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Using the EBRAINS interactive atlas viewer to analyse the brain

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Using the atlas to analyse the brain (part 1)

Understanding how the brain works is one of the grand challenges in science and requires the integration of huge amounts of heterogeneous and complex data. Numerous research publications present experimental data at various levels of granularity and describe a wide range of structural and functional aspects of the brain. In this context, reference atlases of the brain are important tools for assigning location to data captured with the many methods and instruments used to study the brain. With a new generation of three-dimensional digital reference atlases, new solutions for integrating and disseminating brain data are being developed. During the talk, possibilities will be shown to explore brain regions in an interactive 3D viewer, as well as ways to spatially anchor your own volumetric data in a high-resolution reference space. Furthermore, it will be presented how to access linked multimodal data features from the EBRAINS Knowledge Graph with published and freely available tools. The steps and tools shown will be applied in practice in a subsequent hands-on session "Browsing reference atlases online (~30min).

Hands-on: Browsing reference atlases online (Part2)

The first level of HBP data integration is achieved by spatial mapping of all data into a common anatomical reference atlas space. This mapping can be semantic by use of specific atlas structure names, or spatial by registration of image data to a 3-D reference atlas template. The hands-on session, will demonstrate the BigBrain dataset as reference brain visualized using different viewer / interaction concepts. I.e. the HBP Big Brain viewer; the HBP interactive atlas viewer including different atlases and reference spaces;
The goal of the hands-on session is to provide basic skills to view and download different brain maps along with their metadata and matching data from different modalities using the HBP interactive atlas viewer and the EBrains KnowledgeGraph infrastructure.

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