Contribution ID: **3**   Type: **Talk**

Advances in Automated Whole-Brain Mapping of Human Cytoarchitecture with Deep Learning

Wednesday 22 September 2021 15:15 (15 minutes)

Cytoarchitecture is defined as the spatial organization of neuronal cells in the brain, including the arrangement of cells into layers and columns with respect to cell density, orientation and presence of certain cell types. It allows to subdivide the brain into cortical areas and subcortical nuclei, which are indicators for connectivity and function. Consequently, cytoarchitectonic areas provide an important microstructural reference for human brain atlases.

Today's high-throughput scanners enable digitization of complete human brains in reasonable timeframes, opening up oppurtunities for large scale analysis of cytoarchitecture. However, it is practically impossible to scale established cytoarchitectonic mapping methods for doing delinations in all sections of a human brain. This motivates the development of automatic mapping algorithms.

In this talk, we discuss the challenges of automatic cytoarchitectonic mapping, give an overview of recent advances in the field, and talk about potential future developments.

Primary author: SCHIFFER, Christian (Forschungszentrum Jülich)

Presenter: SCHIFFER, Christian (Forschungszentrum Jülich)

Session Classification: Contributed Talks: Neuro-Inspired AI

Track Classification: Workshop Day 1 - Sep 22: Neuro-Inspired AI