

We solicit applications for a PhD position to develop machine learning techniques for personalized prediction of psychopathology.

The position will be part of a large new center aiming to develop a novel dynamic network approach of mental health. This center, the "LOEWE center DYNAMIC", brings together scientists from a range of disciplines, including psychology, psychiatry, computer science and machine learning, with a shared goal of advancing our understanding of mental disorders and developing new treatment options. The center's research focuses on the application of dynamic network models at various levels (neurobiological, psychological and psychopathological) to mental disorder research. It brings together researchers from the Universities of Marburg, Giessen, Frankfurt and Darmstadt, as well as the Leibniz Institute for Research and Information in Education DIPF and the Ernst Strüngmann Institute for Neurosciences ESI. The respective university hospitals and the psychotherapy outpatient clinics of the psychological university institutes are also involved, facilitating the rapid transfer of research results into practice.

The present opening will be associated with the Department of Computer Science at the University of Frankfurt. The objective of the project is to develop a personalized prediction model for changes in psychopathology (new depressive episodes), behavioral patterns and biological parameters. Many mental illnesses are characterized by changes in the network structure of the brain that affect observable patterns of activity or behavior in the future. Early detection and especially prediction of changes in behavioral parameters, psychopathology and biomarkers could enable targeted, personalized interventions to offer special (additional, more specific) therapies to patients with poor prognosis. The objective of this project is to develop methods for the early and reliable detection and prediction of changes in multimodal data.

We are seeking an outstanding and highly motivated PhD student for this project. Applicants should have obtained a Master degree in Machine Learning or a related field (AI, Physics, Engineering, etc.). The ideal candidate will have excellent analytic and machine learning skills, a thorough understanding of different types of neural network architectures and at least some basic knowledge of Neuroscience and Psychiatry. Applications should consist of a single pdf file. Please include a brief statement of research interests, CV including publication list, and contact information for at least two references.

Applications will be evaluated on a continuing basis starting May 26th 2024.

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