution functional and structural MRI images, using 7 T MRI (Image)
- 4. Magnetoencephalography data (Dataset)
- 5. Behavioural data (Dataset)
- 6. Stimulation software programmed in Python (Software)
- 7. Custom Python scripts running fMRIprep for fMRI preprocessing (Software)
- 8. Custom Python scripts using ScikitLearn and NiLearn for fMRI analysisNew research output 8 (Software)

Contributors

Name	Affiliation	Roles
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Droits d'auteur :

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Neurospin DMP example

1. Data Summary

Demographic information describing study participants

- Will you re-use any existing data and what will you re-use it for? State the reasons if re-use of any existing data has been considered but discarded.
- What types and formats of data will the project generate or re-use?
- · What is the purpose of the data generation or re-use and its relation to the objectives of the project?
- · What is the expected size of the data that you intend to generate or re-use?
- . What is the origin/provenance of the data, either generated or re-used?
- To whom might your data be useful ('data utility'), outside your project?

Will you reuse?

[The answer depends on your research question, and the availability and quality of relevant datasets]

- · We need to acquire new data because no available dataset addresses our research question or this specific pathology.
- We will use a subset of UKBiobank as control data. The subset has been obtained under authorisation [...] and is made available for 3 years with an estimated cost of [...].
- · use Ebrains for
 - final data storage and dissemination
 - attribution of DOI (DOI available only when uploading the data)

What types of data?

Purpose of the data and its relation to the objectives of the project?

What is the expected size of the data?

What is the origin/provenance of the data?

[More details than "Research Outputs"]

The sponsor of this longitudinal, monocentric study is CEA. We will recruit 100 volunteers of African descent, and attempt to achieve a 50:50 female/male balance and evenly distributed ages between 18 and 50 years old. We will acquire data over two time points, baseline and follow-up, and shall strive for an interval of 8 weeks between these two time points.

The resulting data will help address the following questions in our research and analysis plan [...].

[We recommend you pre-register your research and analysis plan and refer to it when explaining the purpose of the data and its relation to the objectives of the project]

We will organise the resulting data according to the BIDS specification.

- Demographic data: tabular data in TSV format [< 1 MB]
- Behavioural data: software specific format (.xyz format of XYZ Inc.) and derived tabular data in TSV format [< 1 MB]
- MRI data: raw files:
 - raw data in DICOM format from Siemens Trio machine
 - o derived data in NIfTI format
 - [2.3 GB/subject]
- Physiological data: software-specififc

To whom might your data be useful, outside your project?

Researchers interested in [the same scientific domain?] can reuse the data to address questions

Functional and structural MRI images, using 3 T MRI

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To whom might your data be useful ('data utility'), outside your project?

Question sans réponse.

High-resolution functional and structural MRI images, using 7 T MRI

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Question sans réponse.

Magnetoencephalography data

- Will you re-use any existing data and what will you re-use it for? State the reasons if re-use of any existing data has been considered but discarded.
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Question sans réponse.

Behavioural data

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Stimulation software programmed in Python

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Question sans réponse.

Custom Python scripts running fMRIprep for fMRI preprocessing

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Question sans réponse.

Custom Python scripts using ScikitLearn and NiLearn for fMRI analysisNew research output 8

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Question sans réponse.

2. FAIR data

Demographic information describing study participants

2.1. Making data findable, including provisions for metadata

- · Will data be identified by a persistent identifier?
- Will rich metadata be provided to allow discovery? What metadata will be created? What disciplinary or general standards will be followed? In case metadata standards do not exist in your discipline, please outline what type of metadata will be created and how.
- Will search keywords be provided in the metadata to optimize the possibility for discovery and then potential reuse?
- · Will metadata be offered in such a way that it can be harvested and indexed?

Question sans réponse.

2.2.1. Making data accessible: Repository

- Will the data be deposited in a trusted repository?
- · Have you explored appropriate arrangements with the identified repository where your data will be deposited?
- Does the repository ensure that the data is assigned an identifier? Will the repository resolve the identifier to a digital object?

Pseudonymised data will be made available for scientific research, within the boundaries set by the informed consent, and will initially remain on an internal storage system at CEA, dedicated to research data. We shall make data available once quality is judged satisfactory, after QA, preprocessing, and QC. This usually coincides with the first associated article published.

We plan on making our data accessible on **EBRAINS**, which:

- is a EU-funded research infrastructure for neuroscience;
- strives to be compatible with the GDPR;
- provides assistance to curate the data before storage and dissemination;
- provides DOIs to identify dataset.

2.2.2. Making data accessible: Data

- Will all data be made openly available? If certain datasets cannot be shared (or need to be shared under restricted
 access conditions), explain why, clearly separating legal and contractual reasons from intentional restrictions. Note
 that in multi-beneficiary projects it is also possible for specific beneficiaries to keep their data closed if opening
 their data goes against their legitimate interests or other constraints as per the Grant Agreement.
- If an embargo is applied to give time to publish or seek protection of the intellectual property (e.g. patents), specify
 why and how long this will apply, bearing in mind that research data should be made available as soon as possible.
- Will the data be accessible through a free and standardized access protocol?
- If there are restrictions on use, how will access be provided to the data, both during and after the end of the project?
- · How will the identity of the person accessing the data be ascertained?
- Is there a need for a data access committee (e.g. to evaluate/approve access requests to personal/sensitive data)?

Data that are not pseudonymised are used for research management purposes and cannot be shared. They are kept on a dedicated encrypted space on an internal CEA server, for the sole purpose of recruitment and follow-up by the dedicated clinical team.

Pseudonymised data will be made available for scientific research, within the boundaries set by the informed consent, and will initially remain on an internal storage system at CEA, dedicated to research data. We shall make data available once quality is judged satisfactory, after QA, preprocessing, and QC. This usually coincides with the first associated article published.

Access to the data will be granted after examination of the research project by a scientific committee and an executive committee that will make sure data sharing remains within the bounds set by regulatory rules for personal data:

- reuse within the limits of the informed consent,
- acceptance by the recipients of the data

2.2.3. Making data accessible: Metadata

- Will metadata be made openly available and licenced under a public domain dedication CC0, as per the Grant Agreement? If not, please clarify why. Will metadata contain information to enable the user to access the data?
- How long will the data remain available and findable? Will metadata be guaranteed to remain available after data is no longer available?
- Will documentation or reference about any software be needed to access or read the data be included? Will it be
 possible to include the relevant software (e.g. in open source code)?

Question sans réponse.

2.3. Making data interoperable

- What data and metadata vocabularies, standards, formats or methodologies will you follow to make your data interoperable to allow data exchange and re-use within and across disciplines? Will you follow community-endorsed interoperability best practices? Which ones?
- In case it is unavoidable that you use uncommon or generate project specific ontologies or vocabularies, will you provide mappings to more commonly used ontologies? Will you openly publish the generated ontologies or vocabularies to allow reusing, refining or extending them?
- Will your data include qualified references to other data (e.g. other data from your project, or datasets from previous research)?

Question sans réponse.

2.4. Increase data re-use

- How will you provide documentation needed to validate data analysis and facilitate data re-use (e.g. readme files
 with information on methodology, codebooks, data cleaning, analyses, variable definitions, units of measurement,
 etc.)?
- Will your data be made freely available in the public domain to permit the widest re-use possible? Will your data be licensed using standard reuse licenses, in line with the obligations set out in the Grant Agreement?
- · Will the data produced in the project be useable by third parties, in particular after the end of the project?
- · Will the provenance of the data be thoroughly documented using the appropriate standards?
- Describe all relevant data quality assurance processes.
- Further to the FAIR principles, DMPs should also address research outputs other than data, and should carefully consider aspects related to the allocation of resources, data security and ethical aspects.

Question sans réponse.

Functional and structural MRI images, using 3 T MRI

2.1. Making data findable, including provisions for metadata

- Will data be identified by a persistent identifier?
- Will rich metadata be provided to allow discovery? What metadata will be created? What disciplinary or general standards will be followed? In case metadata standards do not exist in your discipline, please outline what type of metadata will be created and how.
- Will search keywords be provided in the metadata to optimize the possibility for discovery and then potential reuse?

Will metadata be offered in such a way that it can be harvested and indexed?
Question sans réponse.
2.2.1. Making data accessible : Repository
 Will the data be deposited in a trusted repository? Have you explored appropriate arrangements with the identified repository where your data will be deposited? Does the repository ensure that the data is assigned an identifier? Will the repository resolve the identifier to a digital object?
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Question sans réponse.
2.2.3. Making data accessible : Metadata
 Will metadata be made openly available and licenced under a public domain dedication CC0, as per the Grant Agreement? If not, please clarify why. Will metadata contain information to enable the user to access the data? How long will the data remain available and findable? Will metadata be guaranteed to remain available after data is no longer available? Will documentation or reference about any software be needed to access or read the data be included? Will it be possible to include the relevant software (e.g. in open source code)?
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2.3. Making data interoperable

- What data and metadata vocabularies, standards, formats or methodologies will you follow to make your data interoperable to allow data exchange and re-use within and across disciplines? Will you follow community-endorsed interoperability best practices? Which ones?
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	réponse.

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- Describe all relevant data quality assurance processes.

Further to the FAIR principles, DMPs should also address research outputs other than data, and should carefully consider aspects related to the allocation of resources, data security and ethical aspects.
Question sans réponse.
Magnetoencephalography data
2.1. Making data findable, including provisions for metadata
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Question sans réponse.

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Question sans réponse.

Behavioural data

2.1. Making data findable, including provisions for metadata

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- What data and metadata vocabularies, standards, formats or methodologies will you follow to make your data interoperable to allow data exchange and re-use within and across disciplines? Will you follow community-endorsed interoperability best practices? Which ones?
- In case it is unavoidable that you use uncommon or generate project specific ontologies or vocabularies, will you provide mappings to more commonly used ontologies? Will you openly publish the generated ontologies or vocabularies to allow reusing, refining or extending them?
- Will your data include qualified references to other data (e.g. other data from your project, or datasets from previous research)?

Question sans réponse.

2.4. Increase data re-use

- How will you provide documentation needed to validate data analysis and facilitate data re-use (e.g. readme files with information on methodology, codebooks, data cleaning, analyses, variable definitions, units of measurement, etc.)?
- Will your data be made freely available in the public domain to permit the widest re-use possible? Will your data be licensed using standard reuse licenses, in line with the obligations set out in the Grant Agreement?
- · Will the data produced in the project be useable by third parties, in particular after the end of the project?
- · Will the provenance of the data be thoroughly documented using the appropriate standards?
- · Describe all relevant data quality assurance processes.
- Further to the FAIR principles, DMPs should also address research outputs other than data, and should carefully
 consider aspects related to the allocation of resources, data security and ethical aspects.

Question sans réponse.
Custom Python scripts running fMRIprep for fMRI preprocessing
2.1. Making data findable, including provisions for metadata
 Will data be identified by a persistent identifier? Will rich metadata be provided to allow discovery? What metadata will be created? What disciplinary or general standards will be followed? In case metadata standards do not exist in your discipline, please outline what type of metadata will be created and how.
 Will search keywords be provided in the metadata to optimize the possibility for discovery and then potential re- use?
Will metadata be offered in such a way that it can be harvested and indexed?
Question sans réponse.
2.2.1. Making data accessible : Repository
 Will the data be deposited in a trusted repository? Have you explored appropriate arrangements with the identified repository where your data will be deposited? Does the repository ensure that the data is assigned an identifier? Will the repository resolve the identifier to a digital object?
Question sans réponse.
2.2.2. Making data accessible : Data
 Will all data be made openly available? If certain datasets cannot be shared (or need to be shared under restricted access conditions), explain why, clearly separating legal and contractual reasons from intentional restrictions. Note that in multi-beneficiary projects it is also possible for specific beneficiaries to keep their data closed if opening their data goes against their legitimate interests or other constraints as per the Grant Agreement. If an embargo is applied to give time to publish or seek protection of the intellectual property (e.g. patents), specify why and how long this will apply, bearing in mind that research data should be made available as soon as possible. Will the data be accessible through a free and standardized access protocol? If there are restrictions on use, how will access be provided to the data, both during and after the end of the project? How will the identity of the person accessing the data be ascertained? Is there a need for a data access committee (e.g. to evaluate/approve access requests to personal/sensitive data)?
Question sans réponse.
2.2.3 Making data accessible · Metadata

• Will metadata be made openly available and licenced under a public domain dedication CC0, as per the Grant

Agreement? If not, please clarify why. Will metadata contain information to enable the user to access the data? . How long will the data remain available and findable? Will metadata be guaranteed to remain available after data is no longer available? · Will documentation or reference about any software be needed to access or read the data be included? Will it be possible to include the relevant software (e.g. in open source code)? Question sans réponse. 2.3. Making data interoperable What data and metadata vocabularies, standards, formats or methodologies will you follow to make your data interoperable to allow data exchange and re-use within and across disciplines? Will you follow community-endorsed interoperability best practices? Which ones? • In case it is unavoidable that you use uncommon or generate project specific ontologies or vocabularies, will you provide mappings to more commonly used ontologies? Will you openly publish the generated ontologies or vocabularies to allow reusing, refining or extending them? · Will your data include qualified references to other data (e.g. other data from your project, or datasets from previous Question sans réponse. 2.4. Increase data re-use · How will you provide documentation needed to validate data analysis and facilitate data re-use (e.g. readme files with information on methodology, codebooks, data cleaning, analyses, variable definitions, units of measurement, etc.)? · Will your data be made freely available in the public domain to permit the widest re-use possible? Will your data be licensed using standard reuse licenses, in line with the obligations set out in the Grant Agreement? · Will the data produced in the project be useable by third parties, in particular after the end of the project? · Will the provenance of the data be thoroughly documented using the appropriate standards? · Describe all relevant data quality assurance processes. . Further to the FAIR principles, DMPs should also address research outputs other than data, and should carefully consider aspects related to the allocation of resources, data security and ethical aspects.

Custom Python scripts using ScikitLearn and NiLearn for fMRI analysisNew research output 8

2.1. Making data findable, including provisions for metadata

- · Will data be identified by a persistent identifier?
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- Will metadata be offered in such a way that it can be harvested and indexed?

Question sans réponse.
2.2.1. Making data accessible : Repository
 Will the data be deposited in a trusted repository? Have you explored appropriate arrangements with the identified repository where your data will be deposited? Does the repository ensure that the data is assigned an identifier? Will the repository resolve the identifier to a digital object?
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Question sans réponse.
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 Will metadata be made openly available and licenced under a public domain dedication CC0, as per the Grant Agreement? If not, please clarify why. Will metadata contain information to enable the user to access the data? How long will the data remain available and findable? Will metadata be guaranteed to remain available after data is no longer available? Will documentation or reference about any software be needed to access or read the data be included? Will it be possible to include the relevant software (e.g. in open source code)?
Question sans réponse.
2.3. Making data interoperable What data and metadata vocabularies, standards, formats or methodologies will you follow to make your data

- What data and metadata vocabularies, standards, formats or methodologies will you follow to make your data interoperable to allow data exchange and re-use within and across disciplines? Will you follow community-endorsed interoperability best practices? Which ones?
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Question sans réponse.
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Question sans réponse.
3. Other research outputs

Demographic information describing study participants

- · In addition to the management of data, beneficiaries should also consider and plan for the management of other research outputs that may be generated or re-used throughout their projects. Such outputs can be either digital (e.g. software, workflows, protocols, models, etc.) or physical (e.g. new materials, antibodies, reagents, samples, etc.).
- · Beneficiaries should consider which of the questions pertaining to FAIR data above, can apply to the management of other research outputs, and should strive to provide sufficient detail on how their research outputs will be managed and shared, or made available for re-use, in line with the FAIR principles.

Question sans réponse.

Functional and structural MRI images, using 3 T MRI

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Question sans réponse.
High-resolution functional and structural MRI images, using 7 T MRI
 In addition to the management of data, beneficiaries should also consider and plan for the management of other research outputs that may be generated or re-used throughout their projects. Such outputs can be either digital (e.g. software, workflows, protocols, models, etc.) or physical (e.g. new materials, antibodies, reagents, samples, etc.). Beneficiaries should consider which of the questions pertaining to FAIR data above, can apply to the management of other research outputs, and should strive to provide sufficient detail on how their research outputs will be managed and shared, or made available for re-use, in line with the FAIR principles.
Question sans réponse.
Magnetoencephalography data
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Question sans réponse.
Behavioural data
 In addition to the management of data, beneficiaries should also consider and plan for the management of other research outputs that may be generated or re-used throughout their projects. Such outputs can be either digital (e.g. software, workflows, protocols, models, etc.) or physical (e.g. new materials, antibodies, reagents, samples, etc.). Beneficiaries should consider which of the questions pertaining to FAIR data above, can apply to the management of other research outputs, and should strive to provide sufficient detail on how their research outputs will be managed and shared, or made available for re-use, in line with the FAIR principles.
Question sans réponse.

Stimulation software programmed in Python

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Question sans réponse.

Custom Python scripts running fMRIprep for fMRI preprocessing

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Question sans réponse.

Custom Python scripts using ScikitLearn and NiLearn for fMRI analysisNew research output 8

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 managed and shared, or made available for re-use, in line with the FAIR principles.

Question sans réponse.

4. Allocation of resources

Demographic information describing study participants

- What will the costs be for making data or other research outputs FAIR in your project (e.g. direct and indirect costs related to storage, archiving, re-use, security, etc.)?
- How will these be covered? Note that costs related to research data/output management are eligible as part of the Horizon Europe grant (if compliant with the Grant Agreement conditions)
- Who will be responsible for data management in your project?
- How will long term preservation be ensured? Discuss the necessary resources to accomplish this (costs and potential value, who decides and how, what data will be kept and for how long)?

Question sans réponse.
Functional and structural MRI images, using 3 T MRI
 What will the costs be for making data or other research outputs FAIR in your project (e.g. direct and indirect costs related to storage, archiving, re-use, security, etc.)? How will these be covered? Note that costs related to research data/output management are eligible as part of the Horizon Europe grant (if compliant with the Grant Agreement conditions) Who will be responsible for data management in your project? How will long term preservation be ensured? Discuss the necessary resources to accomplish this (costs and potential value, who decides and how, what data will be kept and for how long)?
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Question sans réponse.

Behavioural data

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Custom Python scripts running fMRIprep for fMRI preprocessing

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Custom Python scripts using ScikitLearn and NiLearn for fMRI analysisNew research output 8

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Question sans réponse.
5. Data security
Demographic information describing study participants
 What provisions are or will be in place for data security (including data recovery as well as secure storage/archivir and transfer of sensitive data)? Will the data be safely stored in trusted repositories for long term preservation and curation?
Question sans réponse.
Functional and structural MDI incomes using 0.T MDI
 Functional and structural MRI images, using 3 T MRI What provisions are or will be in place for data security (including data recovery as well as secure storage/archivir and transfer of sensitive data)? Will the data be safely stored in trusted repositories for long term preservation and curation?
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Question sans réponse.
Magnetoencephalography data

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Custom Python scripts using ScikitLearn and NiLearn for fMRI analysisNew research

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Question sans réponse.
6. Ethics
Demographic information describing study participants
 Are there, or could there be, any ethics or legal issues that can have an impact on data sharing? These can also be discussed in the context of the ethics review. If relevant, include references to ethics deliverables and ethics chapter in the Description of the Action (DoA). Will informed consent for data sharing and long term preservation be included in questionnaires dealing with personal data?
Question sans réponse.
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Behavioural data

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Stimulation software programmed in Python

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Custom Python scripts running fMRIprep for fMRI preprocessing

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Question sans réponse.
7. Other issues
Demographic information describing study participants
 Do you, or will you, make use of other national/funder/sectorial/departmental procedures for data management? If yes, which ones (please list and briefly describe them)?
Question sans réponse.
Functional and structural MRI images, using 3 T MRI
Do you, or will you, make use of other national/funder/sectorial/departmental procedures for data management? If yes, which ones (please list and briefly describe them)?
Question sans réponse.
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Question sans réponse.
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Custom Python scripts using ScikitLearn and NiLearn for fMRI analysisNew research output 8

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