29th Annual Computational Neuroscience Meeting
CNS*2020, Online

July 22, 2020

The Human Brain Project (HBP)
Brain Simulation Platform (BSP)

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Human Brain Project

Co-funded by the European Union

The HBP BSP

Registration link for the HBP Collaboratory V2:
https://services.humanbrainproject.eu/oidc/account/request

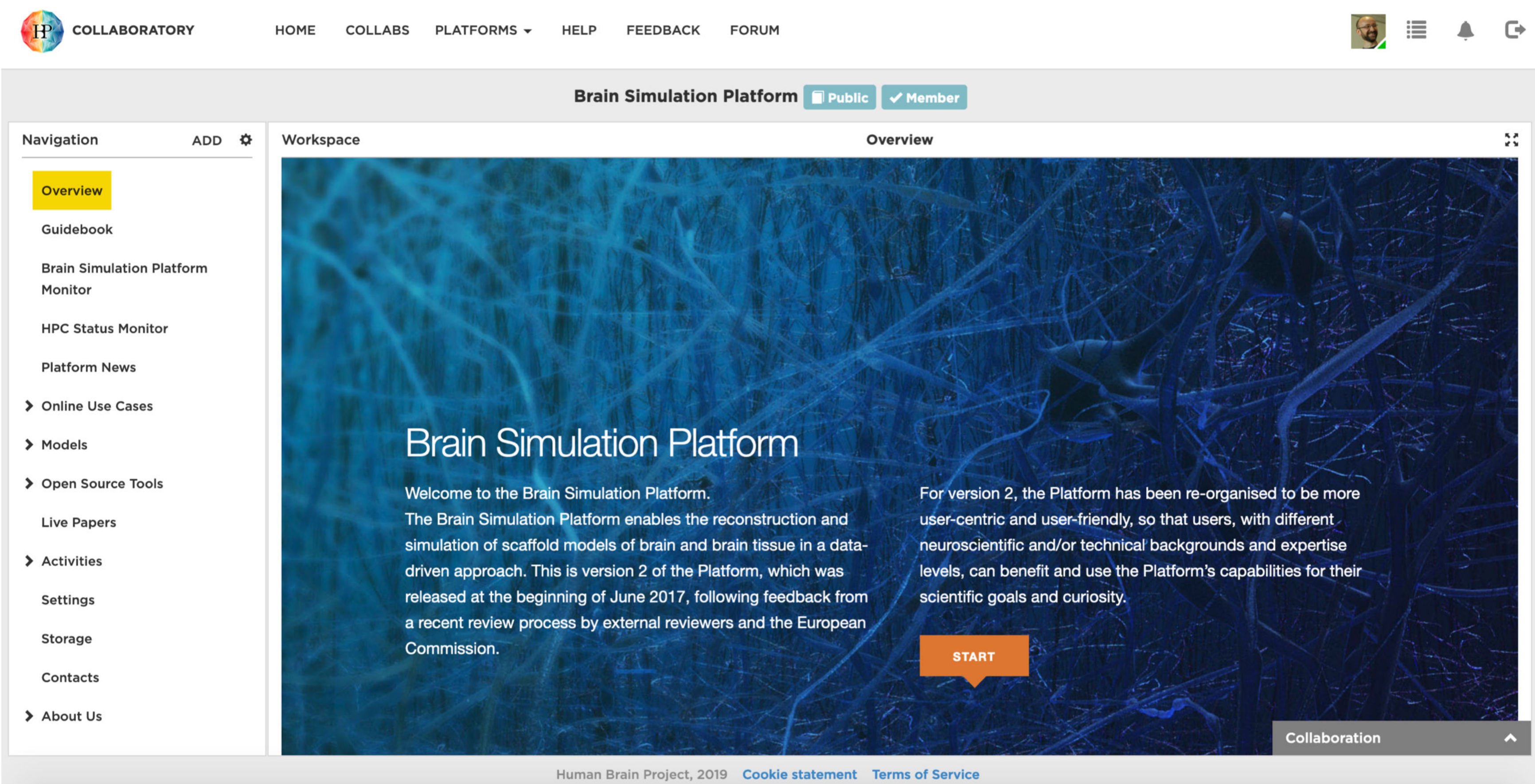
After getting an account, you will be able to access the BSP through the following dedicated link:

https://bsp.humanbrainproject.eu

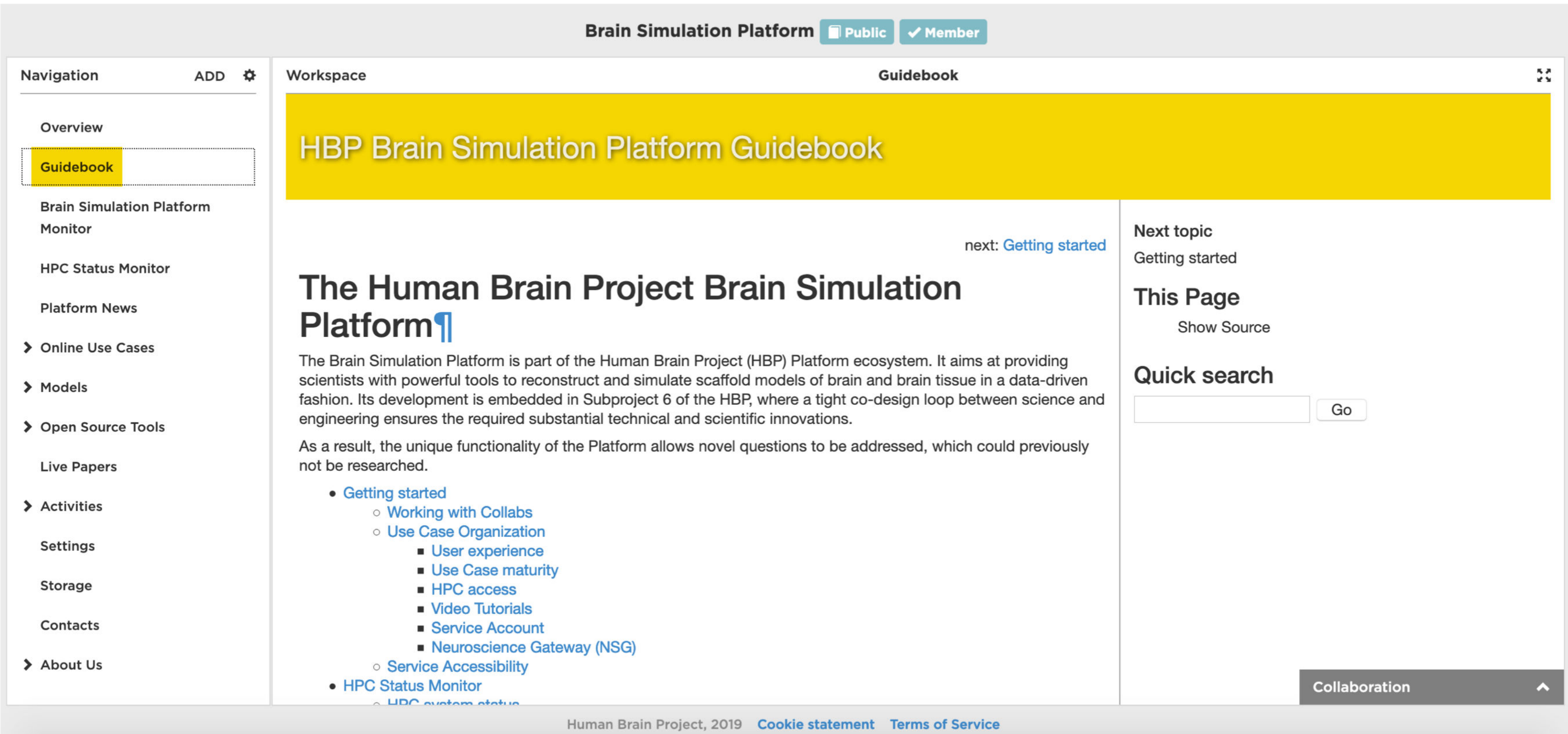
or via the HBP website at the Brain Simulation link:

https://www.humanbrainproject.eu/

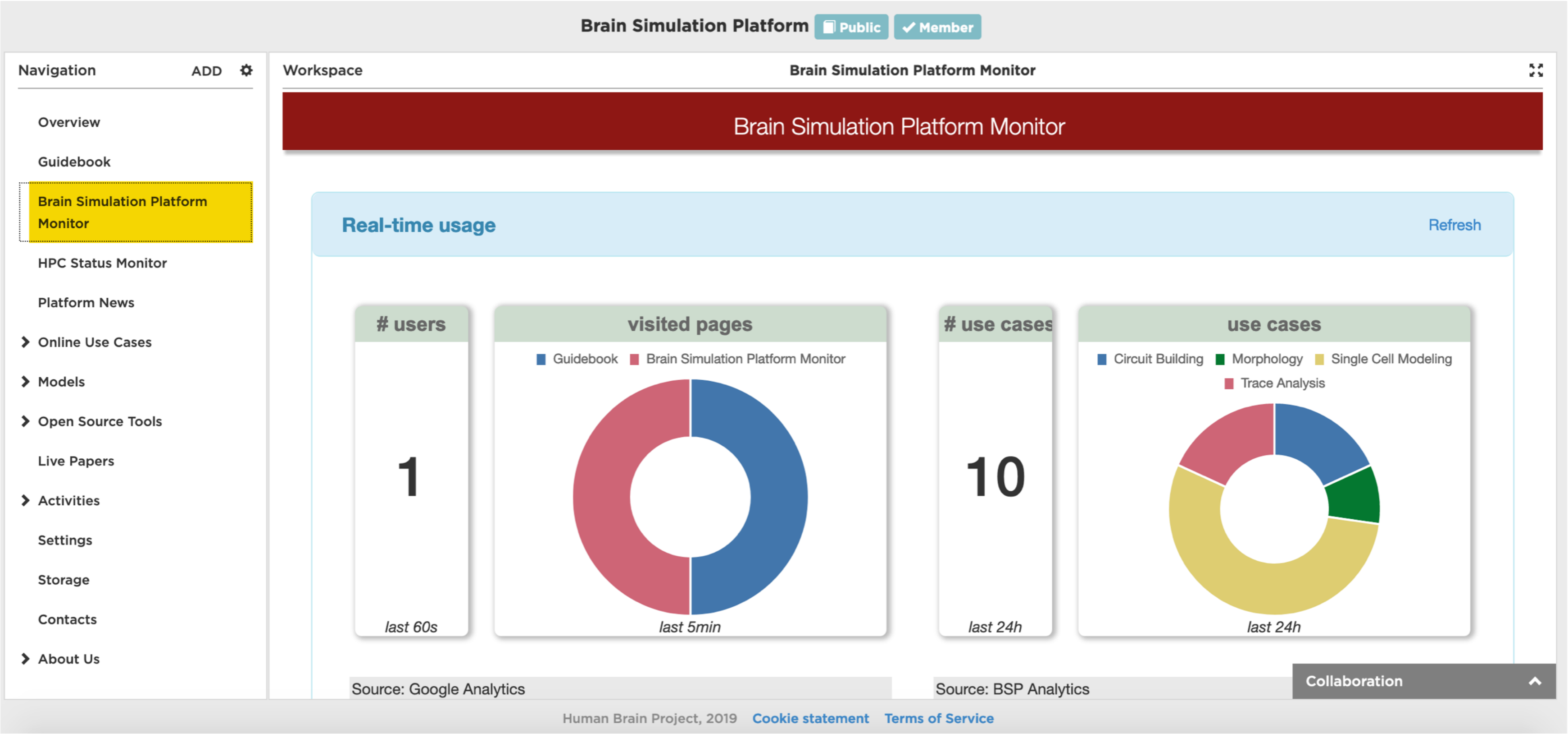
The BSP and the HBP Collaboratory



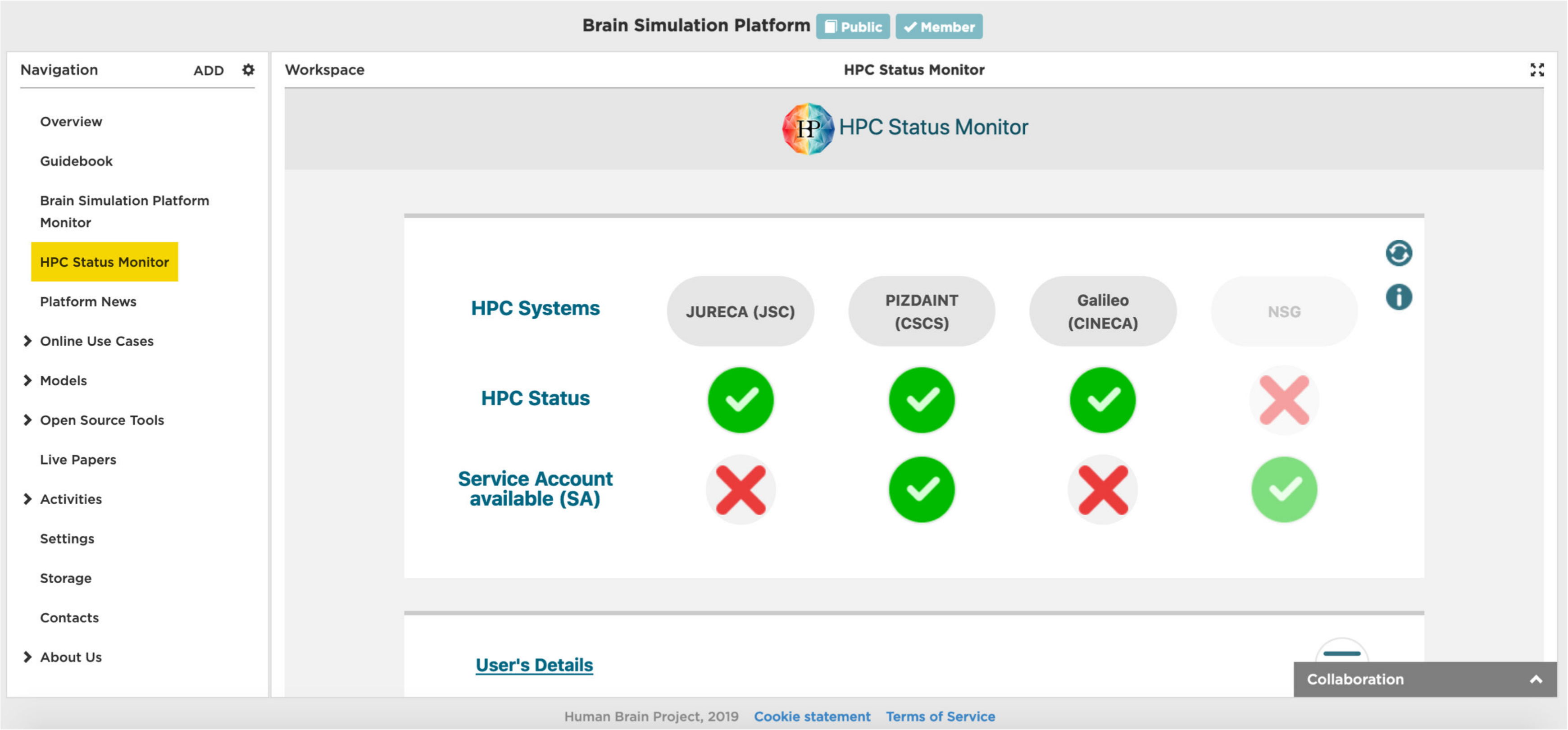
The BSP - Guidebook



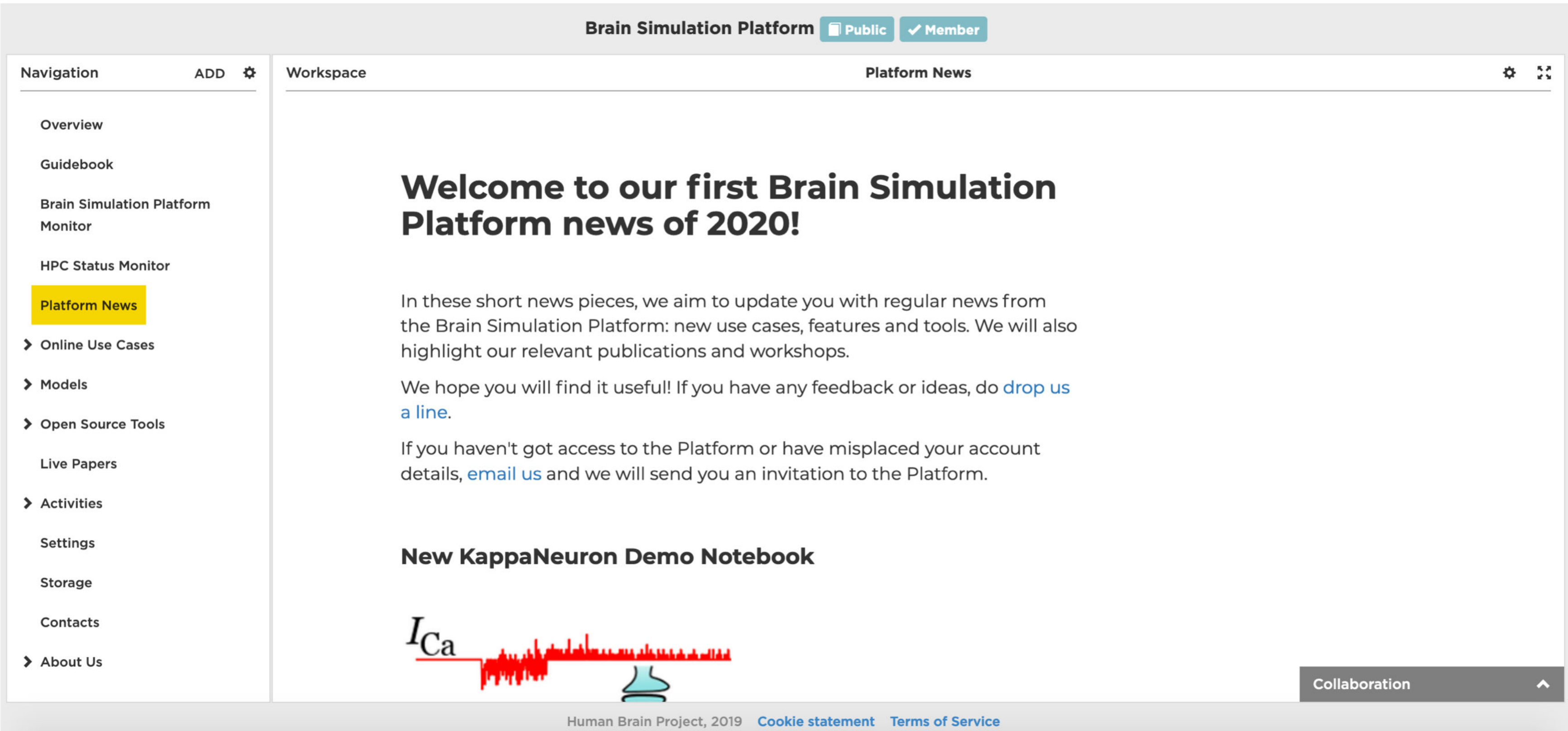
The BSP – BSP Monitor



The BSP – HPC Status Monitor



The BSP – Platform News



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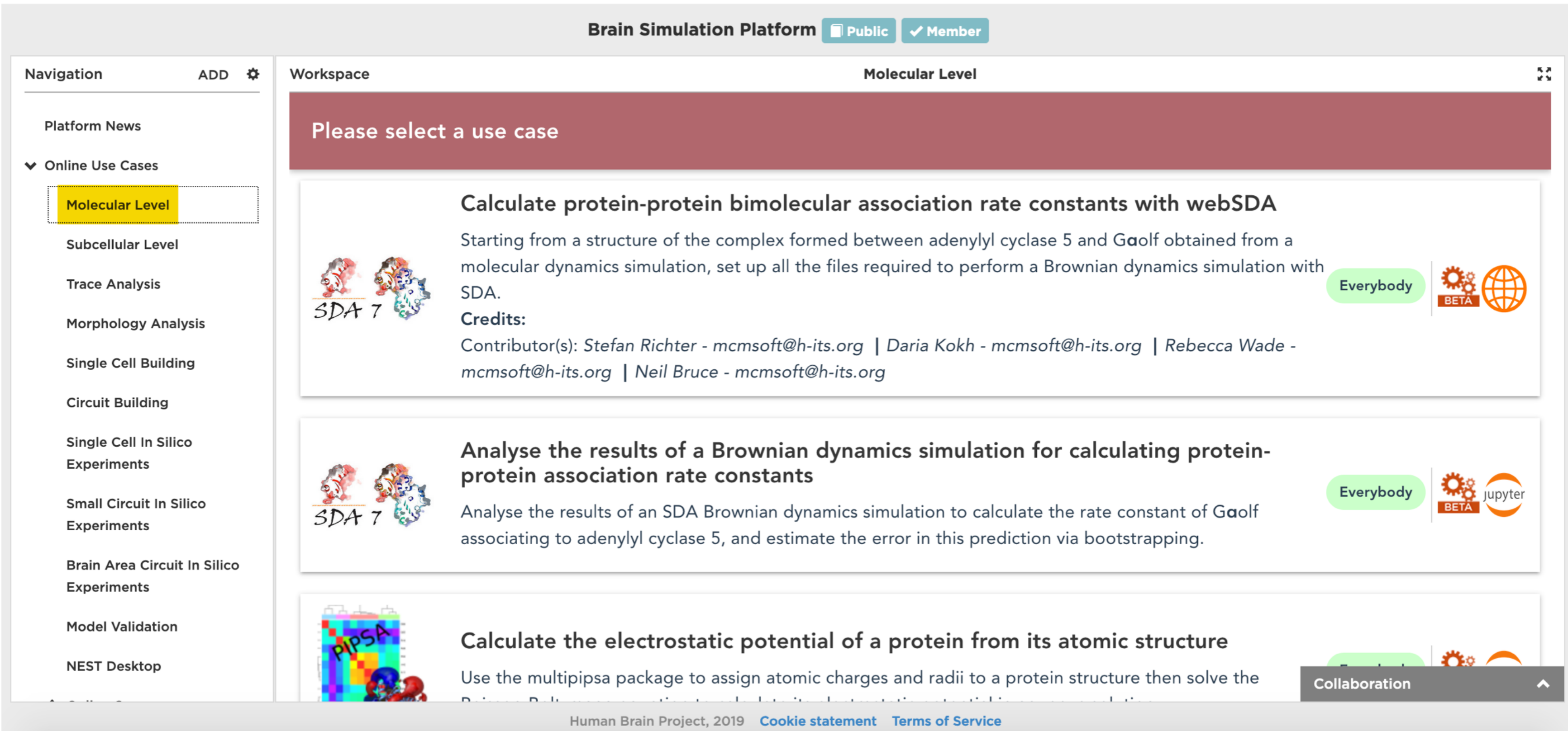
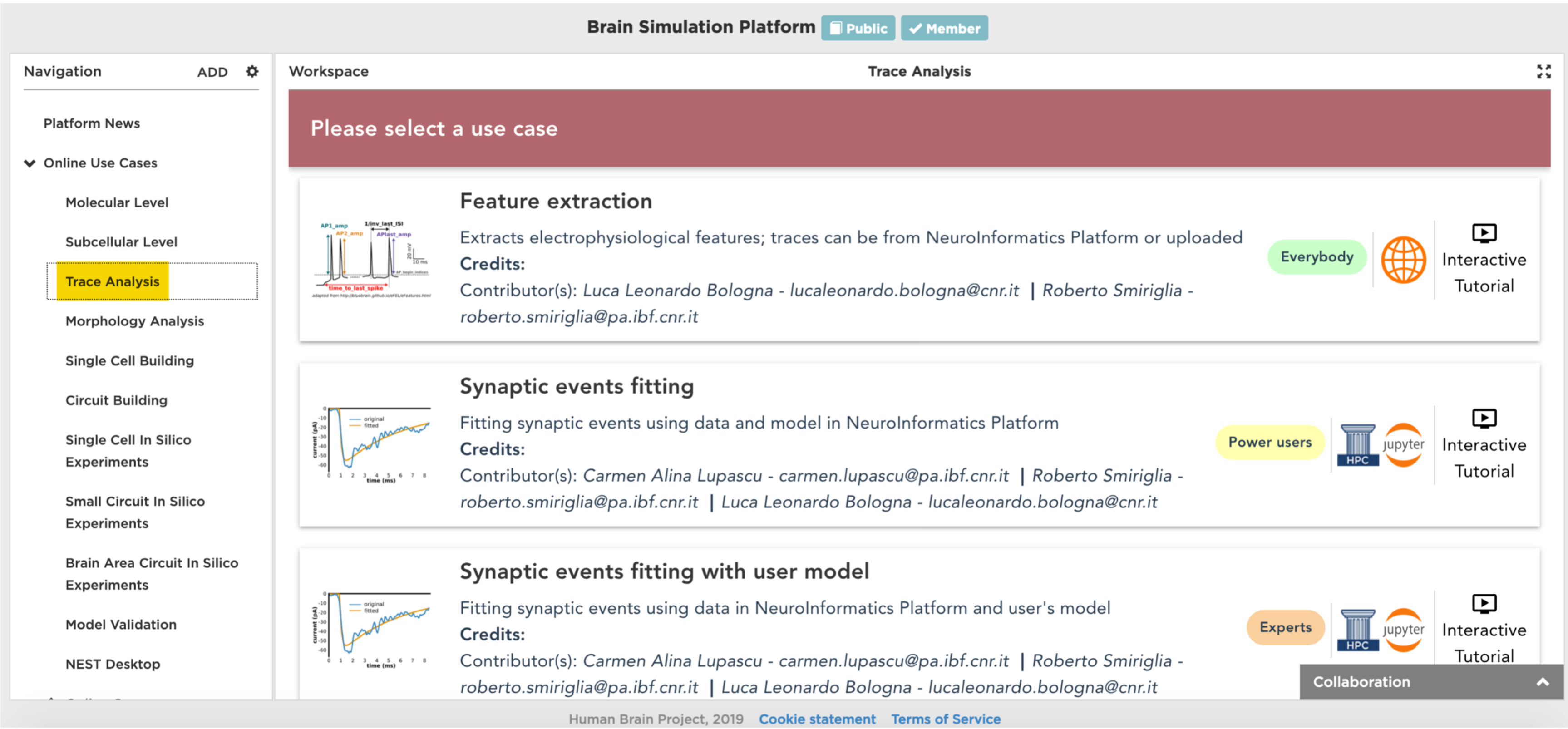
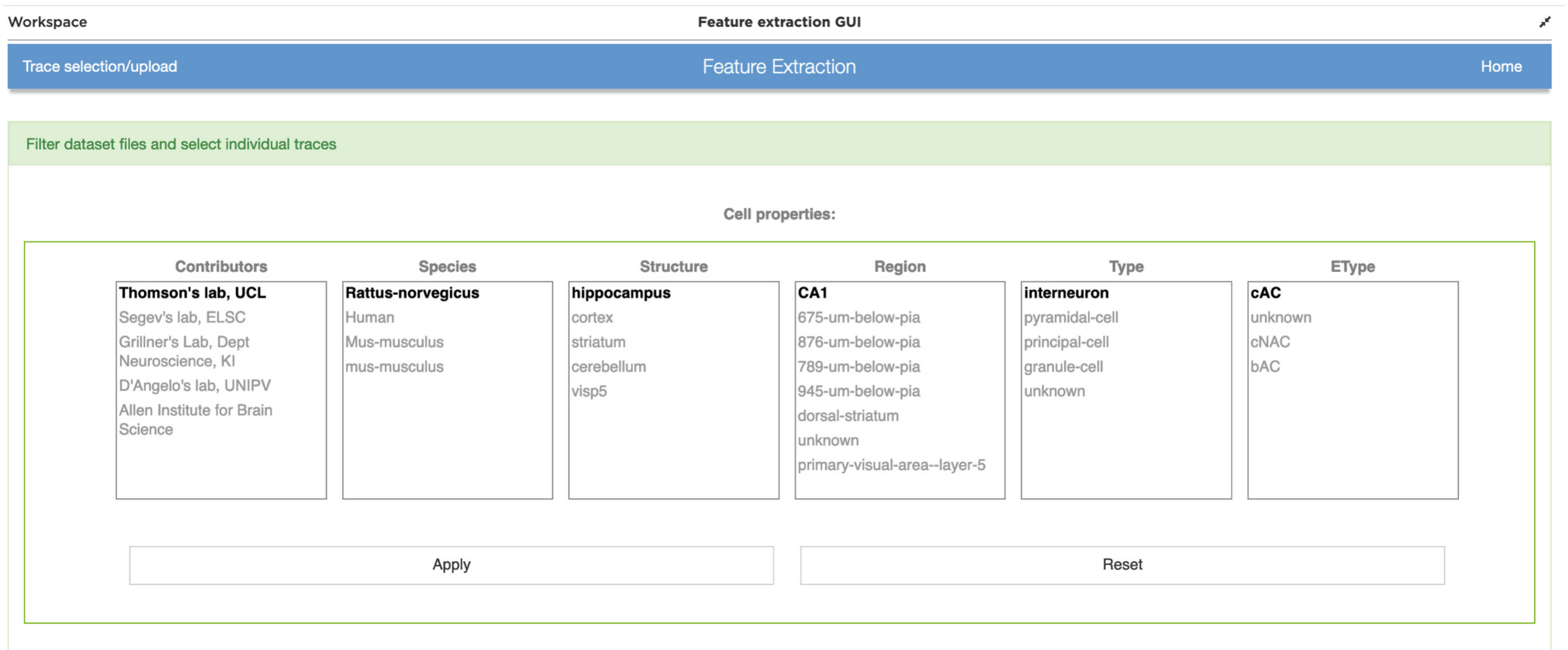
The BSP – Online Use Cases 1/2



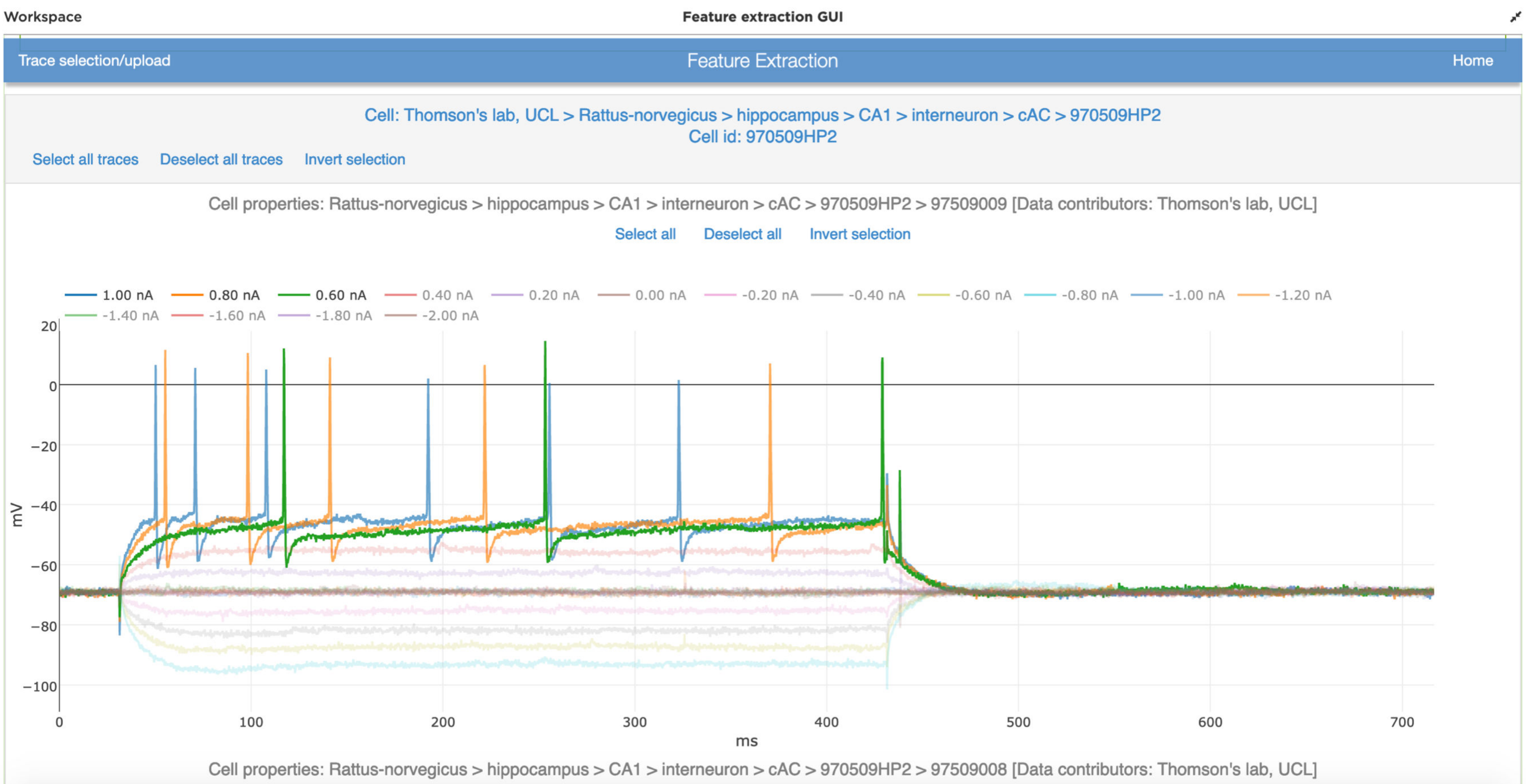
The BSP – Online Use Cases 2/2



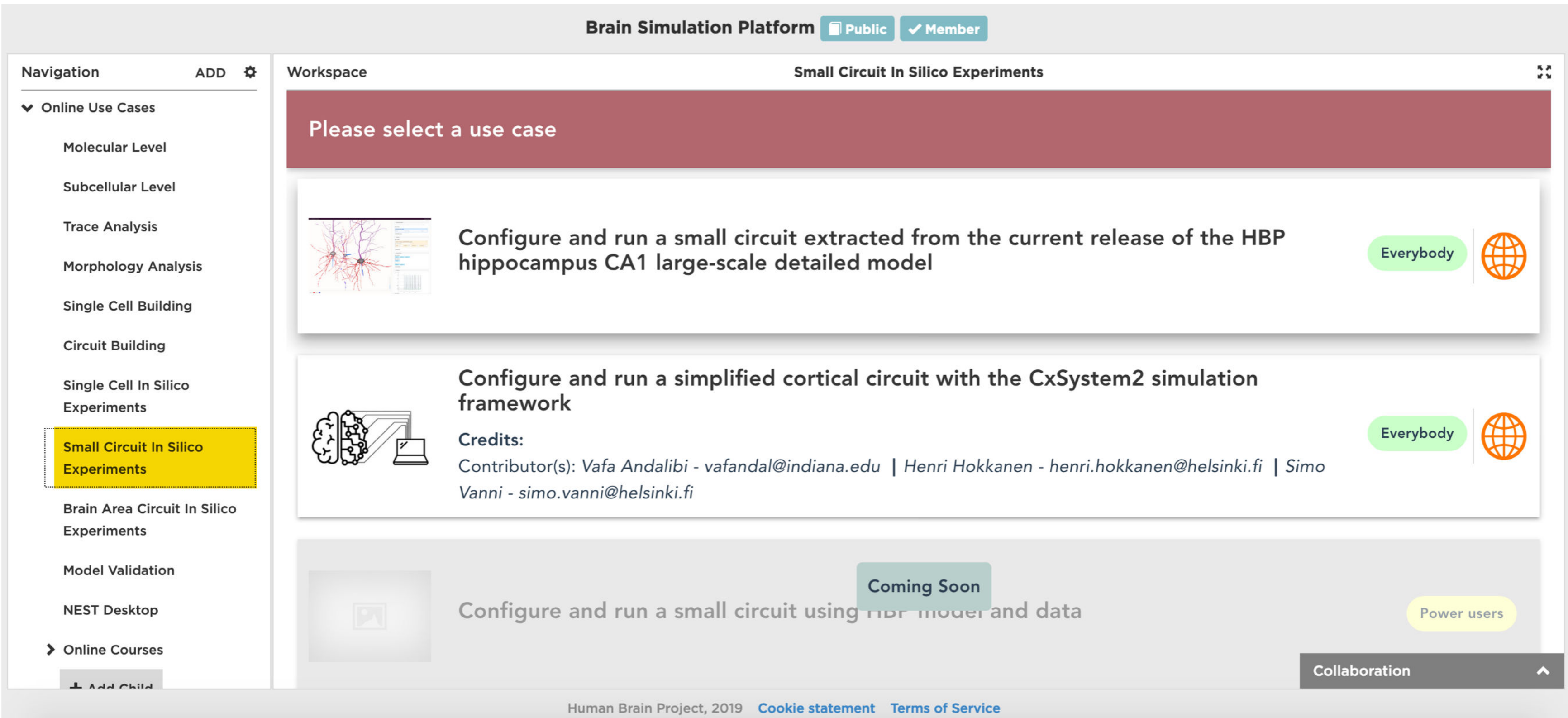
The BSP – Feature Extraction 1/2



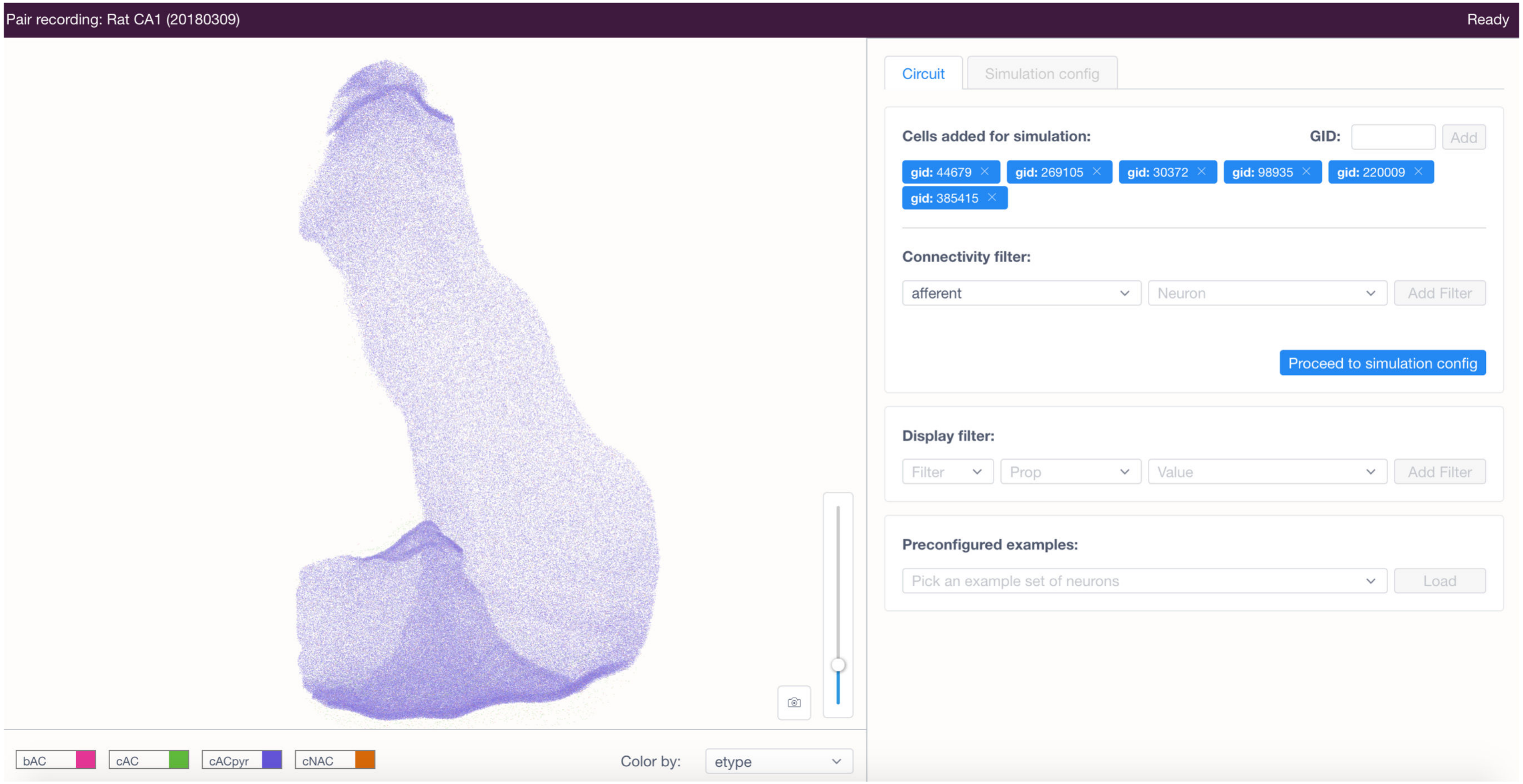
The BSP – Feature Extraction 2/2



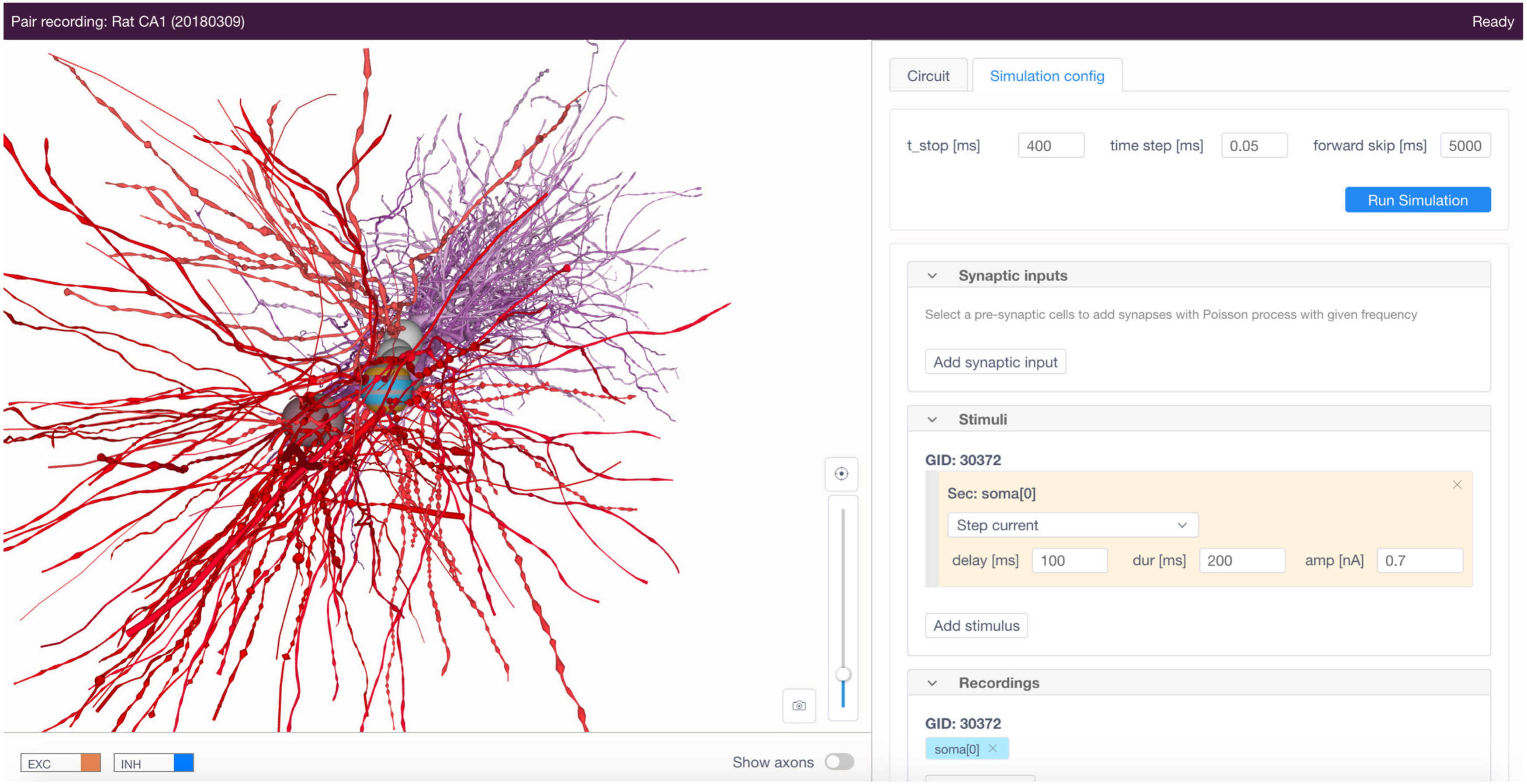
The BSP – Small Circuit In Silico Experiments 1/4



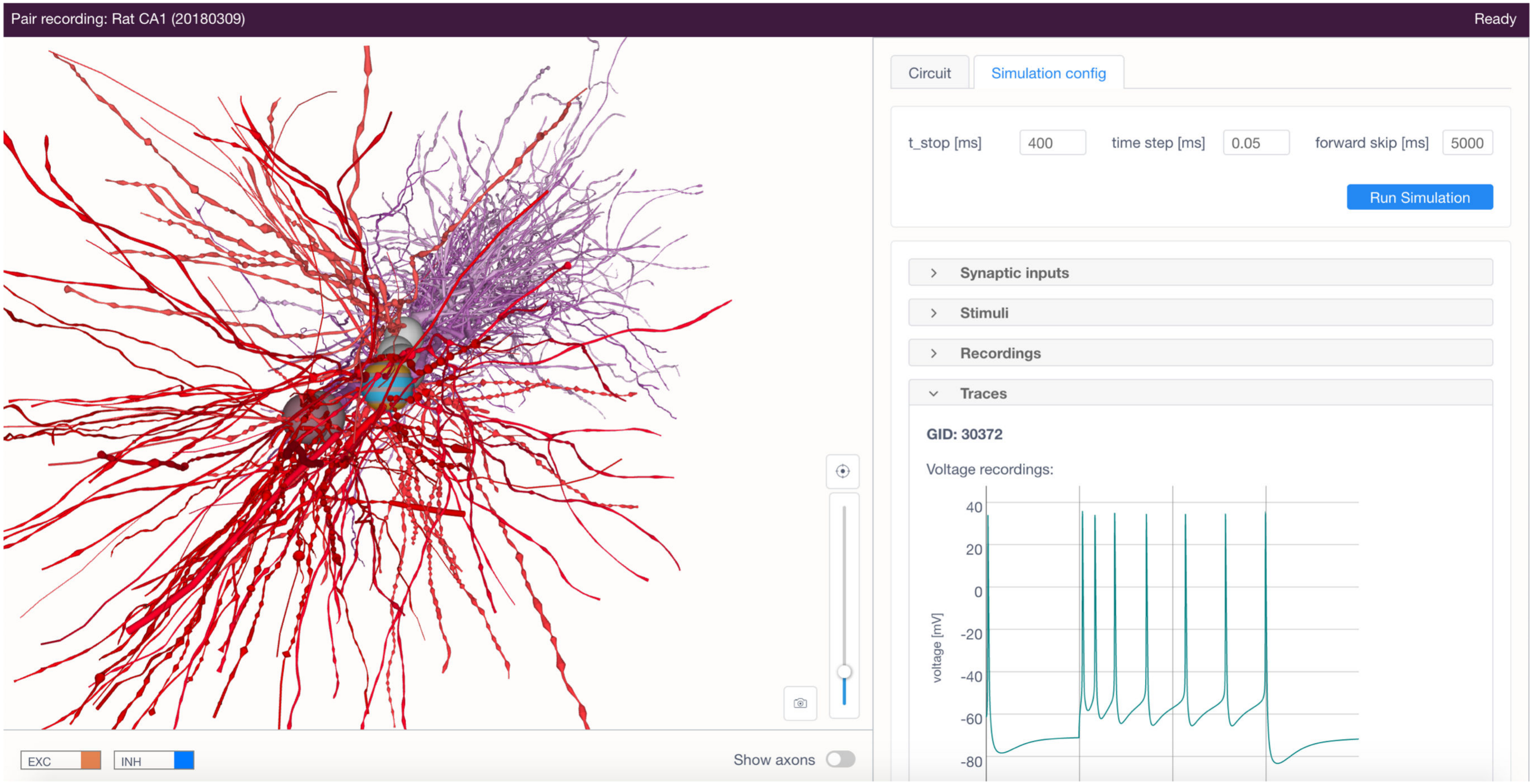
The BSP – Small Circuit In Silico Experiments 2/4



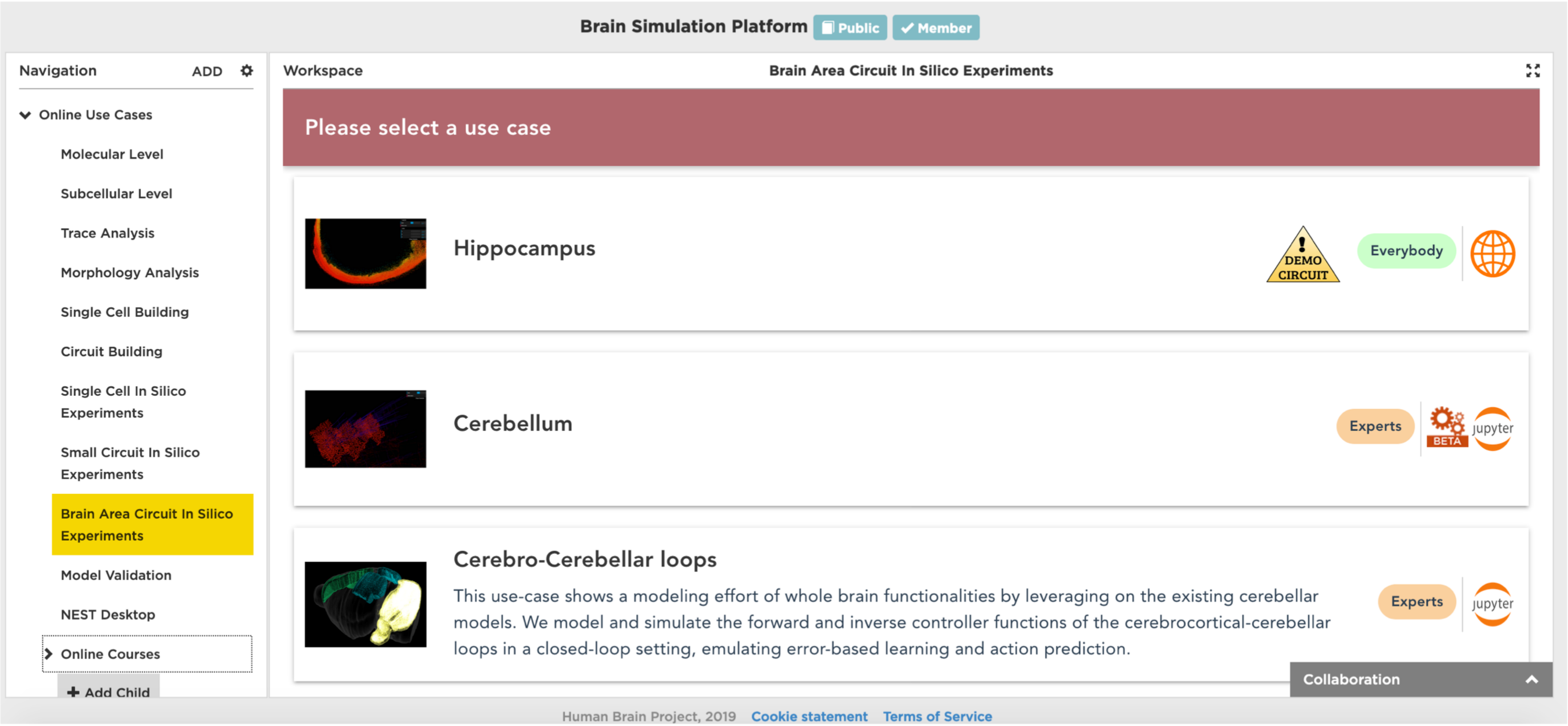
The BSP – Small Circuit In Silico Experiments 3/4



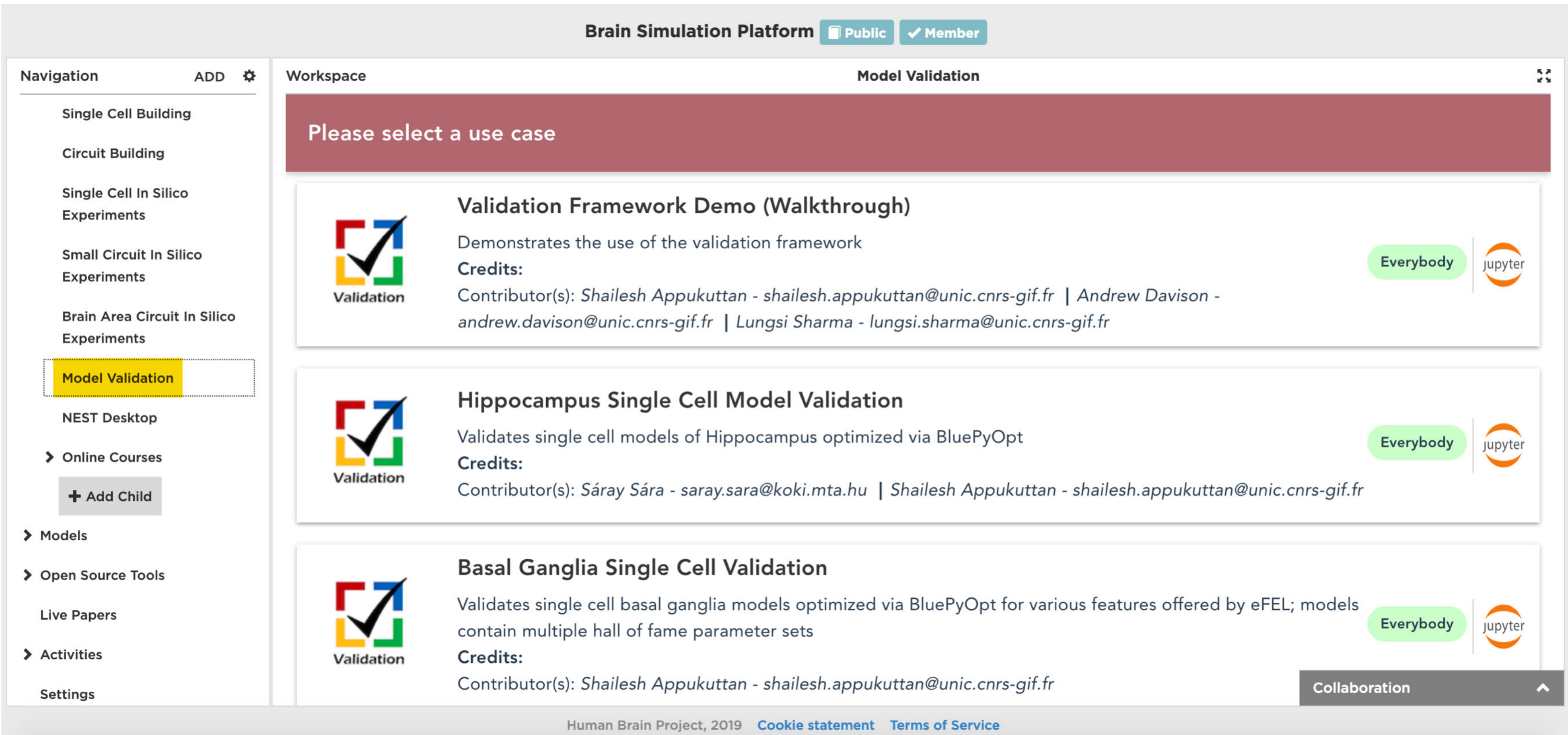
The BSP – Small Circuit In Silico Experiments 4/4



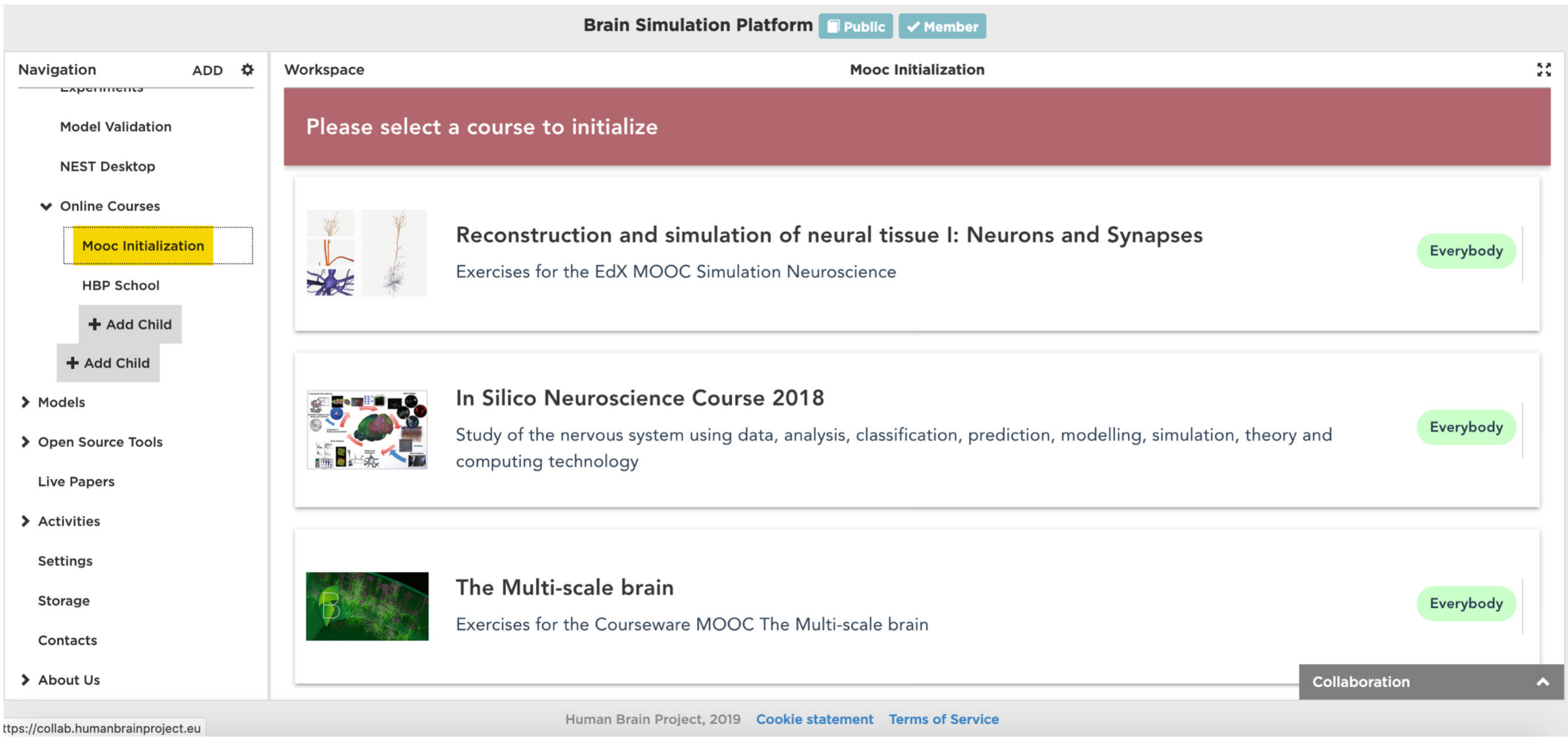
The BSP – Brain Area In Silico Experiments



The BSP – Model Validation



The BSP - MOOC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Mooc Initialization
HBP School
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The BSP - Models

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Workspace **Hippocampus**

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  - Inhibition & Calcium Cascades
  - Molecular Models
  - Multiscale Modelling
  - Human Neurons
  - Basal Ganglia
  - Cerebellum
  - Hippocampus
  - Somatosensory Cortex
  - Whole Mouse Brain

Hippocampus

Resources

- Components of the hippocampus models (cells, microcircuit, region model) have been deployed in online use cases of the Brain Simulation Platform (BSP):
- online use case - single cells
- online use case - paired recordings
- online use case - in silico experiment on circuit
- online use case - validation

The hippocampus (wikipedia, scholarpedia) is a brain region that is known to play a key role in memory and spatial navigation, and is also heavily involved in brain disorders such as Alzheimer's disease and epilepsy. Yet, despite intensive experimental and theoretical studies, the mechanisms through which the hippocampus contributes to these cognitive functions and dysfunctions are poorly understood.

What makes the hippocampus special?

The hippocampus is an

Collaboration

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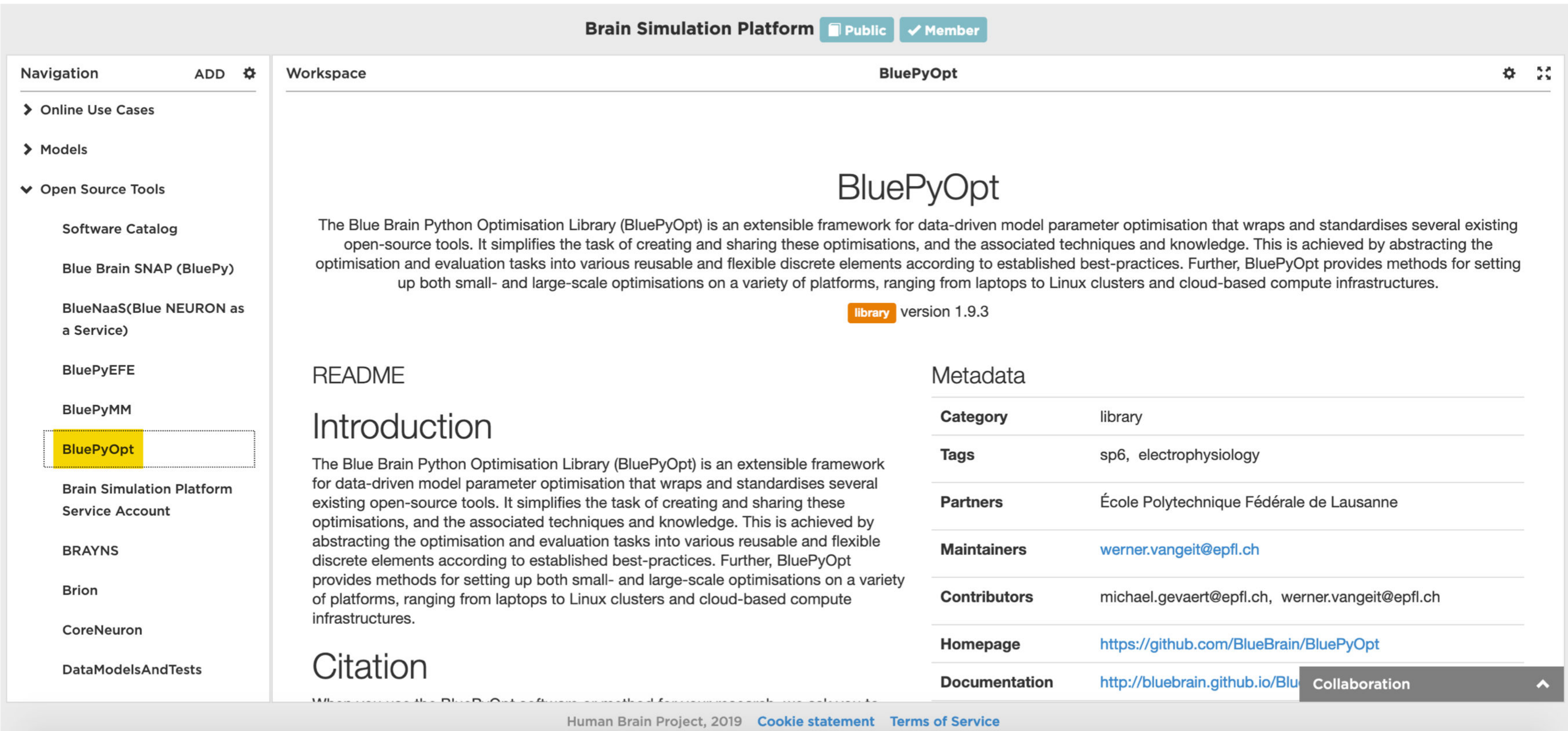
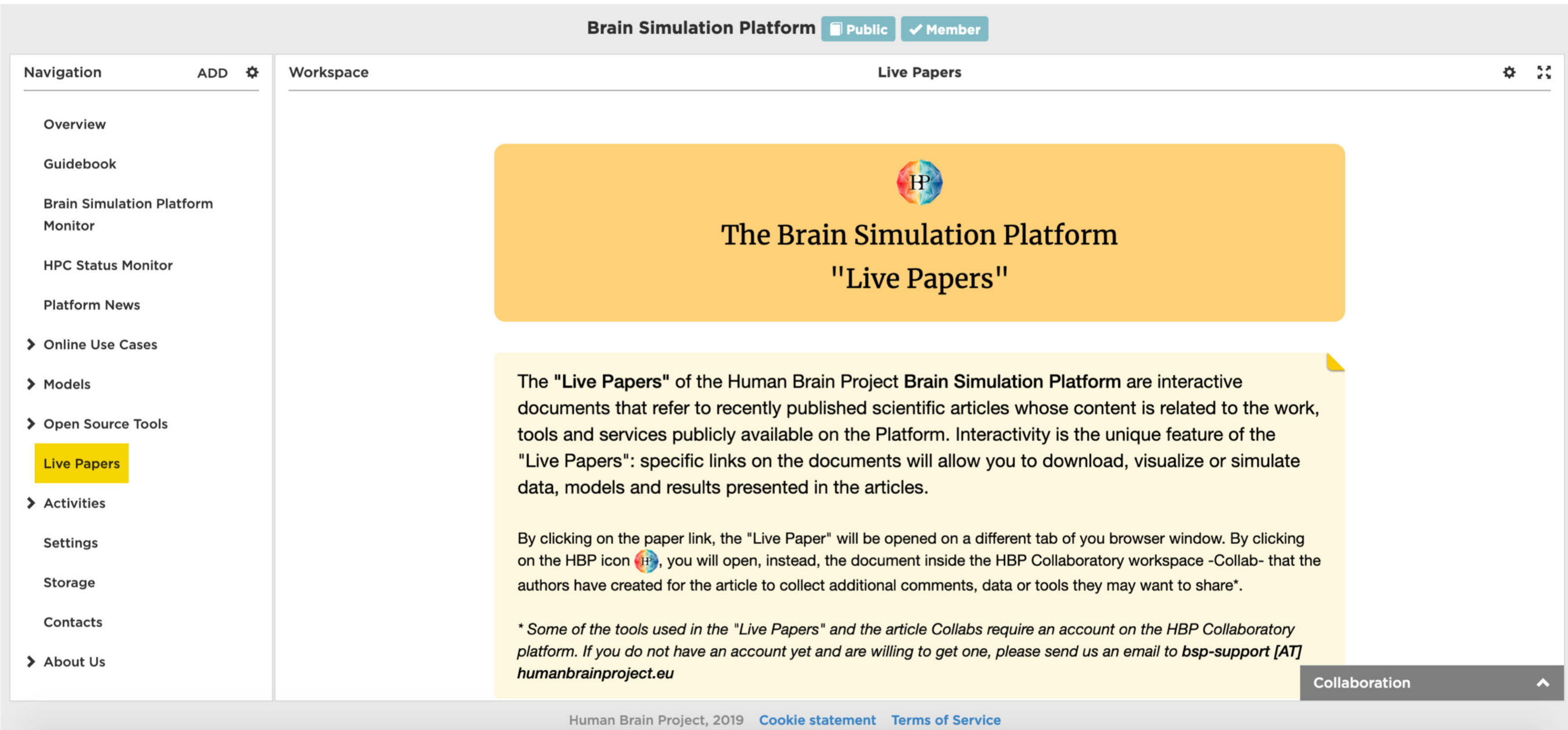
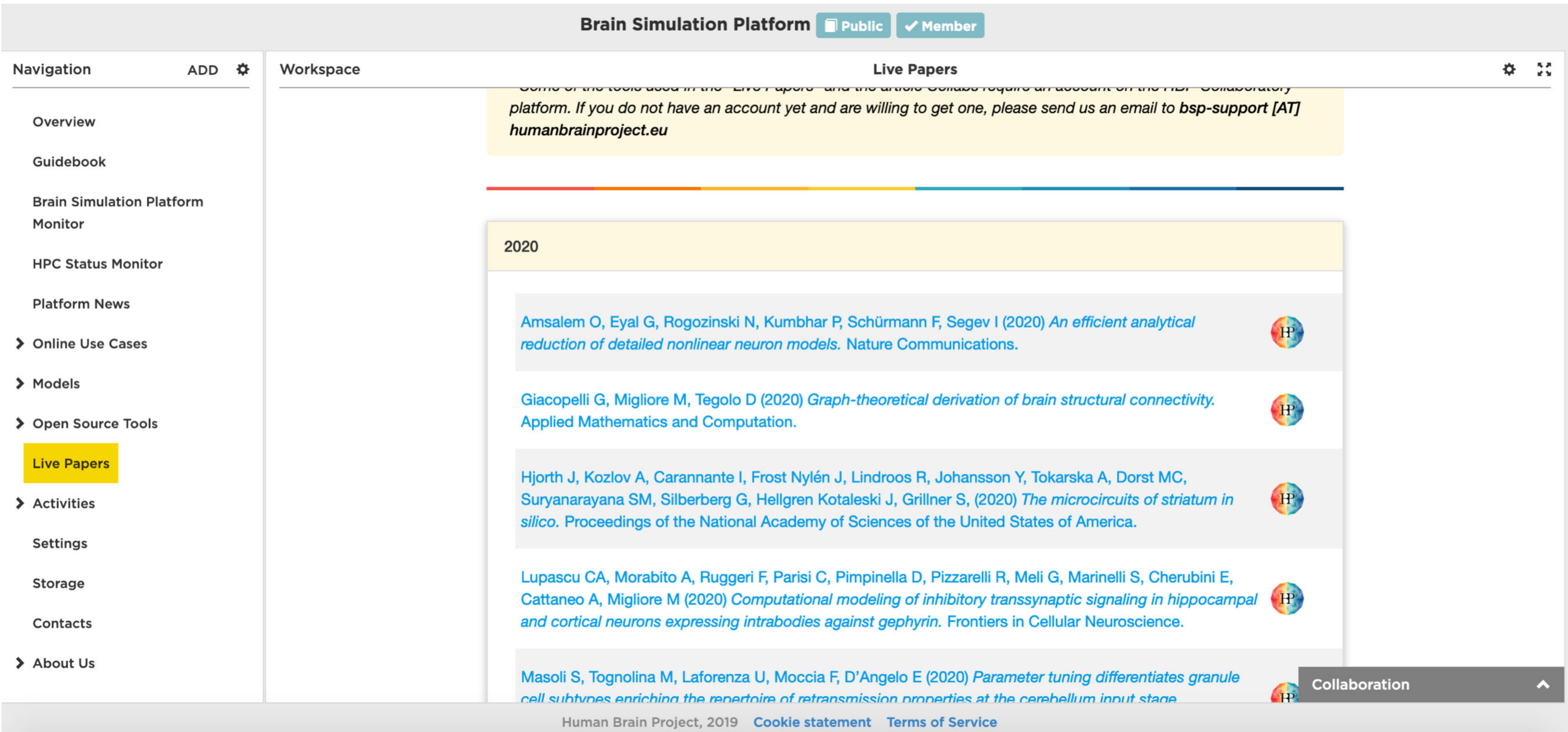
The BSP – Open Source Tools



The BSP – Live Papers 1/4



The BSP – Live Papers 2/4



The BSP – Live Papers 3/4

The Brain Simulation Platform "Live Papers"

The physiological variability of channel density in hippocampal CA1 pyramidal cells and interneurons explored using a unified data-driven modeling workflow

Authors: Rosanna Migliore [1], Carmen A. Lupascu [1], Luca L. Bologna [1], Armando Romani [2], Jean-Denis Courcol [2], Stefano Antonel [2], Werner A.H. Van Geit [2], Alex M. Thomson [3], Audrey Mercer [3], Sigrun Lange [3,4], Joanne Falck [3], Christian A. Rössert [2], Ying Shi [2], Olivier Hagens [5], Maurizio Pezzoli [5], Tamas F. Freund [6,7], Szabolcs Kali [6,7], Eilif B. Muller [2], Felix Schürmann [2], Henry Markram [2], and Michele Migliore [1]

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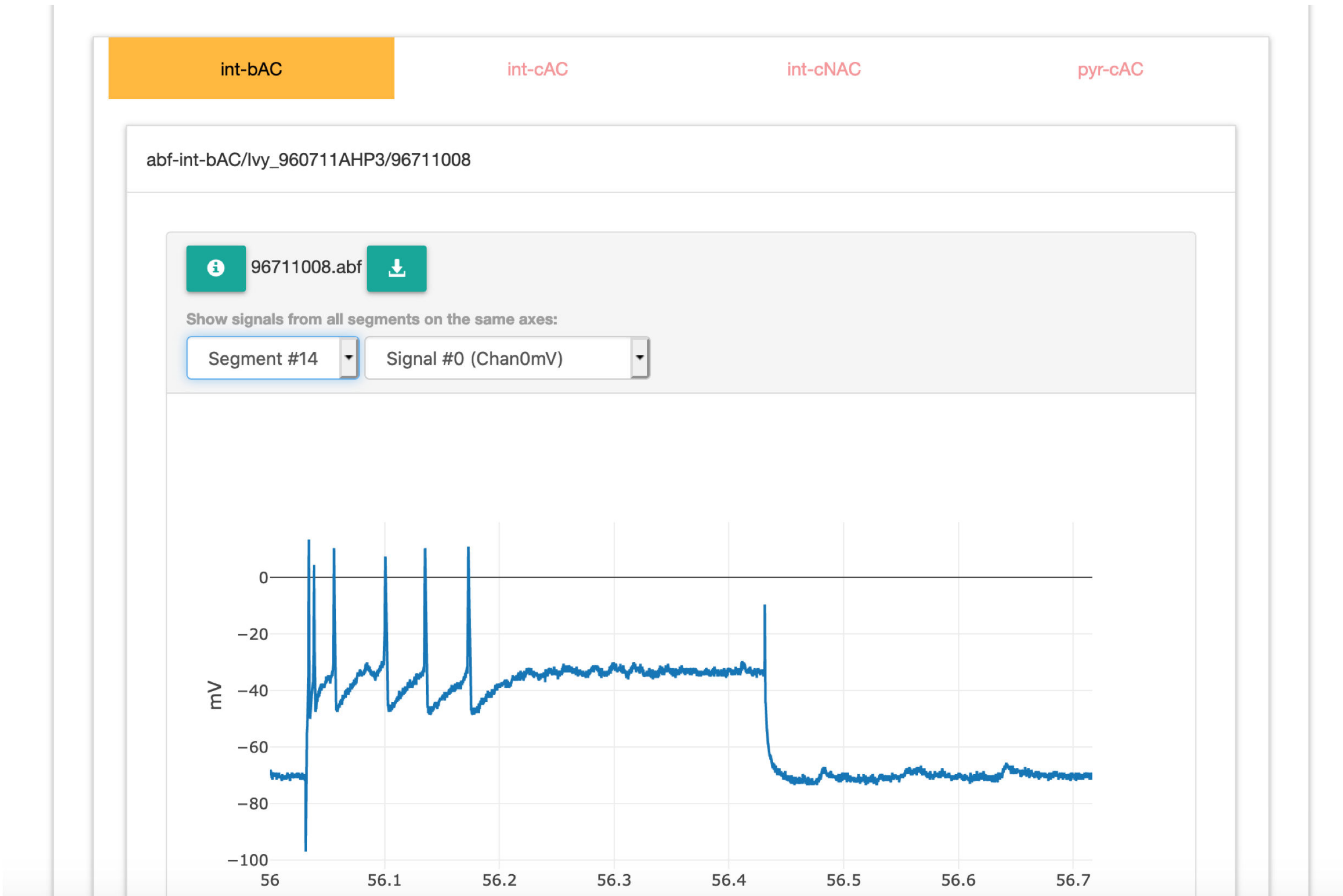
Journal: Plos Computational Biology

Download Url: https://doi.org/10.1371/journal.pcbi.1006423

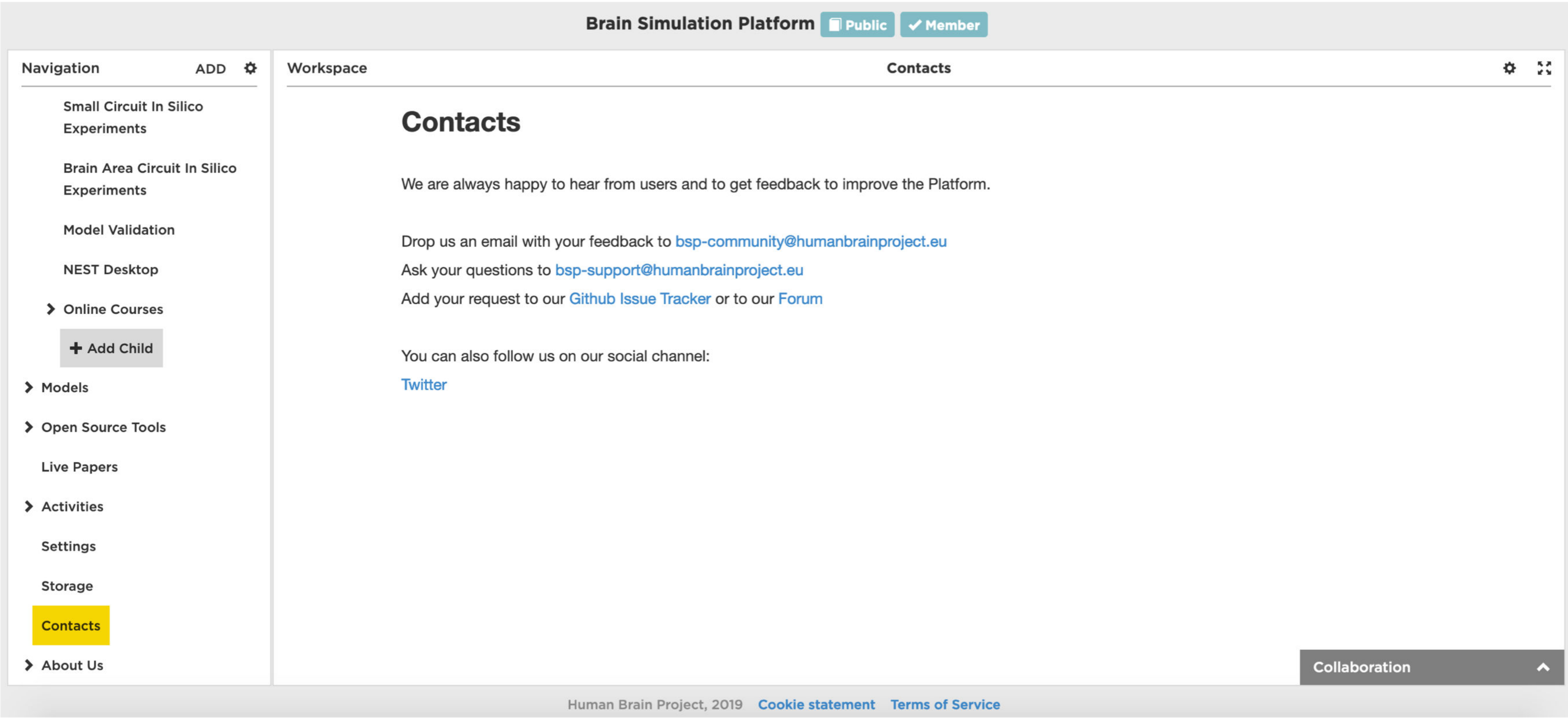
Citation: Migliore R, Lupascu CA, Bologna LL, Romani A, Courcol J-D, Antonel S, et al. (2018) The physiological variability of channel density in hippocampal CA1 pyramidal cells and interneurons explored using a unified data-driven modeling workflow. PLoS Comput Biol 14(9): e1006423.

DOI: https://doi.org/10.1371/journal.pcbi.1006423

The BSP – Live Papers 4/4



The BSP – Contacts



Acknowledgements

CNR, Palermo, Italy
PI: Michele Migliore

CNRS, Gif-Sur-Yvette, France
PI: Andrew Davison

UNIPV, Pavia, Italy
PI: Egidio D'Angelo

IRB, Barcelona, Spain
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UniTrier, Trier, Germany
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