1102925N Adaptive multistate decoding of finger dexterity from intracranial human brain activity Application DMP

Questionnaire

The questions in this section should only be answered if you are currently applying for FWO funding.
Are you preparing an application for funding?

- No

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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	
Gent_pre2025	ECoG and EEG signals recorded in UZGent during finger movement experiments done before the start of the FWO grant	Reuse existing data	Digital	Invasive (ECoG) and non-invasive (EEG) electrical neural activity. Medical images (MRI and CT). Data glove trajectories recorded during the experiments. Functional mapping data and photographs during implantation	TRC files for EEg and ECoG. DCM files for the medical images. PDF for the functional mapping data and implantation pictures.	<100GB	
Gent_post2025	ECoG and EEG signals recorded in UZGent during finger movement experiments done after the start of the FWO grant	Generate new data	Digital	Invasive (ECoG) and non-invasive (EEG) electrical neural activity. Medical images (MRI and CT). Data glove trajectories recorded during the experiments. Functional mapping data and photographs during implantation. Videos during online experiments.	TRC files for EEg and ECoG. DCM files for the medical images. PDF for the functional mapping data and implantation pictures. MP4 for the videos.	<1TB Larger data volume caused by an increase in the sampling frecuency used at UZGent	
Stanford dataset	Public dataset of ECoG signals recorded during various experiments, including finger movements	Reuse existing data	Digital	Invasive (ECoG) electrical neural activity.	Matlab files	10GB	

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:

The dataset 'Gent_pre2025' was recorded by previous researchers working in my lab, and it is stored on a secure, password-

protected computer not accessible by external parties and on encrypted disks.
The Stanford dataset is an open source anonymized dataset: *Miller, K.J., 2019. A library of human electrocorticographic data and analyses. Nat Hum Behav 3, 1225– 235*. https://doi.org/10.1038/s41562-019-0678-3

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.

- Yes, human subject data

For the datasets 'Gent_pre2025' and 'Gent_post2025' I will use data coming from drug-resistant epileptic patients scheduled for resective surgery at UZGent, and whose implants cover hand motor- or somatosensory areas. I will work under ethical approval from the Commission Medical Ethics of UZGent (ethical approval B670202042877, 25/6/2020 (BC-06016)), with the transfer of data from UZGent to KU Leuven covered by a Material Transfer Agreement (KW/1692/NEC/001/021)

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.

- Yes

For the datasets 'Gent_pre2025' and 'Gent_post2025' I will use neural electrical activity (ECoG and EEG), data glove responses, pre/post implant MR images, functional mapping data and photographs during implantation. The data is anonymized in UZGent prior to transfer.

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

In relation to datasets 'Gent_pre2025' and 'Gent_post2025', the division of IP rights between UZGent and KU Leuven is stipulated in Service Agreement (UZGent reference KW/1692/NEC/001/021).

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.

- Yes

The transfer of datasets 'Gent_pre2025' and 'Gent_post2025' from UZGent to KU Leuven is covered by a Material Transfer Agreement (KW/1692/NEC/001/021)

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).

All data from all subjects is stored in a secure, password-protected computer not accessible by external parties and on encrypted disks. For each subject there is a folder containing the TRC files, a folder for the medical imaging, a folder for the functional mapping and implantation pictures, and a folder for additional data acquired during the experiments (such as data glove trajectories).
A lab-notebook is used to keep track of what experiments where done with each subject, and write down any issues encountered during the experiments.

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

No metadata will be created for use by 3rd parties without prior approval of the Commission Medical Ethics of UZGent (ethical approval B670202042877, 25/6/2020 (BC-06016)) and in compliance with the Service Agreement (UZGent reference KW/1692/NEC/001/021) between UZGent and KU Leuven.

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

Where will the data be stored?

The pseudo-anonymized data received by KU Leuven will be stored on a secure, password-protected storage facility not accessible by external parties at the research unit.

How will the data be backed up?

Disk mirroring. The received data is a copy of the original data stored at UZGent on a secure, password protected computer, separate from the patient dossiers from which it is a partial excerpt.

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

Yes, the storage unit currently being used at my lab has enough storage & backup capacity for all the data I will generate during my PhD

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

Persons that have access to the data are listed in the ethical approval (B670202042877, (BC-06016), granted on 25/6/2020 by the Commission Medical Ethics of UZGent), and are the only ones with the password needed to access and modify the data.

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

Storage resources at KU Leuven are covered by grants. Preservation at UZGent's servers is secured for 20 years, as it concerns patient data, in as far as legal and contractual agreements apply.

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...).

After the end of the project, the data received by KU Leuven will be preserved for 5 years at KU Leuven, in as far as legal and contractual agreements apply. The original recordings are preserved for 20 years at UZGent's servers, as it concerns patient data, in as far as legal and contractual agreements apply.

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

The original recordings are preserved for 20 years at UZGent's servers, as it concerns patient data, in as far as legal and contractual agreements apply.

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

Storage resources at KU Leuven are covered by grants.

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.

- No (closed access)

As it concerns patient data, sharing with 3rd parties is only admissible after prior approval by UZGent's Ethical Committee (ethical approval B670202042877, 25/6/2020 (BC-06016)) and in compliance with the Service Agreement (UZGent reference KW/1692/NEC/001/021) between UZGent and KU Leuven.

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

People not listed in the ethical approval (B670202042877, (BC-06016), granted on 25/6/2020 by the Commission Medical Ethics of UZGent) can only access the data after prior approval by UZGent's Ethical Committee and in compliance with the Service Agreement (UZGent reference KW/1692/NEC/001/021) between UZGent and KU Leuven.

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.

- Yes, Ethical aspects
- Yes, Privacy aspects

Yes.
As it concerns patient data, sharing with 3rd parties is only admissible after prior approval by UZGent's Ethical Committee (ethical approval B670202042877, 25/6/2020 (BC-06016)) and in compliance with the Service Agreement (UZGent reference KW/1692/NEC/001/021) between UZGent and KU Leuven.

Where will the data be made available? If already known, please provide a repository per dataset or data type.

As it concerns patient data, sharing with 3rd parties is only admissible after prior approval by UZGent's Ethical Committee (ethical approval B670202042877, 25/6/2020 (BC-06016)) and in compliance with the Service Agreement (UZGent reference KW/1692/NEC/001/021) between UZGent and KU Leuven.

When will the data be made available?

As it concerns patient data, sharing with 3rd parties is only admissible after prior approval by UZGent's Ethical Committee (ethical approval B670202042877, 25/6/2020 (BC-06016)) and in compliance with the Service Agreement (UZGent reference KW/1692/NEC/001/021) between UZGent and KU Leuven.

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

As it concerns patient data, sharing with 3rd parties is only admissible after prior approval by UZGent's Ethical Committee (ethical approval B670202042877, 25/6/2020 (BC-06016)) and in compliance with the Service Agreement (UZGent reference KW/1692/NEC/001/021) between UZGent and KU Leuven.

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

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

As it concerns patient data, sharing with 3rd parties is only admissible after prior approval by UZGent's Ethical Committee (ethical approval B670202042877, 25/6/2020 (BC-06016)) and in compliance with the Service Agreement (UZGent reference KW/1692/NEC/001/021) between UZGent and KU Leuven.

6. Responsibilities

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

Marc Van Hulle is responsible for the data received from UZGent, in compliance with the Service Agreement (UZGent reference KW/1692/NEC/001/021) between UZGent and KU Leuven

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

Marc Van Hulle

Who will manage data preservation and sharing?

Marc Van Hulle

Who will update and implement this DMP?

Marc Van Hulle