



Contribution ID: 11

Type: **Tutorial or Skill-Up**

Hands-on semantic data management with LinkAhead: Increased data findability and reusability

Thursday 27 February 2025 11:00 (1h 30m)

In this hands-on workshop, we introduce the open source software LinkAhead, which promotes agility in semantic data management: LinkAhead is a semantic research data management system, facilitating enhanced data findability and reusability through data embedding into context. Its flexible data model (the data structure can be changed without migration of existing data) allows to leverage existing standard ontologies, promoting transparency, interoperability and collaboration across diverse research domains.

Data management is essential for the storing, searching, retrieving and analyzing of data sets along with their contextual connections, ensuring their usability for current and future users. Effective data management not only ensures the reuse of valuable data by current and future users but also enhances its discoverability ("Where can I find the training data for sensor X from setup Y?") and utility through contextual embedding ("What were the experimental settings for data collection in project P, and what were the associated challenges?"). Thus data management solutions like LinkAhead support preparing FAIR open data, enable data collaboration and knowledge exchange.

This workshop consists of a short live demonstration of the LinkAhead Python client, and participants are encouraged to follow along on their own machines. A Jupyter notebook will be made available online before the session.

Workshop participants (researchers, research software engineers) will learn these LinkAhead skills:

- Understand, create and edit data models
- Semantic queries, also for linked data sets
- Add and retrieve data

Recommended prerequisites for participation:

Basic Python knowledge

Jupyter Notebook with these Python libraries:

```
pip install linkahead caosadvancedtools
```

Test beforehand with:

```
import linkahead
```

```
linkahead.configure\_connection(  
    url="https://demo.indiscale.com",  
    username="admin", password="caosdb",  
    password\_method="plain")
```

```
linkahead.Info()
```

This should output a short info string like this:

"Connection to LinkAhead with 84 Records."

I want to participate in the youngRSE prize

no

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Track Classification: Data and Software Management: research data management