Computer program that detects depression in bloggers' texts

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Researchers at Ben-Gurion University of the Negev (BGU) developed a software program that can detect depression in blogs and online texts. The software is capable of identifying language that can indicate the writer's psychological state, which could serve as a screening tool.

The software, developed by a team headed by Associate Professor Yair Neuman in BGU's Department of Education, was used to scan more than 300,000 English language blogs that were posted to mental health Web sites. The program identified what it perceived to be the 100 "most depressed" and 100 "least depressed" bloggers. A panel of four clinical psychologists reviewed the samples, and concluded that there was a 78 percent correlation between the computer's findings and the panel's.

Professor Yair Neuman will be presenting his BGU team's work at the 2010 IEEE/WIC/ACM International Conference on Web Intelligence and Intelligent Agency Technology in Toronto, Canada, August 31 - Sept. 3, 2010. Prof. Neuman's findings will also be published in the conference's proceedings.

"The software program was designed to find depressive content hidden in language that did not mention the obvious terms like "depression" or suicide," explains Prof. Neuman. "A psychologist knows how to spot various emotional states through intuition. Here, we have a program that does this methodically through the innovative use of 'web intelligence.'"

For example, the program spots words that express various emotions,

like colors that the writer employs to metaphorically describe certain situations. Words like "black" combined with other terms that describe symptoms of depression, such as sleep deprivation or loneliness, will be recognized by the software as "depressive" texts.

Originally conducted for academic purposes, the findings could potentially be used to screen for would-be suicides.

The software provides a screening process that raises an individual's awareness of his or her condition, enables mental health workers to identify individuals in need of treatment, and can then recommend they seek professional help. Because, "no one can actually replace excellent human judgment," says Neuman.

In the United States, there is a big problem of undiagnosed people suffering from depression. The usual screening process is an online questionnaire, which is a self-selective process. If a person is completing a survey, he already suspects a problem. With this software, it is possible to analyze proactively. If the blogger agrees, he will know whether or not he needs to seek professional counseling.

Provided by American Associates, Ben-Gurion University of the Negev

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