

# Hospitals and clinicians are sought to validate a decision tool assistance

- **SCHEDA**
- **APPROFONDIMENTI**

Identificativo proposta: TOFR20200417001

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The French company has developed an advanced analytical solution for clinical purposes. They are using machine learning and natural language processing (NLP) to make an assessment of an illness or a disorder in a systemic way. The first objective is to provide a conceptual model for exploring and modeling the risk of specific mental health illnesses or disorders. Research and technical cooperation through practitioners are sought to validate this decision tool assistance.

New technologies like semantic analysis and artificial intelligence can offer helpful tools in human health care. The combination of these technologies with other techniques which have not been applied till now can help practitioners in such areas as diagnosis. Created ten years ago, the French company commonly uses such technologies in the fields of defence and security - their main activity - and would like to introduce them to medical sciences. The aim is to save time, enhance knowledge and support patient diagnosis and related interventions. The proposed mix of technologies is particularly relevant to mental illnesses. Indeed, for these clinicians, development, implementation and evaluation of patient diagnosis and interventions often rely on detailed written histories and interviews. The tool will be able to analyze frequency and mood patterns and psycho-social trauma found in the audio data, and may be used to evaluate the effectiveness of medications or treatments. The tools can also monitor a user's language to detect symptoms of a mental health disorder by continuously analyzing their speech in real-time to generate audio data, transcribing the audio data to text, and analyzing the text of the audio data. A preliminary prototype has been created. It combines statistic word processing and automatic discourse analysis to, under certain circumstances, predict upcoming actions and mind states. Research activities through practitioners need to be conducted to validate this decision tool assistance in order to increase the chance of a relevant diagnosis. The trained machine learning model will be applied with a main objective: to correlate the text with clinical information associated with symptoms of mental health disorders to determine whether the detected markers are a symptom event. The trained machine learning model will also be updated based on the amount of data that is being analyzed in real-time. Therefore research and technical cooperation are sought with partners able to provide various sources of linguistic data: prescriptions, speech transcriptions, websites, social networks, etc. Such data will be used for training machines on information extraction to identify linguistic markers of disorders and illnesses. Such technologies could also be used by a consortium interested in answering the H2020 SC1-BHC-06-2020 call. The cooperation will allow the French company to better develop the medical applications of its technology. In the same time, other partners will have a large amount of information analyzed in a short time for their proper further development.

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