



Software and Computer Systems

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Software and Computer Systems (SCS)



SCS Research Areas



Software Engineering



Intelligent Software and Services
Analysis and Development Methods



Model-based computing systems



Distributed and parallel systems



Data science and applied AI



Computer engineering and
computer systems

Some Research Projects at SCS (1/3)

► ExtremeEarth (H2020)

- From Copernicus big data to extreme earth analytics
- <http://earthanalytics.eu>



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► HOPS (SSF, H2020, SeRC, ...)

- Deep Learning, streaming, multi-tenancy (all in a single secure platform)
- <https://www.hops.io>





Some Research Projects at SCS (2/3)

► Streamline (H2020)

- Unified **batch** and **stream** processing
- <https://h2020-streamline-project.eu>

STREAMLINE.

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STREAMLINE.

► CDA (SSF)

- **Continuous** deep analytics
- **Continuous** real-time decisions





Some Research Projects at SCS (3/3)

► RIAS (H2020)

- Real-time analytics for Internet of Sports
- <https://rais-itn.eu>



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► Gecode

- Generic constraint development environment
- <https://www.gecode.org>





Collaboration with Industry





Some Courses Given at SCS

- ▶ Machine Learning
- ▶ Data Mining (basic and advanced courses)
- ▶ Distributed Systems (basic and advanced courses)
- ▶ Data-Intensive Computing Platforms
- ▶ Scalable Machine Learning and Deep Learning
- ▶ Programming for Data Science
- ▶ Constraint Programming

Hopsworks



Collaborative Data Science Platform

- ▶ A shared platform for all data science contributors



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- ▶ Open data science **tools at scale**



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- ▶ A complete **pipeline** from data to deployment



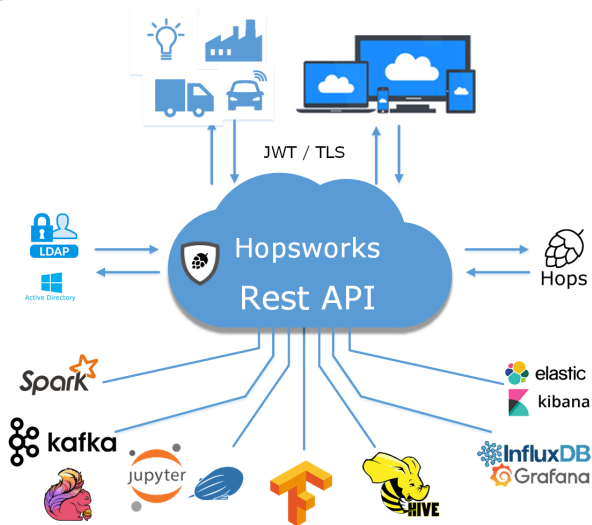
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- ▶ Collaborative **development tools**
- ▶ **Management** and **reproducibility**



Projects in HOPS (1/2)

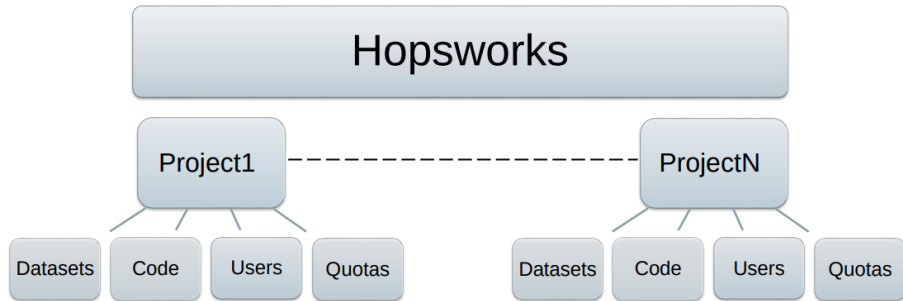
Hopsworks

Project1

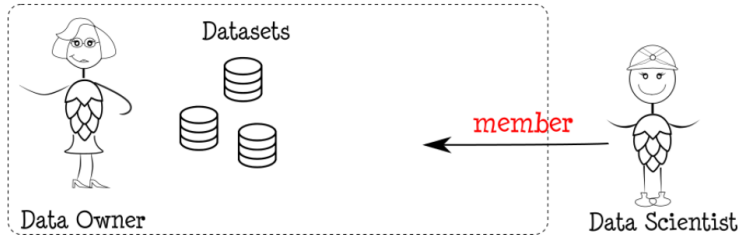
Project2

Project N

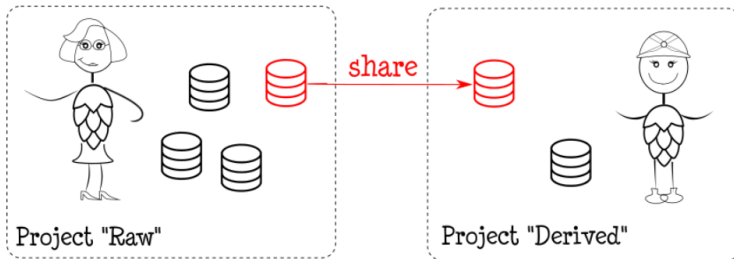
Projects in HOPS (2/2)



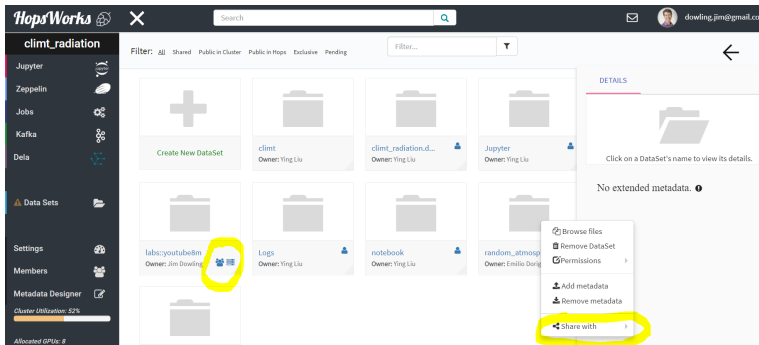
Manage Projects like GitHub



Share like in Dropbox (1/2)

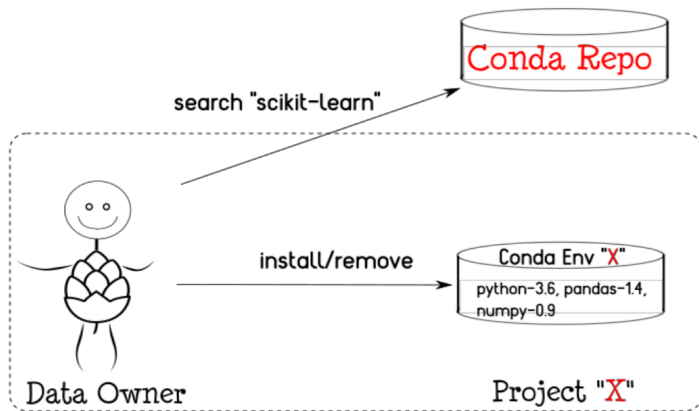


Share like in Dropbox (2/2)

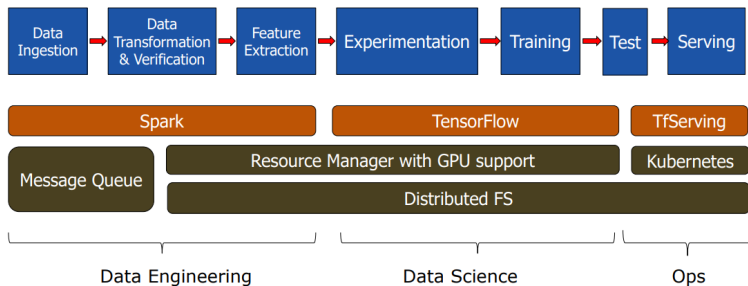


The screenshot displays the HopsWorks web interface. On the left is a dark sidebar with navigation links: Jupyter, Zeppelin, Jobs, Kafka, Dala, Data Sets, Settings, Members, and Metadata Designer. The main content area is titled 'climt_radiation' and shows a grid of datasets. A context menu is open over the 'labs:youtube8m' dataset, with the 'Share with' option highlighted. The menu options are: Browse files, Remove DataSet, Permissions, Add metadata, Remove metadata, and Share with. The 'Share with' option is circled in yellow. The interface also includes a search bar at the top and a user profile in the top right corner.

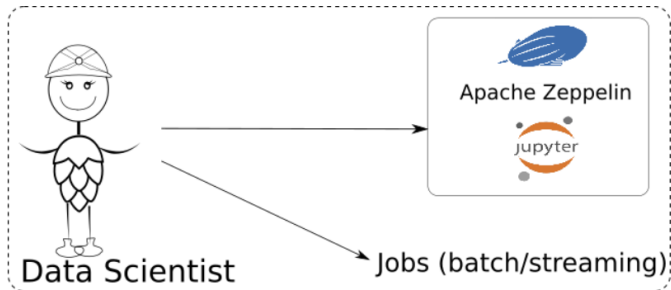
Custom Python Environments with Conda



HOPS Machine Learning Pipeline

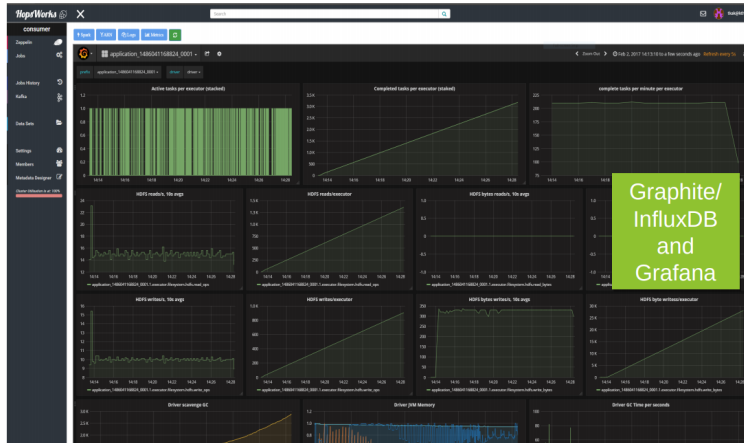


Workflow/Jobs and Notebook Support



Elasticsearch, Logstash, Kibana (ELK Stack)

Resource Monitoring and Alerting



Thanks