

# presentation

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## 1 openminds-python

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- Available on pypi <https://pypi.org/project/openMINDS/>
- Decoupled development from openMINDS versions
- Dynamically generating classes based on the schemas provided by openMINDS
- Version manager provides access to the different versions of openMINDS

### 1.0.1 Installation

```
[1]: !pip install openMINDS
```

```
Requirement already satisfied: openMINDS in  
/Users/stefan/python_virtualenvs/codejam12_pres/lib/python3.8/site-packages  
(0.0.9)  
Requirement already satisfied: GitPython in  
/Users/stefan/python_virtualenvs/codejam12_pres/lib/python3.8/site-packages  
(from openMINDS) (3.1.24)  
Requirement already satisfied: requests in  
/Users/stefan/python_virtualenvs/codejam12_pres/lib/python3.8/site-packages  
(from openMINDS) (2.26.0)  
Requirement already satisfied: jsonschema in  
/Users/stefan/python_virtualenvs/codejam12_pres/lib/python3.8/site-packages  
(from openMINDS) (4.2.1)  
Requirement already satisfied: click in  
/Users/stefan/python_virtualenvs/codejam12_pres/lib/python3.8/site-packages  
(from openMINDS) (8.0.3)  
Requirement already satisfied: typing-extensions>=3.7.4.3 in  
/Users/stefan/python_virtualenvs/codejam12_pres/lib/python3.8/site-packages  
(from GitPython->openMINDS) (4.0.0)  
Requirement already satisfied: gitdb<5,>=4.0.1 in  
/Users/stefan/python_virtualenvs/codejam12_pres/lib/python3.8/site-packages  
(from GitPython->openMINDS) (4.0.9)  
Requirement already satisfied: pyrsistent!=0.17.0,!=0.17.1,!=0.17.2,>=0.14.0 in  
/Users/stefan/python_virtualenvs/codejam12_pres/lib/python3.8/site-packages  
(from jsonschema->openMINDS) (0.18.0)
```

Requirement already satisfied: importlib-resources>=1.4.0 in  
/Users/stefan/python\_virtualenvs/codejam12\_pres/lib/python3.8/site-packages  
(from jsonschema->openMINDS) (5.4.0)  
Requirement already satisfied: attrs>=17.4.0 in  
/Users/stefan/python\_virtualenvs/codejam12\_pres/lib/python3.8/site-packages  
(from jsonschema->openMINDS) (21.2.0)  
Requirement already satisfied: charset-normalizer~=2.0.0 in  
/Users/stefan/python\_virtualenvs/codejam12\_pres/lib/python3.8/site-packages  
(from requests->openMINDS) (2.0.7)  
Requirement already satisfied: urllib3<1.27,>=1.21.1 in  
/Users/stefan/python\_virtualenvs/codejam12\_pres/lib/python3.8/site-packages  
(from requests->openMINDS) (1.26.7)  
Requirement already satisfied: idna<4,>=2.5 in  
/Users/stefan/python\_virtualenvs/codejam12\_pres/lib/python3.8/site-packages  
(from requests->openMINDS) (3.3)  
Requirement already satisfied: certifi>=2017.4.17 in  
/Users/stefan/python\_virtualenvs/codejam12\_pres/lib/python3.8/site-packages  
(from requests->openMINDS) (2021.10.8)  
Requirement already satisfied: smmap<6,>=3.0.1 in  
/Users/stefan/python\_virtualenvs/codejam12\_pres/lib/python3.8/site-packages  
(from gitdb<5,>=4.0.1->GitPython->openMINDS) (5.0.0)  
Requirement already satisfied: zipp>=3.1.0 in  
/Users/stefan/python\_virtualenvs/codejam12\_pres/lib/python3.8/site-packages  
(from importlib-resources>=1.4.0->jsonschema->openMINDS) (3.6.0)

## 1.0.2 Set up openMINDS and version selection

```
[2]: # Import openMINDS and version manager
import openMINDS
import openMINDS.version_manager
```

```
[3]: # Initialise a local copy of openMINDS
openMINDS.version_manager.init()
```

Target directory will created  
Cloning openMINDS to target directory

```
[4]: # List available versions
versions_avail = openMINDS.version_manager.get_available_versions()
print(versions_avail)
```

```
['v1', 'v2.0.0', 'v1.0.0', 'v2', 'v3']
```

```
[5]: # Select which version of openMINDS to use
openMINDS.version_manager.version_selection('v2.0.0')
```

### 1.0.3 Create some objects

```
[6]: # initiate the helper class for the dynamic usage of a specific openMINDS
# version
helper = openMINDS.Helper()

# initiate the collection into which you will store all metadata instances
mycollection = helper.create_collection()
```

#### Create an object with an email address

```
[7]: !cat ~/.openMINDS_python/v2.0.0/core/v3/actors/contactInformation.schema.json
```

```
{
  "$id": "https://openminds.ebrains.eu/core/contactInformation?format=json-
schema",
  "$schema": "http://json-schema.org/draft-07/schema#",
  "_type": "https://openminds.ebrains.eu/core/ContactInformation",
  "properties": {
    "@id": {
      "description": "Metadata node identifier.",
      "type": "string"
    },
    "@type": {
      "const": "https://openminds.ebrains.eu/core/ContactInformation",
      "type": "string"
    },
    "https://openminds.ebrains.eu/vocab/email": {
      "_instruction": "Enter the email address of this person.",
      "description": "Address to which or from which an electronic mail
can be sent.",
      "format": "email",
      "title": "email",
      "type": "string"
    }
  },
  "required": [
    "https://openminds.ebrains.eu/vocab/email",
    "@type",
    "@id"
  ],
  "type": "object"
}
```

```
[8]: mycollection.help_core_actors_contactInformation()
```

Required properties:

email

Documentation of @id

INSTRUCTION:  
Not defined yet.

DESCRIPTION:  
Metadata node identifier.

Documentation of @type

INSTRUCTION:  
Not defined yet.

DESCRIPTION:  
Not defined yet.

Documentation of <https://openminds.ebrains.eu/vocab/email>

INSTRUCTION:  
Enter the email address of this person.

DESCRIPTION:  
Address to which or from which an electronic mail can be sent.

```
[9]: # Create a contactInformation object
email_openminds = mycollection.
    ↪add_core_contactInformation(email="openminds@ebrains.eu")

[10]: # create a metadata instance for (e.g.) the openMINDS Person schema
person_open = mycollection.add_core_person(givenName="open")

[11]: # add more metadata to a created instance
mycollection.get(person_open).familyName = "MINDS"

[12]: # Link the person to the email
mycollection.get(person_open).contactInformation = email_openminds

[13]: # save your collection
mycollection.save("./myFirstOpenMINDSMetadataCollection/")
```

#### 1.0.4 Let's take a look at the results

```
[14]: print(email_openminds)
```

<https://localhost/contactInformation/0e1f204c-4c63-11ec-8c0a-f45c89b43ae7>

```
[15]: print(person_open)
```

```
https://localhost/person/0f3515e0-4c63-11ec-8c0a-f45c89b43ae7
```

```
[16]: # mycollection.save("./myFirstOpenMINDSMetadataCollection/")
      !ls ./myFirstOpenMINDSMetadataCollection/
```

```
contactInformation person
```

```
[17]: !ls ./myFirstOpenMINDSMetadataCollection/contactInformation
```

```
0e1f204c-4c63-11ec-8c0a-f45c89b43ae7
```

```
[18]: !ls ./myFirstOpenMINDSMetadataCollection/person
```

```
0f3515e0-4c63-11ec-8c0a-f45c89b43ae7
```

```
[20]: !python3 -m json.tool ./myFirstOpenMINDSMetadataCollection/contactInformation/*
```

```
{
  "@id":
  "https://localhost/contactInformation/0e1f204c-4c63-11ec-8c0a-f45c89b43ae7",
  "@type": "https://openminds.ebrains.eu/core/Contactinformation",
  "email": "openminds@ebrains.eu",
  "@context": {
    "@vocab": "https://openminds.ebrains.eu/vocab/"
  }
}
```

```
[21]: !python3 -m json.tool ./myFirstOpenMINDSMetadataCollection/person/*
```

```
{
  "@id": "https://localhost/person/0f3515e0-4c63-11ec-8c0a-f45c89b43ae7",
  "@type": "https://openminds.ebrains.eu/core/Person",
  "contactInformation":
  "https://localhost/contactInformation/0e1f204c-4c63-11ec-8c0a-f45c89b43ae7",
  "familyName": "MINDS",
  "givenName": "open",
  "@context": {
    "@vocab": "https://openminds.ebrains.eu/vocab/"
  }
}
```

## 2 For more information take a look at our GitHub repositories:

- [https://github.com/HumanBrainProject/openMINDS\\_generator](https://github.com/HumanBrainProject/openMINDS_generator)
- <https://github.com/HumanBrainProject/openMINDS>