A standardised representation for non-parametric fMRI results

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Introduction

Reuse of data collected and analysed at another site is becoming more prevalent in the neuroimaging community (cf. for example (Milham et al. 2017)) but this process **usually relies on intensive data and metadata curation**. Given the ever-increasing number of research datasets produced and shared, **it is desirable to rely on standards that will enable automatic data and metadata retrieval for large-scale analyses** (Wilkinson et al. 2016).

We recently introduced **NIDM-Results** (Maumet et al. 2016), a data model to represent and publish data and metadata created as part of a mass univariate neuroimaging study (typically functional magnetic resonance imaging).

Here we **extend this model to allow for the representation of non-parametric analyses** and we **introduce a JSON API** that will facilitate export into NIDM-Results.

Publication

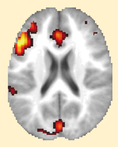
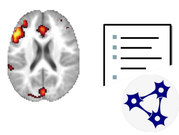


Figure (selected slices)

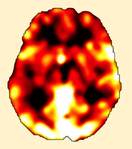
Thresholded statistics

Selected peak locations

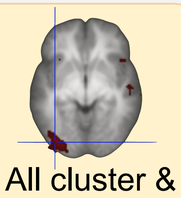
NIDM-Results



Machine-readable metadata

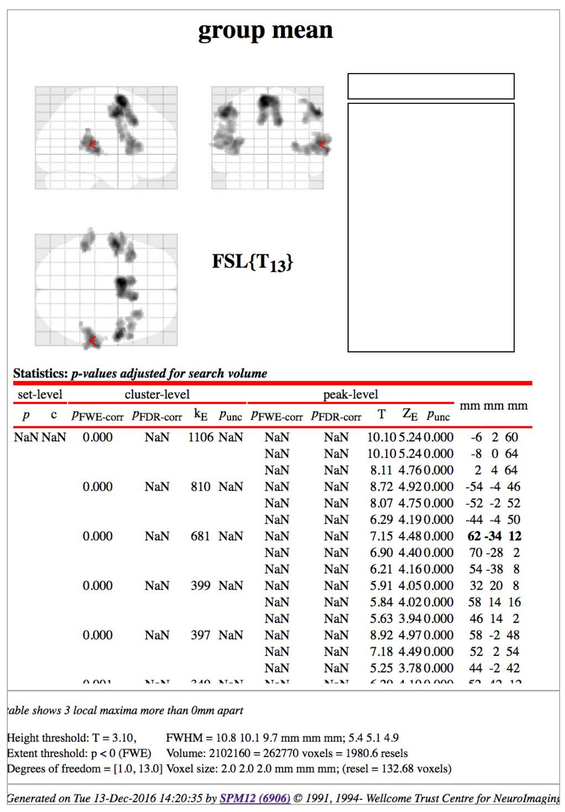


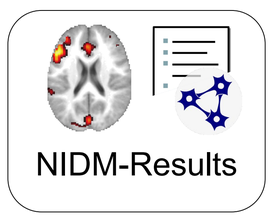
Unthresholded statistic maps



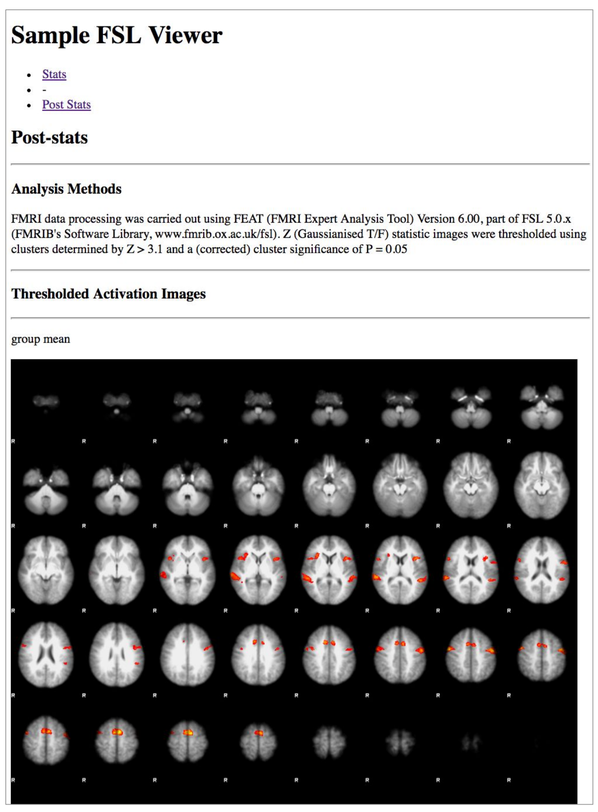
All cluster & peak locations

Results





NIDM-Results

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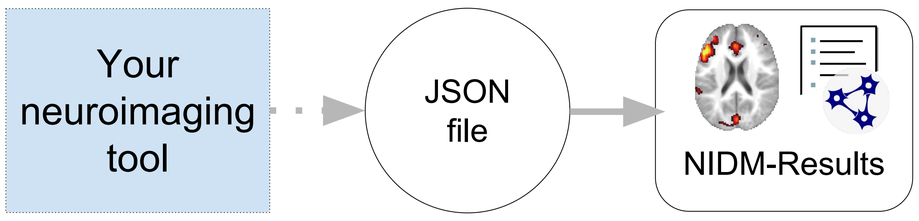
Example of JSON export

Exporting neuroimaging results from SPM, SnPM and FSL. NIDM-Results pack is available at: http://neurovault.org/collections/1692/fsl_group_ols.nidm.

https://github.com/incf-nidash/ JSON specification: http://goo.gl/92f9Pr RDF specification: http://nidm.nidash.org/specs/nidm-results.html

You can help!

1. Build an exporter



2. Comment on the NIDM JSON specification http://goo.gl/92f9Pr
3. Export your SPM and/or FSL results using NIDM-Results http://nidm.nidash.org/getting-started/ and let us know your feedback!

Join the community

Are you interested in bringing your contributions to NIDM? Would you like to hear more? We always welcome new contributors!

We meet every week by videoconference on **Mondays at 8-9am PDT / 11am-12pm EDT / 4-5pm BST**.

For more information, please email us at incf-nidash-nidm@googlegroups.com

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References

Cox 1996, Computers and Biomedical Research / Jenkinson 2013, NeuroImage / Maumet 2016, Scientific Data / Milham 2017, bioRxiv / Nichols 2002, Human Brain Mapping / Penny 2011, Elsevier./ Wilkinson 2016, Scientific Data