KAMBEITZ LAB
Prediction and Prevention in Mental Health

MASTER-THESIS PROJECT
"Computational Modelling of Brain Alterations in Translational Psychiatry"

Background:
Psychiatric disorders such as psychosis and depression are among the most relevant factors of global disease burden. Some studies have reported associations of these disorders with changes in brain structure, brain function or neurochemistry. However, the exact neurobiological underpinnings of these disorders remain elusive which limits the development of novel treatments.
The recent developments of computational tools offer promising applications in the area of psychiatry. Artificial intelligence approaches provide a novel perspective on the individual diagnosis, prognosis and treatment of affected patients. Moreover, the modelling of brain-networks allow to link neuroimaging analysis with neurobiology and thus offer a new view of the pathophysiology of these disorders and to link animal models with in-vivo patient data. In the present master-thesis project we will leverage tools from artificial intelligences and brain-network modelling to generate new insights based on an existing large-scale data set with detailed psychological and biological characterization.

Supervision:
The Lab for Prediction and Prevention in Mental Health (https://www.kambeitzlab.com/) is an interdisciplinary group of researchers at the Department of Psychiatry and Psychotherapy at the University Hospital Cologne.

Requirements:
- Background in psychology, medicine, computer science or related disciplines.
- Experience in using programming/coding for data analysis (e.g. R, Python, Matlab)
- Previous experience in the area of psychiatry/mental health and previous experience in neuroimaging is a plus but not a requirement.

Duration: 6 months

Starting date: Spring/Summer 2023

In case of interest or for more information please contact:
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