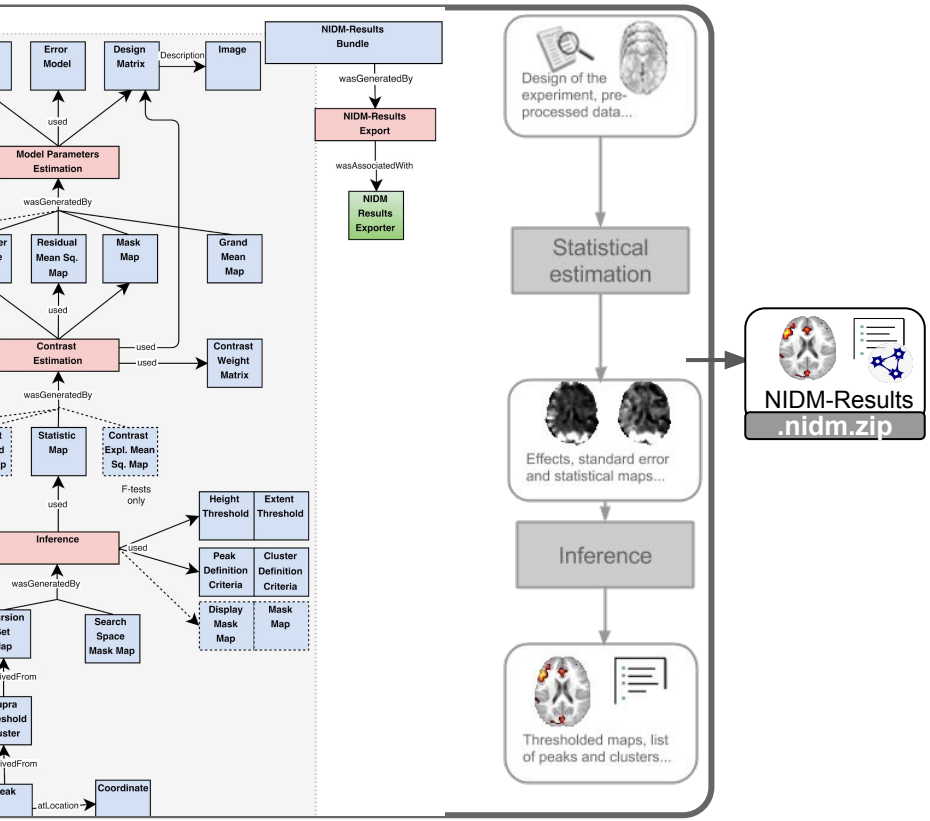
NIDM-Results & Datalad

NIDM-Results: standardised representation for fMRI Results.



Datalad: tool for version-control of datasets with support for metadata extraction and search.

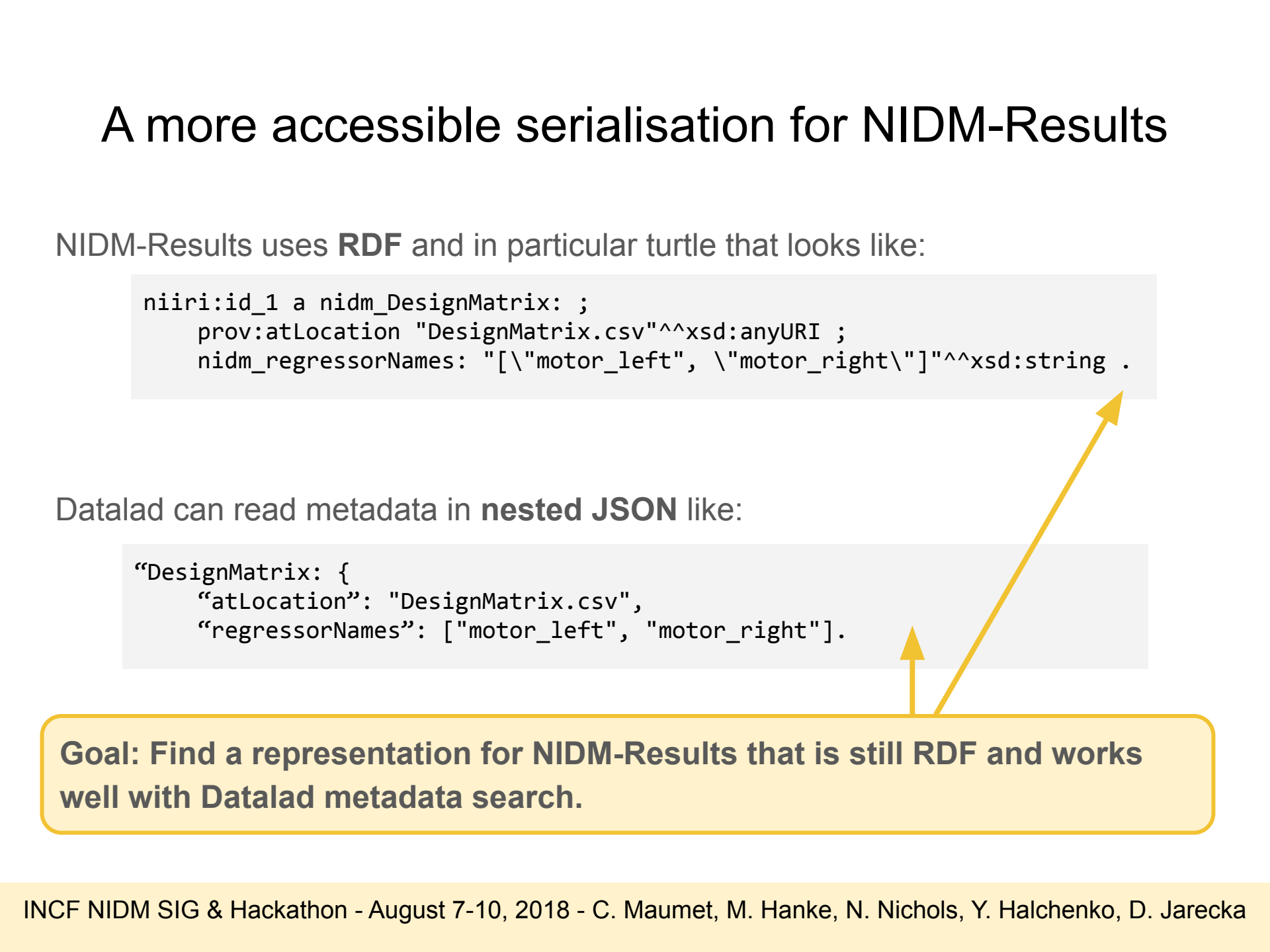
A more accessible serialisation for NIDM-Results

NIDM-Results uses **RDF** and in particular turtle that looks like:

```
niiri:id_1 a nidm_DesignMatrix: ;
    prov:atLocation "DesignMatrix.csv"^^xsd:anyURI ;
    nidm_regressorNames: "[\"motor_left", \"motor_right\"]"^^xsd:string .
```

Datalad can read metadata in **nested JSON** like:

```
“DesignMatrix: {
    “atLocation”: "DesignMatrix.csv",
    “regressorNames”: ["motor_left", "motor_right"].
```



Goal: Find a representation for NIDM-Results that is still RDF and works well with Datalad metadata search.

What we achieved so far...

- Looked at JSON-LD variants: https://json-ld.org/spec/latest/json-ld/
- Found the **indexing feature** that is meant to "structure data using a simple key-value map where the keys do not map to IRIs" (cf. link)

```
"@context": {
     "madeof": {"@id": "madeof", "@container": "@index"},
     "nidm": "http://purl.org/nidash/niiri#",
     "name": "dcterms:name"
 },
 "madeof": {
   "DesignMatrix":
       {
           "@type": "nidm:DesignMatrix",
           "SPMsDriftCutoffPeriod": 128
       },
   "Software":
       {
           "@type": "nidm:AnalysisSoftware",
           "name": "SPM"
       }
 }
```

Future work: Try out this representation on a complete NIDM-Results document.

Traditional JSON-LD Approach

```json
{
  "@context": {
    "rdf": "http://www.w3.org/1999/02/22-rdf-syntax-ns#",
    "rdfs": "http://www.w3.org/2000/01/rdf-schema#",
    "xsd": "http://www.w3.org/2001/XMLSchema#",
    "dcterms": "http://purl.org/dc/elements/1.1/",
    "name": "dcterms:name",
    "nidm": {
      "@id": "http://purl.org/nidash/nidm#",
      "@type": "@id"
    },
    "spm": {
      "@id": "http://purl.org/nidash/spm#",
      "@type": "@id"
    },
    "designMatrix": "nidm:designMatrix",
    "software": "nidm:software",
    "SPMsDriftCutoffPeriod": "spm:spm_SPMsDriftCutoffPeriod",
    "type": {
      "@id": "rdf:type",
      "@type": "@id"
    }
  },
  "@id": "#nidm-result",
  "type": "nidm:Result",
  "designMatrix": {
    "type": "nidm:DesignMatrix",
    "SPMsDriftCutoffPeriod": 128
  },
  "software": {
    "type": "nidm:Software",
    "name": "SPM"
  }
}
```

```
@prefix dcterms: <http://purl.org/dc/elements/1.1/> .
@prefix nidm: <http://purl.org/nidash/nidm#> .
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .
@prefix spm: <http://purl.org/nidash/spm#> .
@prefix xml: <http://www.w3.org/XML/1998/namespace> .
@prefix xsd: <http://www.w3.org/2001/XMLSchema#> .

<file:///Users/nicholb3/Downloads/#nidm-result> a nidm:Result ;
    nidm:designMatrix [ a nidm:DesignMatrix ;
            spm:spm_SPMsDriftCutoffPeriod 128 ] ;
    nidm:software [ a nidm:Software ;
            dcterms:name "SPM" ] .
```