HBP Collaboratory

Application Development

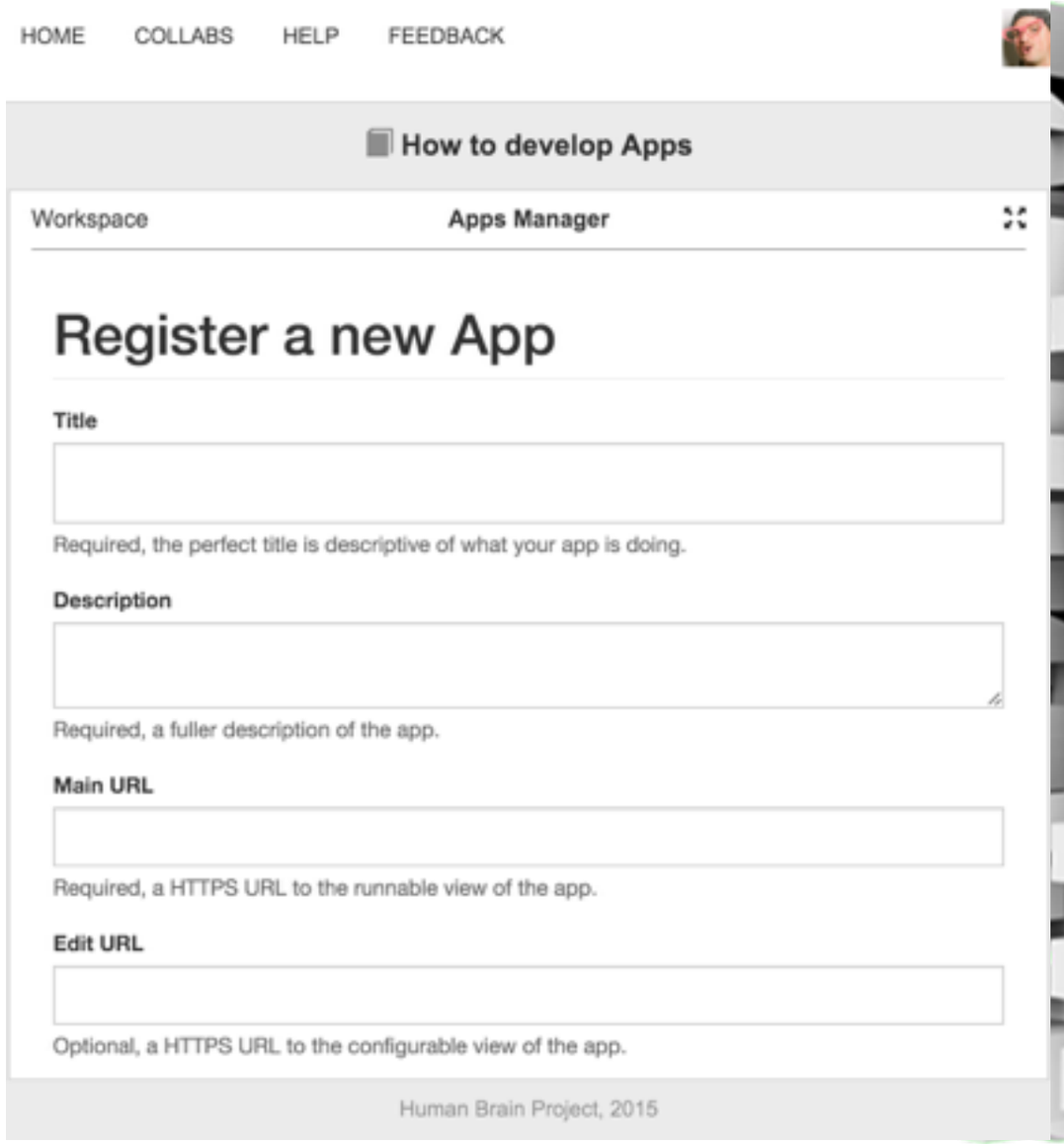
https://collab.humanbrainproject.eu/#/collab/54/nav/368
HBP Code Jam Workshop 7
Olivier Amblet, 12 Jan 2016

Today:

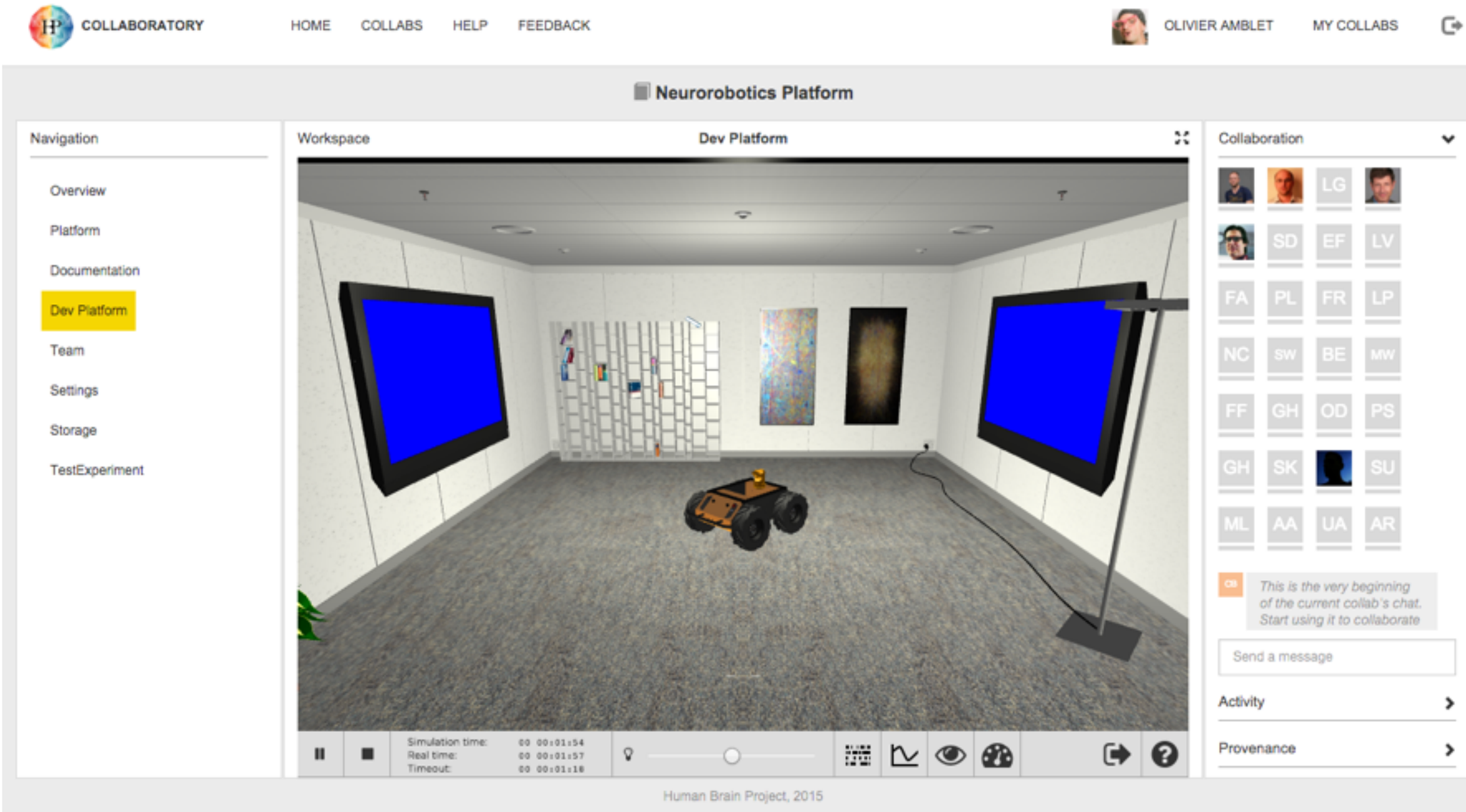
Getting started with HBP Collaboratory app development

- Now
  - HBP Collaboratory in 2’
  - Example of apps
  - Getting Started
  - Roadmap & Conclusion

- 3:30 to 5pm
  - Collaboratory App Development Tutorial



2’ introduction



Discover, Explore, Experiment

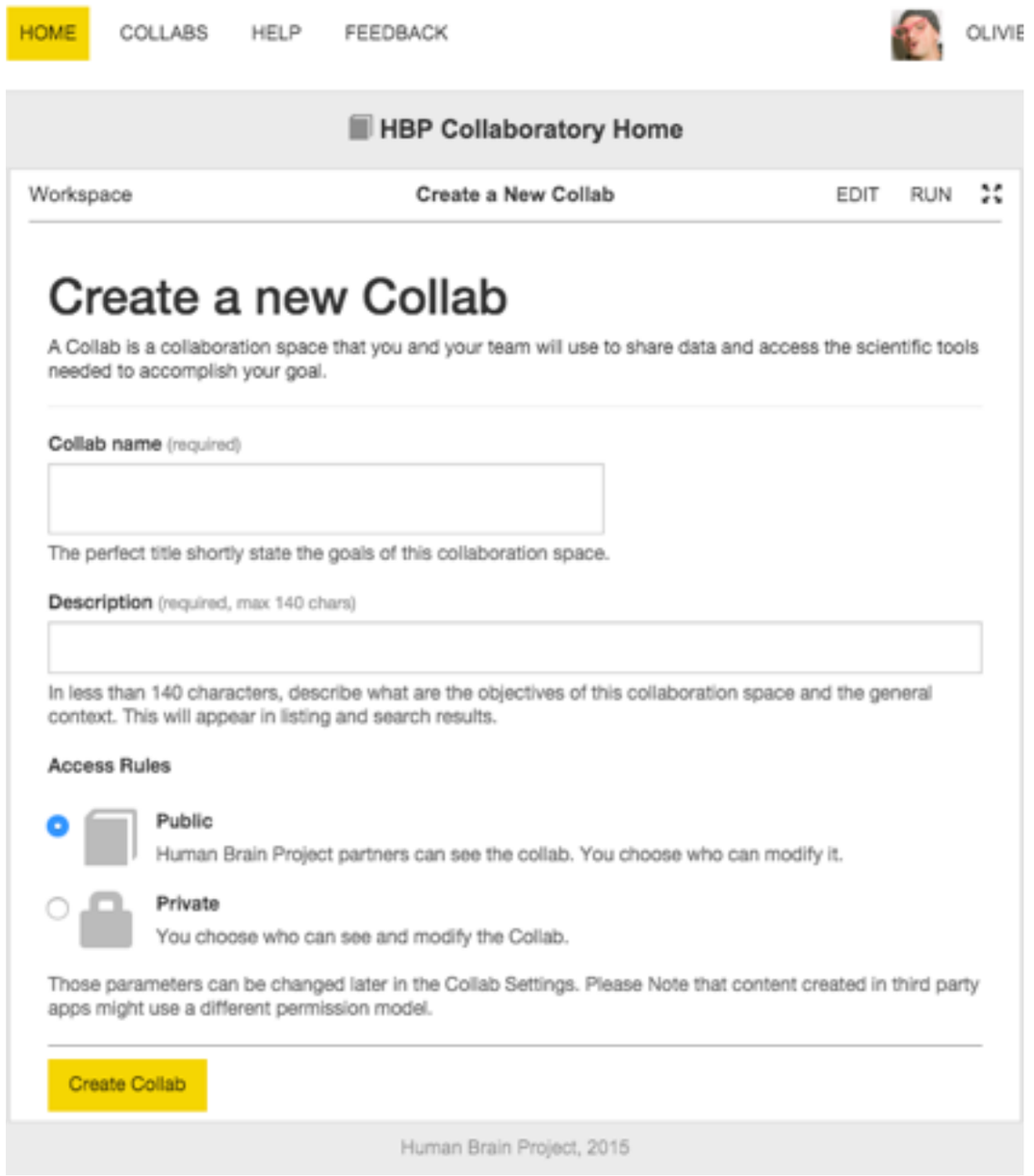
Discover the HBP software ecosystem
Explore, visualise and share **data**
Access **scientific tools**
Enable **collaborative work** on neuroscience project

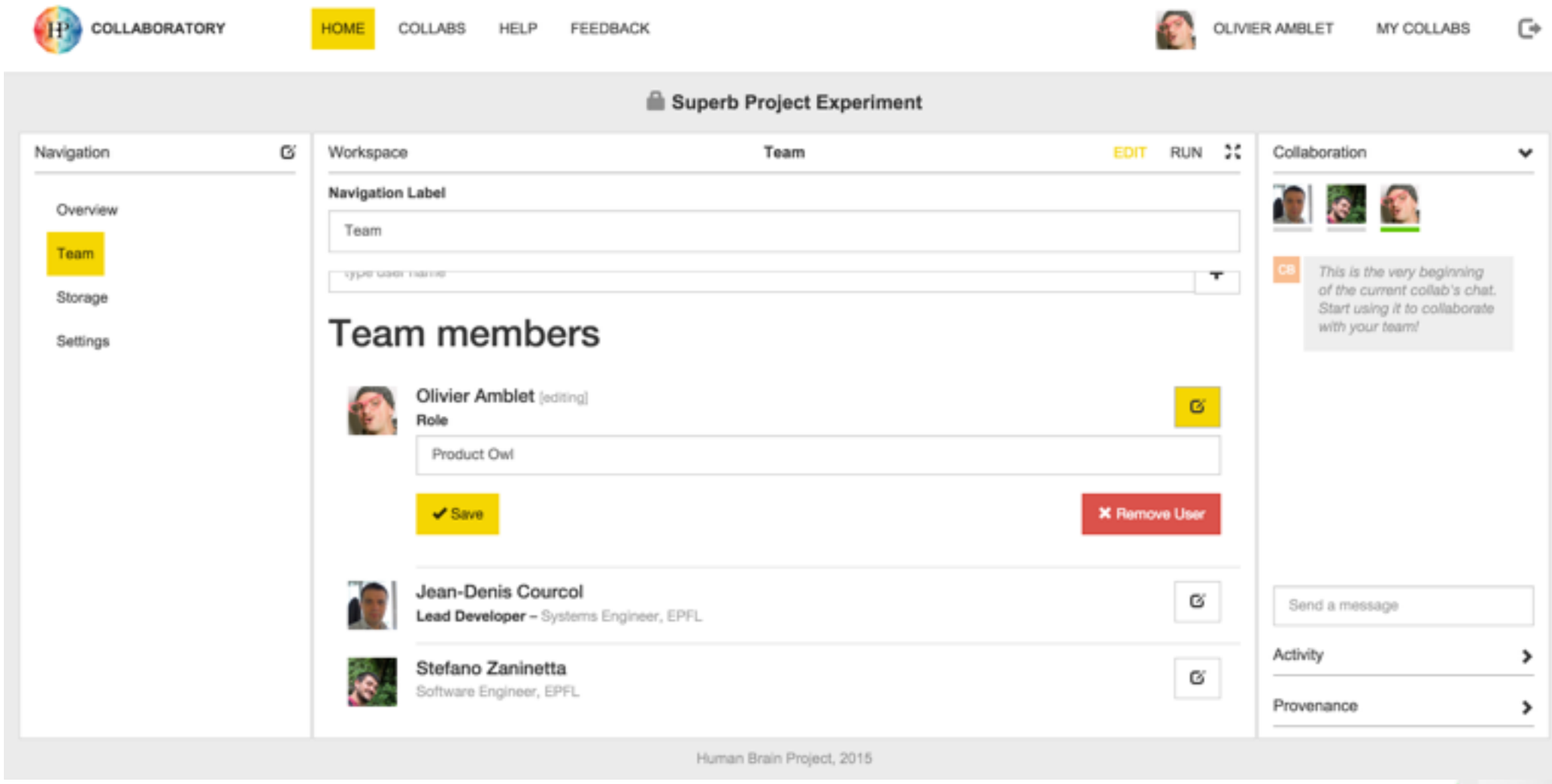
Create Your Collab

A team of scientists create a Collab.

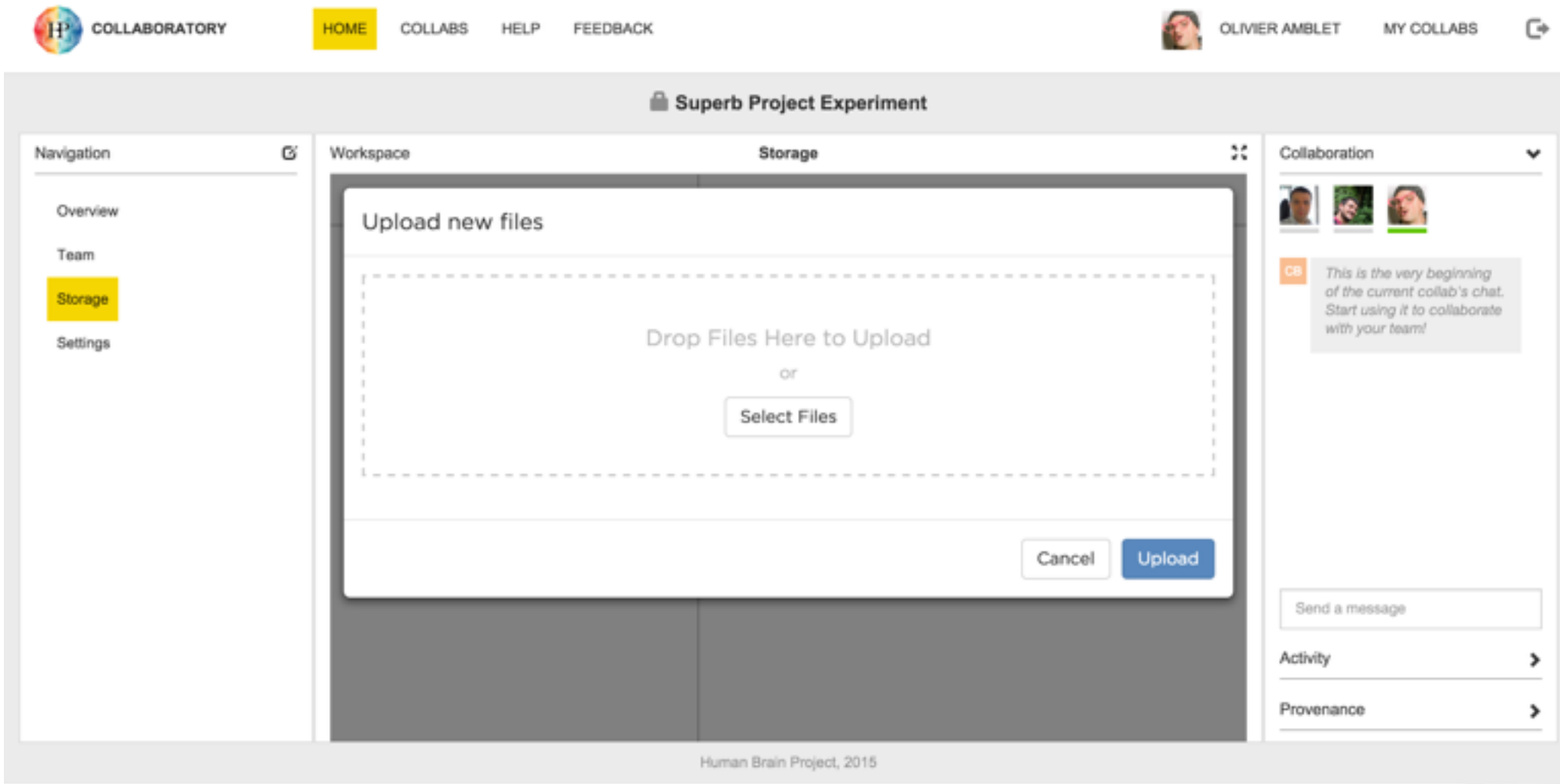
A “collab" is a team space to:

- **Collaborate** with all your partners on a scientific project
- **Explore and share** research data and resources
- Access the HBP Platforms via dedicated **Apps**



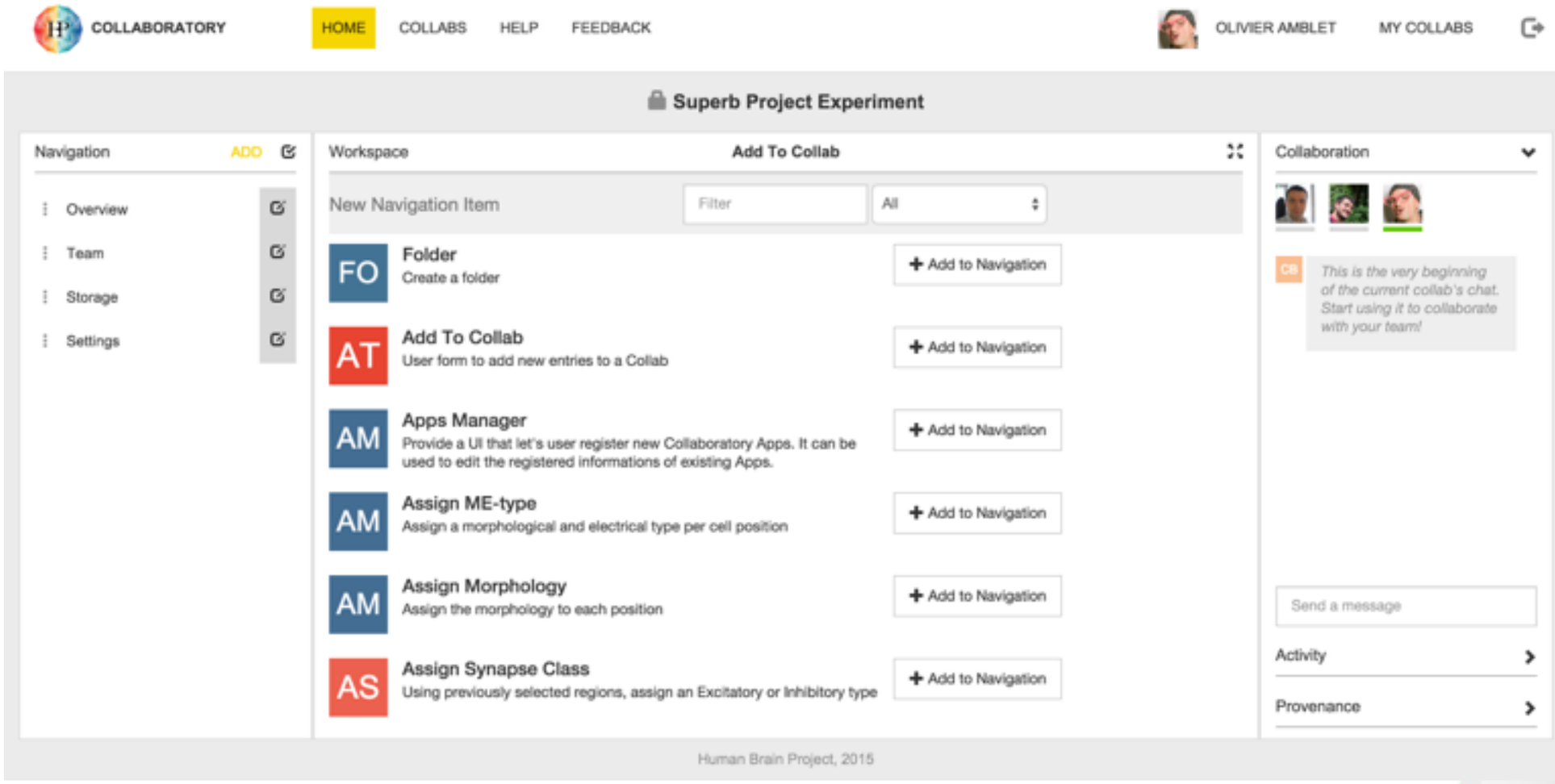


Build your team



Share Data

Use our Cloud Storage to share scientific data among the team



Apps makes your collab unique

Families of app

- **Core App**
  Completely new apps developed by the Collaboratory team to support key Collaboratory services: [M30]identity, [M30]cloud storage, [M30]notification

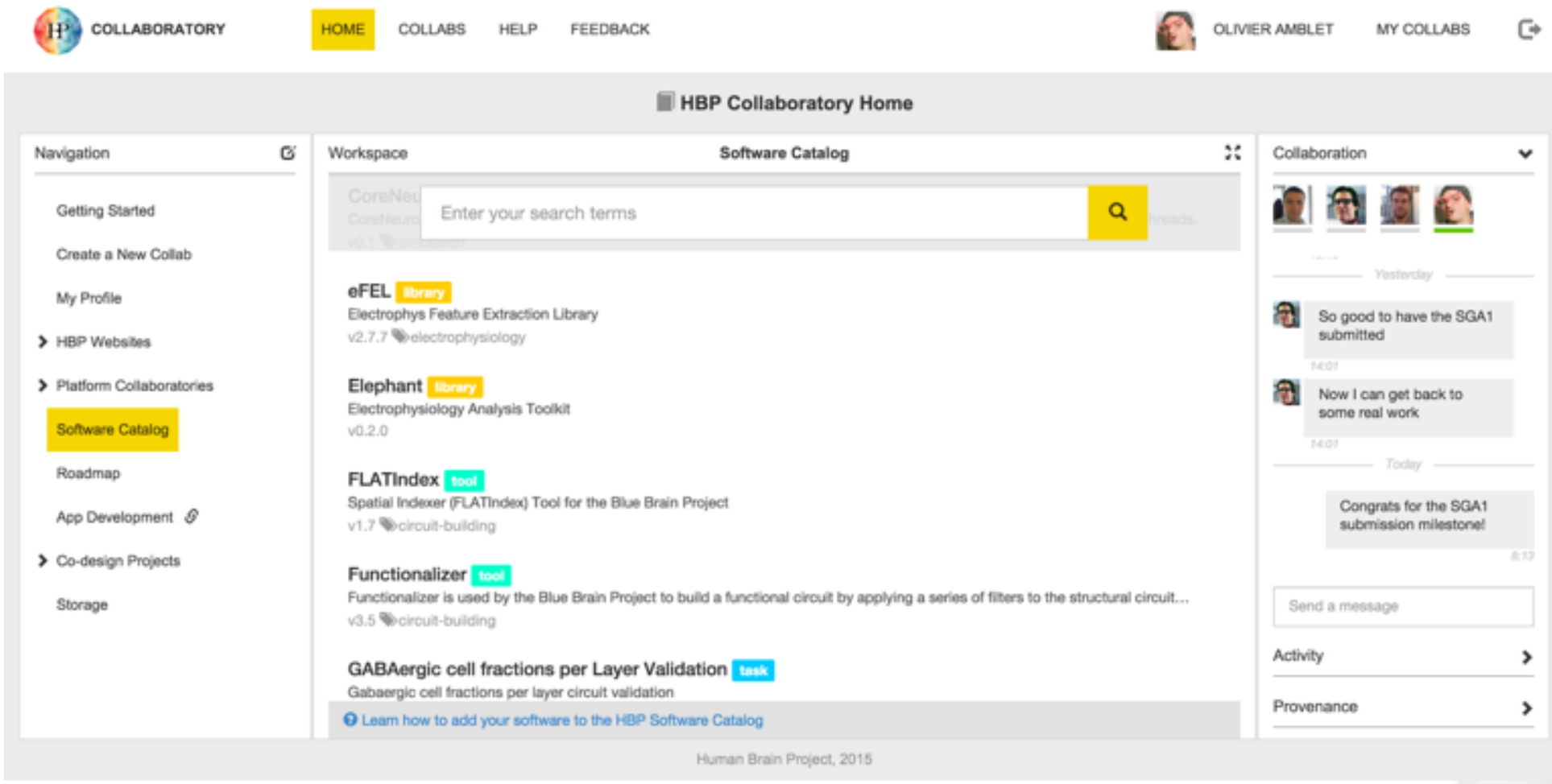
- **Integrated App**
  Collaboratory team developed integrations of well known external applications (eg: Jupyter notebook).

- **Platform App**
  Apps provided by the HBP Platform teams to support key functionality for end-users.

- **Community App**
  Applications that are developed by the community. These are deployed by the Collaboratory Team, but developed and supported by the community.

- **3rd party App**

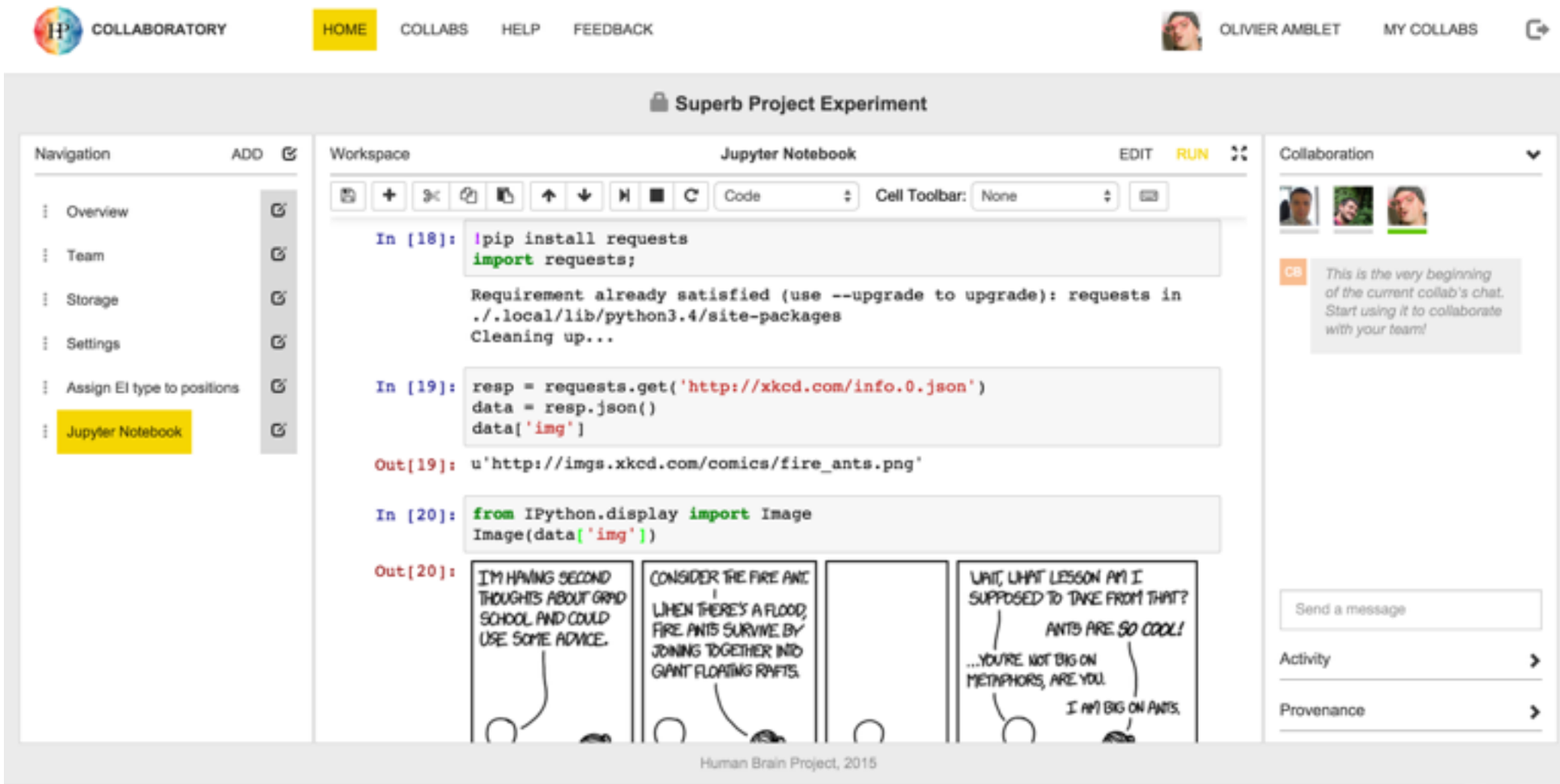
  - None of these yet, but already we already have interest from a number of neuroscientific industrial product vendors.



Software Catalog [Core App]

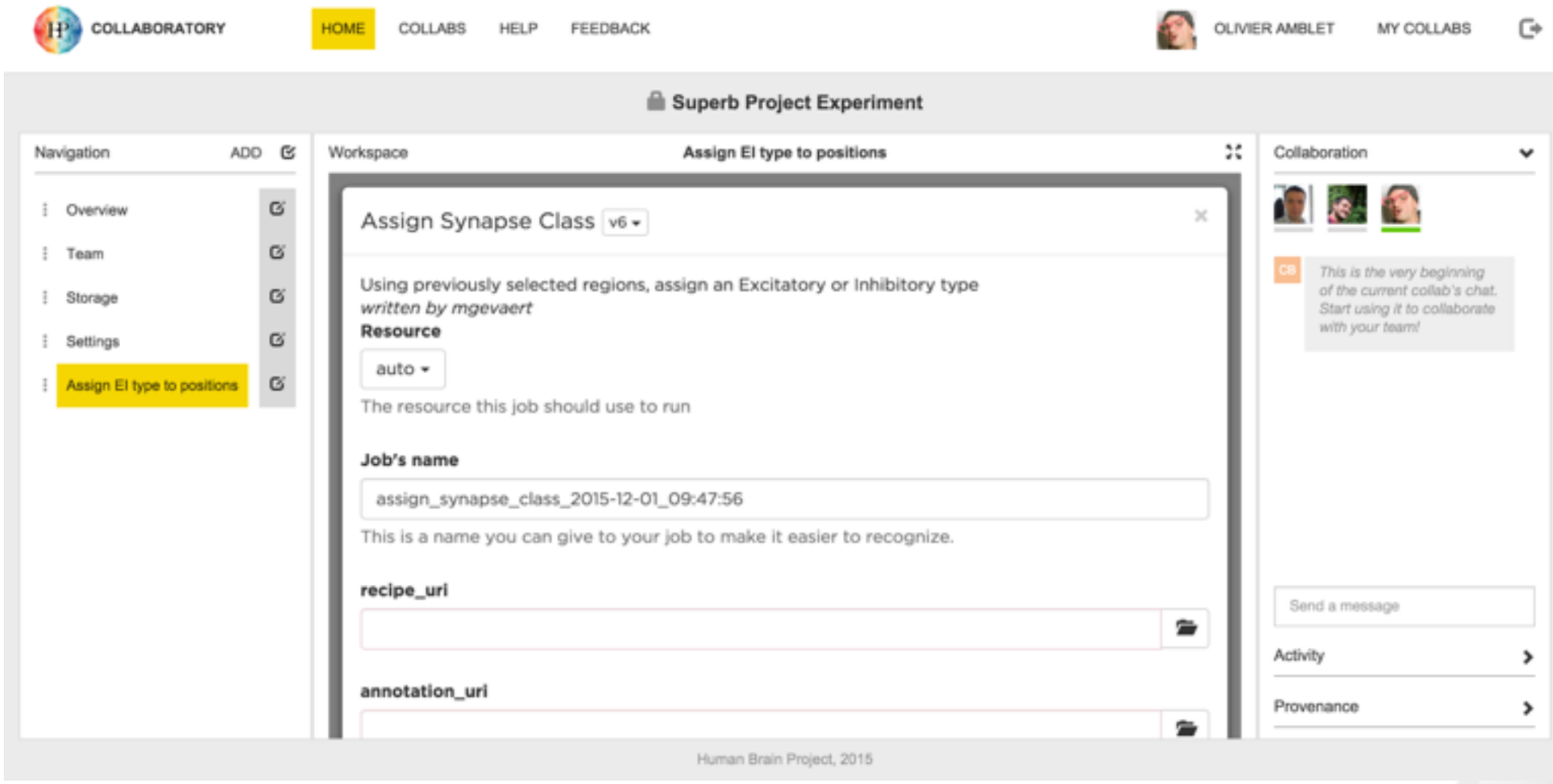
Find/Register HBP libraries, tools, app, web service and more.

The code you produce should be advertised here if you want other people to see it.
You should want other people to see it.



Jupiter Notebook [Integrated App]

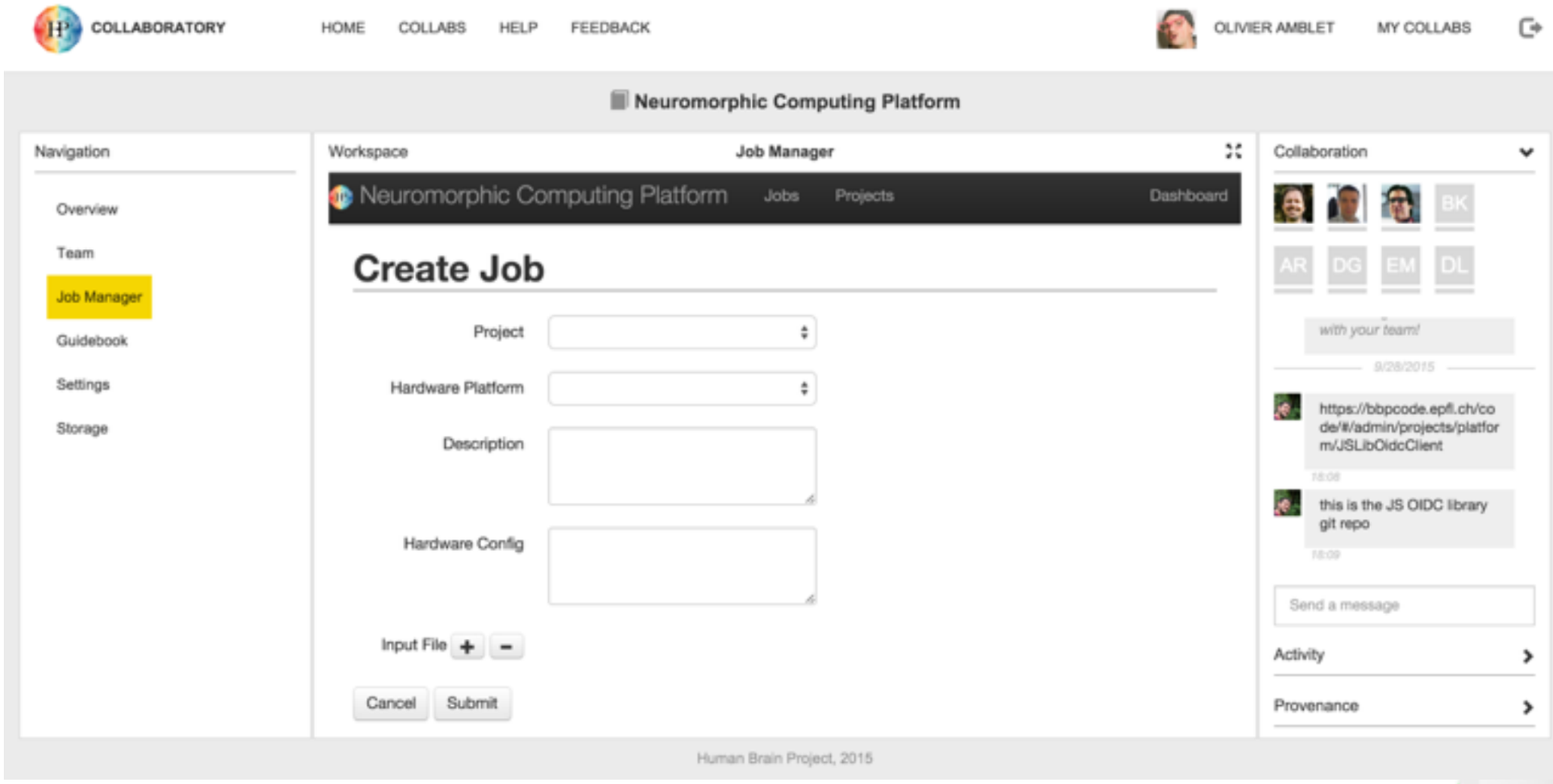
[M30 disclaimer] Currently intended ended for demos and code samples. Limited to Python 2.6 and no access to HPC storage or compute. This will not change before M30



Python Tasks [Community App]

Common interface to queue jobs on HPC

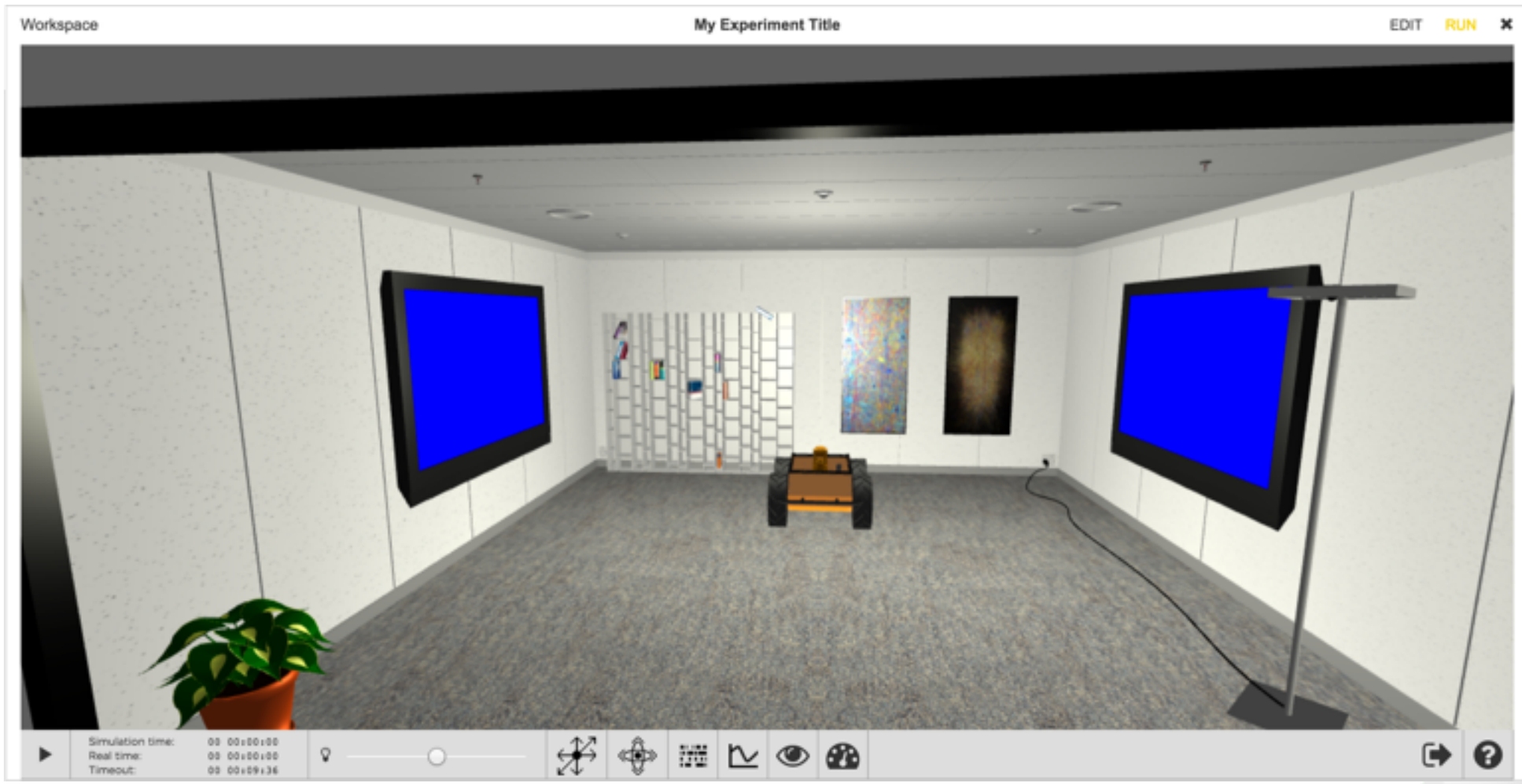
Tasks are written in Python, pushed to a trusted Git repository and run on Cluster



Neuromorphic Computing Platform [Platform App]

Provided by Neuromorphic Computing

Run PyNN simulations on one of the two Neuromorphic Hardware Platforms



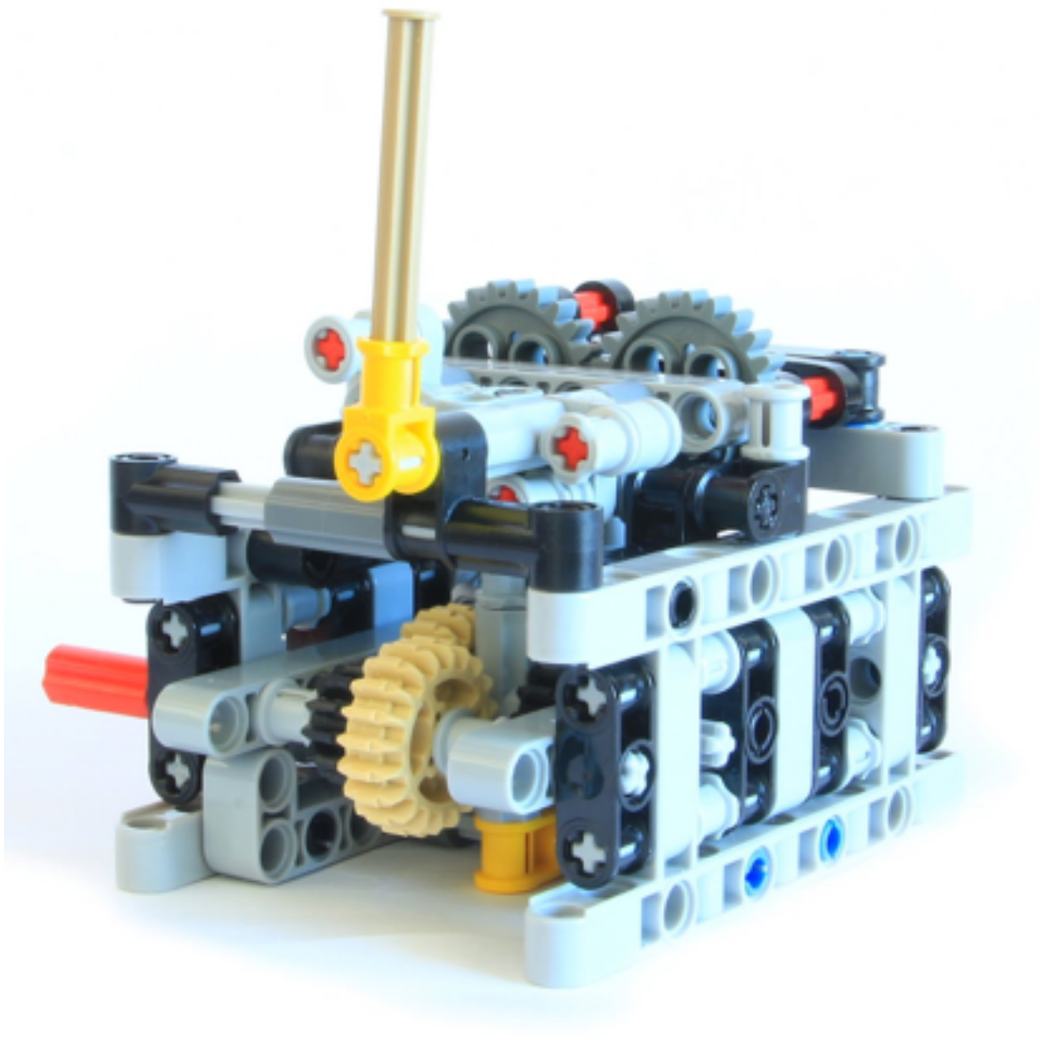
Build Your Robot Neural Circuit [Platform App]

Provided by Neurorobotics Platform

An Internet-accessible simulation system that allows the simulation of robots controlled by spiking neural networks.

App Development

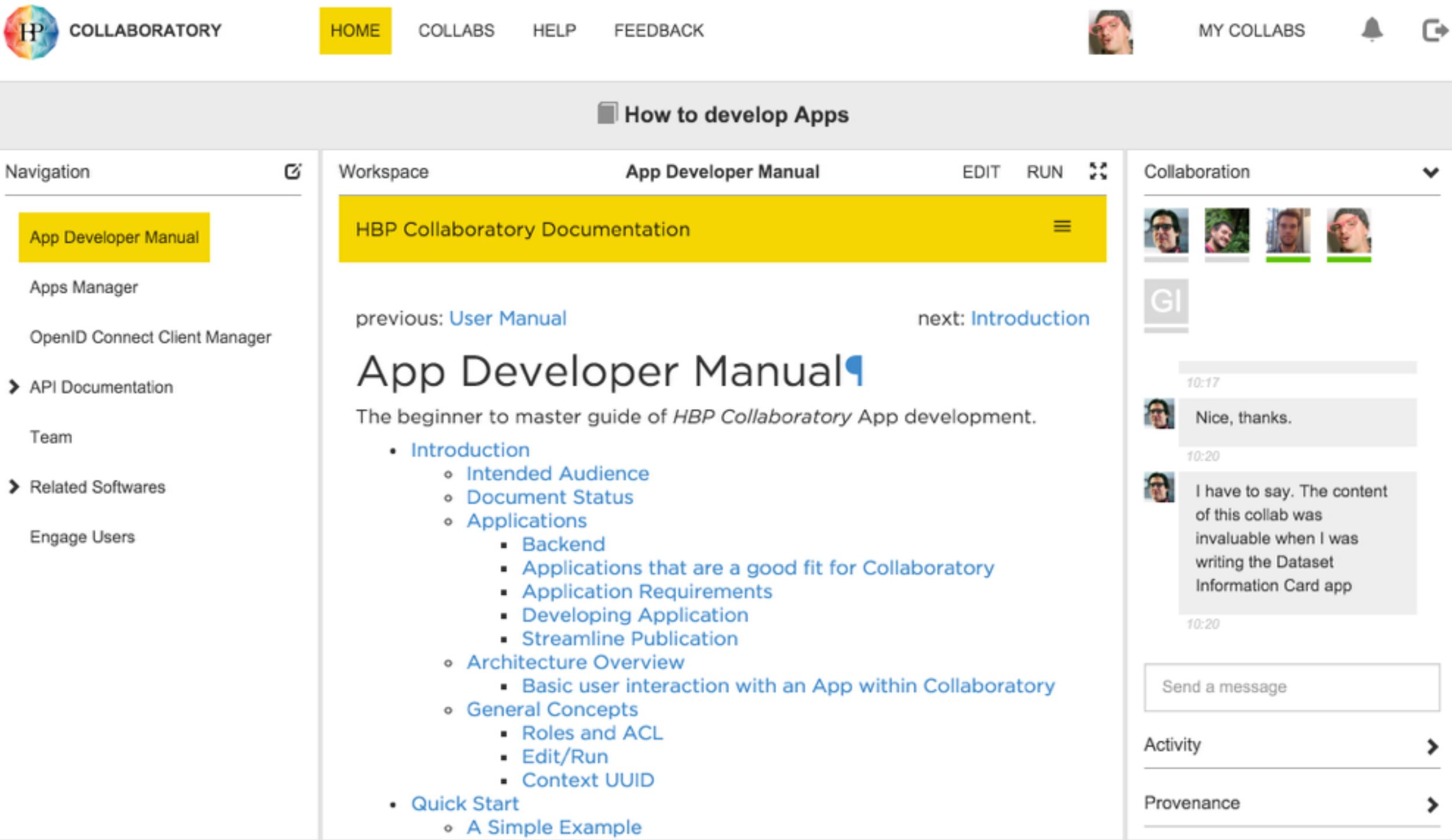
- An ‘app’ is basically a website that:
  - is registered as a HBP Collaboratory app
  - is aware of the Collaboratory
  - use one or more HBP API
  - is served over a SSL connection (http**s**://)



Getting Started

- Have good knowledge of a web stack
  - We provide tooling for Python/Django, AngularJS and bootstrap
- Come at the tutorial this afternoon
- Ask me to join in a code session
- **Read the getting started guide**
- Engage with our team

The App Developer Collab



Services you can leverage

- Web-Services
  - HBP Identity: authenticate users, query groups act on their behalf with their authorisation (OpenID Connect standard)
  - Collab Service: use project space to manage your resource ACL, use current collab resources
  - Storage Service: use cloud storage to store/retrieve data
  - Notification Service: notify user of important events
  - Task Service: schedule jobs on HPC
  - Provenance Service: create entry in Provenance database [Status is special here, if you're interested in provenance tracking see Olivier or Jeff after presentation]
- Libraries
  - Python: Python clients, Django helpers
  - Javascript: OpenID Connector, javascript clients
  - CSS: Bootstrap Theme
- Other
  - Sphinx Documentation Project, Sphinx Documentation template

Application Development Support Roadmap

- M30
  - Community Accounts
  - Support for HBP partners
  - Polish and enhance existing functionality
- Beyond
  - Activity
  - Support for external partners
- App/Service we want to provide with the support of the partners
  - Task Service
  - Provenance Service
  - Viewers

Conclusion

- Creating an app is "just" web development
- Provide an easy way to integrate common functionality and enable interoperability
- Better visibility of your contribution in the Human Brain project
- Let you provide your expertise, tools and data to the community
- *If you build an app, library, simulator, or format specification for others to use, make sure you register in the Software catalog*

Thanks

- Open to questions and remarks
- Support:
  - Chat in https://collab.humanbrainproject.eu/#/collab/54/nav/368
  - Send an email to portal.support@humanbrainproject.eu
  - Come say “hello”