

# **Analysis of harassment complaints to detect witness intervention by machine learning and soft computing techniques**

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## **Abstract-**

**This research is aimed to analyze textual descriptions of harassment situations collected anonymously by the Hollaback! project. Hollaback! is an international movement created to end harassment in all of its forms. Its goal is to collect stories of harassment through the web and a free app all around the world to elevate victims' individual voices to find a societal solution. Hollaback! pretends to analyze the impact of a bystander during a harassment in order to launch a public awareness-raising campaign to equip everyday people with tools to undo harassment. Thus, the analysis presented in this paper is a first step in Hollaback!'s purpose: the automatic detection of a witness intervention inferred from the victim's own report. In a first step, natural language processing techniques were used to analyze the victim's free-text descriptions. For this part, we used the whole dataset with all its countries and locations. In addition, classification models, based on machine learning and soft computing techniques, were developed in the second part of this study to classify the descriptions into those that have bystander presence and those that do not. For this machine learning part, we selected the city of Madrid as an example, in order to establish a criterion of the witness behavior procedure.**

**Index Terms-** social violence; natural language processing; text classification; machine learning; harassment complaints; bystander presence

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## **Citation:**

*Alonso-Parra, M.; Puente, C.; Laguna, A.; Palacios, R. "Analysis of harassment complaints to detect witness intervention by machine learning and soft computing techniques", Applied Sciences, vol.11, no.17, pp.8007-1-8007-16, September, 2021.*