Abstract

The dissertation presents an innovative approach to applying elements of natural language processing to computer-aided diagnosis of individuals with eating disorders, in particular anorexia nervosa. The dissertation comprises an introduction to the issues of eating disorders and computer-aided diagnosis of these conditions. It includes a review of relevant literature. Subsequent sections provide a detailed description of the proposed natural language processing methods designed to support professionals treating individuals with eating disorders.

One of the most significant research achievements includes the development of the projective method to obtain a collection of open-ended written statements about body image perception among research participants. The notes collected in this way, among healthy and sick people, constitute research database for the research. The cognitive goal of the research is to discover specific features of natural language that differentiate the language of people suffering from eating disorders from healthy people. This goal was achieved by proposing research methods, including an automatic method for classifying notes about body image into four categories. The proposed classifier architecture uses elements of artificial intelligence, including deep recurrent network models. An original dictionary-based method was also proposed in one of the tested categories, i.e., the sentiment category, which achieved better results than deep recurrent network models.

The second part of the research regarded grammatical and lexical analysis, which comprised the statistics of the frequency of occurrence of individual parts of speech in the notes, verbs relating to cognitive category, and frequency of the pronoun ”I”. This analysis aimed to develop a linguistic profile of a person suffering from an eating disorder. The third part of the research consisted of proposed evaluation methods in the form of surveys enabling the assessment of the possibility of practical application of the developed methods by emphasising their practical aspect, incorporating feedback from first-contact staff as well as clinical psychologists specialising in diagnosing and treating eating disorders.

The results obtained through the use of the proposed research methods allowed to confirm the thesis of the work: *The use of elements of natural language processing in participants' written statements about their body image enables computer-aided psychological diagnosis of eating disorders.*