Mental health is one of the largest problems facing the United States today. The National Alliance on Mental Illness (NAMI) highlights some gloomy statistics: one in four adults suffers from some form of mental health disorder; 60% of them do not receive proper diagnosis or care; and the spending on serious mental illness ends up costing Americans nearly $200 billion in lost earnings each year [1]. The difficulty of diagnosing mental illness lies partly in the negative stereotypes associated with receiving treatment for such disorders. This fact alone urges a need for novel and less intrusive diagnosis techniques. Furthermore, traditional approaches which rely on patients answering questionnaires, are plagued with serious issues. It is very common for participants to provide biased or dishonest answers that may seem appealing to them. Or very often, the questionnaires are lengthy enough to make participants answer erratically and they only capture a participant’s emotions and feelings for a limited time.

To battle all these shortcomings, Professor Philip Resnik and his colleagues at the University of Maryland are working hard to understand how use of language correlates with mental disorders such as depression, neuroticism, and Post-Traumatic Stress Disorder (PTSD) and develop computational algorithms to better understand this relationship. They believe that people suffering from these disorders are more likely to use languages very differently from the rest of the populace. Armed with Tweets and data from other social networks, Resnik and his group have been working towards identifying these differences. Taking cues from subtle observations such as frequent use of a particular word class, they believe they can successfully identify symptoms of these disorders very early in an individual. Using a statistical technique called ‘Topic Modelling’, they extract hidden topics and themes from the plethora of text that is generated by users online [2]. These can then be used to identify potential patients for mental health disorders. This method is not specific to the source of the data, and can be applied to practically any collection of texts such as essays [3] or journal entries.
Dr. Resnik, along with collaborators, have also taken several other steps to promote collaboration and encourage research in this area. In November 2014, they released a dataset containing Tweets from depressed and healthy users to the participants of a hackathon they organized. The group also co-organizes an annual workshop [4] for researchers in NLP and clinical psychiatrists with the aim of facilitating conversations between computer scientists and medical professionals and fostering interdisciplinary research.

While there is a long way to go before such tools are widely used in practice, Dr. Resnik’s research provides a way to augment the efforts of medical professionals in helping patients who have to suffer from undiagnosed mental health disorders. By observing users for long periods of time, and in a way that is very difficult for users to bias, they have created a technique that is not only much less invasive, but possibly also much more efficient and accurate.

References: