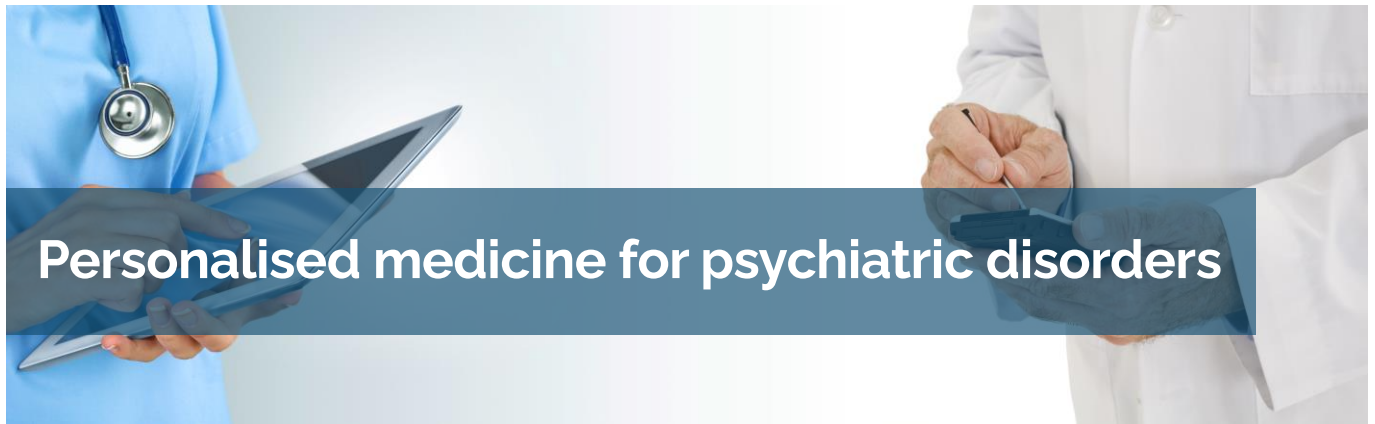


Tracking Symptoms of depression

DeepHealth

At a European-wide point-prevalence of 6.38%, depression causes an enormous burden on individuals' lives, as well as on the healthcare system. Meanwhile, the current psychiatric diagnostic system is being called into question and novel approaches are needed. DeepHealth can contribute towards individualised diagnoses.



Personalised medicine for psychiatric disorders

Challenge

Increasingly, it is being recognised that patients with the same psychiatric diagnoses display widely heterogenous symptoms, a large number of patients have multiple psychiatric diagnoses and any one treatment option rarely exceeds an efficacy of 70%. This suggests that the classification of psychiatric disorders is still lacking in precision and individualisation.

Deep Learning represents state-of-the-art machine learning for classification and pattern recognition. It could be employed to explore alternative groupings of depression subtypes and to recognise individual patterns of symptoms. While the artificial intelligence community has tried itself at this problem, it has so far not been successful at resolving it. This is likely due to a lack of theoretical knowledge of psychiatric disorders and their most likely candidate diagnostic symptoms.

Solution

As part of the DeepHealth project, we are developing a Web App to recognise, and eventually predict, individual patterns of symptom-development. As the number of App-users increases, we will also attempt to group patients into depression sub-types, who show similar profiles. Deep Learning algorithms coupled with a high-performance computing infrastructure will allow fast analysis of multiple highly complex possible solutions. Psychiatric expertise coupled with long-standing know-how in artificial intelligence will provide the skilled background necessary for such an endeavour.

Benefits

Individualised, data-driven medicine provided through a Web App promises to improve diagnoses and choices of treatment, leading to better outcomes for patients and cutting costs for an already strained European healthcare system. DeepHealth can be the bedrock of individualised medicine.

Medical specialty:
Psychiatry

Use Case:
Depression

Sites:
Magdeburg (Germany) &
Athens (Greece)

Entities:



DeepHealth Project

DeepHealth is a H2020 collaborative project which develops new HPC and Deep Learning techniques applied to large and complex biomedical datasets to support new and more efficient ways of diagnosis of diseases. The technologies developed (EDDLL, ECVL, etc.) have been validated by clinicians on 14 Use Cases like this, providing 14 Success Stories ready to scale to other healthcare institutions.



The DeepHealth App for symptom tracking in depression