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Temat: Personalized NLP

Abstract: Many natural language processing tasks, such as classifying offensive, toxic, or emotional texts, are inherently subjective in nature. This is a major challenge, especially with regard to the annotation process. Humans tend to perceive textual content in their own individual way. Most current annotation procedures aim to achieve a high level of agreement in order to generate a high quality reference source. Existing machine learning methods commonly rely on agreed output values that are the same for all annotators. However, annotation guidelines for subjective content can limit annotators' decision-making freedom. Motivated by moderate annotation agreement on offensive and emotional content datasets, we hypothesize that a personalized approach should be introduced for such subjective tasks. We propose new deep learning architectures that take into account not only the content but also the characteristics of the individual. We consider different approaches for learning the representation and processing of data about text readers. Experiments were conducted on several datasets: Wikipedia discussion texts labeled with attack, aggression, and toxicity, opinions annotated with ten numerical emotional categories and humour data. All of our models based on human biases and their representations significantly improve prediction quality in subjective tasks evaluated from an individual's perspective. Additionally, we have developed requirements for annotation, personalization, content processing and validation procedures to make our solutions human-centric.