

MEPHESTO

Digital Phenotyping 4 Psychiatric Disorders from Social Interaction

The vision of MEPHESTO is to help breaking the scientific ground for next generation precision psychiatry through AI-based social interaction analysis. At the very core of MEPHESTO is the development of scientifically sound and clinically valid phenotypes for psychiatric disorders based on multimodal inputs such as speech, video, and biosignals from clinical social interactions. For this purpose, a multi-site, multinational, cross-sectional as well as longitudinal study will be conducted that collects data from video recordings, conversations, but also traditional biosignals such as heart rate or skin conductance in on-site clinical as well as remote settings.

Modelling clinical symptoms through multimodal sensor read outs & AI

A digital phenotype is like a biological blood sample phenotype the footprint of a pathology on a digital data stream including for example audio, video, physiology and activity.

To build digital phenotypes multiple scientific domains must efficiently collaborate: computer vision, speech analysis & behavioural science, medicine just to mention some of them.

4 powerful clinical research cases that lead the way

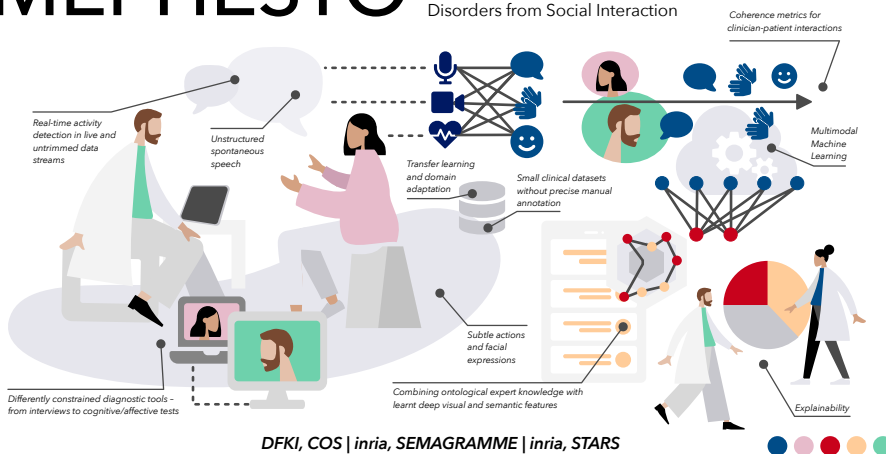
1. Supporting differential diagnosis of major depressive episode aetiology through combined analysis of video, audio and physiology data.

DFKI, COS |
inria, SEMAGRAMME & inria, STARS |
CHU Nice, CH Montpellier,
UK Saarland & UK Oldenburg



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Measuring clinical evidence where it really matters

Social interactions like the conversation between patient and clinician are traditionally a clinician's most important source of information especially in psychiatry.

MEPHESTO brings digital neuroscience to ecologically valid real-life care situations: social interaction between people. Moving beyond isolated read outs from artificial laboratory settings and subjective patient- or clinician-based assessments.

2. Objective measurement of positive symptoms in schizophrenia through automatic speech analysis.

3. Quantifying therapeutic alliance within patient-clinician interactions through a multimodal social synchrony model.

4. Relapse prediction from longitudinal monitoring based on synchronous remote video interactions.

DPR compliant architecture as enabler along the whole journey

MEPHESTO's sensitive patient-data requires a GDPR-compliant state-of-the-art architecture for machine learning experiments fulfilling highest privacy and security standards.

Inspiring applied innovation projects and knowledge transfer

Based on the 4 research cases we nourish more application-oriented downstream innovation projects.

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