SFU professor uses linguistics and big data to combat fake news

With the alarming rise of fake news, Simon Fraser University (SFU) linguistics professor Maite Taboada and her research team are working to create a fast and reliable way to identify bias and misinformation in news articles, and potentially change how news is shared and engaged with online.

She reasons that if news shared on social media can be checked for accuracy, and toxic comments can be automatically filtered to encourage thoughtful discussion, the perception of social media – and the way we engage with news over it – just might fundamentally change.

She is exploring how big data can resolve the problems. She conducts her research in the Discourse Processing Lab at SFU, which consists of a group of researchers based in the department of linguistics. There are also students assisting with the research, many of whom are enrolled in SFU's Professional Master's Program in Big Data.

Since beginning the research about six months ago, the team has gathered almost 10,000 examples of fake news after using sites like factcheck.org to verify the samples' veracity.

"We have one of the largest collections of fake news out there," says Taboada.

Her research primarily revolves around discourse analysis, data sci-

SFU professor Maite Taboada (front row, second from right) and her team are working to create a fast and reliable way to identify bias and misinformation in news articles.

ence and computer linguistics. One of the applications she has worked on extensively is sentiment analysis. "If you give me a text, I can use our system to tell you whether the text has positive or negative sentiment – whether the opinion expressed is positive or negative," she says. "This is useful for online reviews, customer feedback or any other place where you get large volumes of data and you want to summarize the sentiment."

Two branches of research: fake news and comment moderation

Taboada has been examining two big issues related to news and public discourse. The first issue: figuring out the language of fake news. For example, one discovery is that fake news often has more "click-bait-type" headlines and more emotional content.

The second issue: assessing the difference between the subjectivity of opinion pieces (commonly referred to as op-eds) and online comments. Taboada is looking at ideas or questions like "Are there motivating topics that produce certain responses in online comment sections?" and "Do people post more when they are upset or disagree with what they are reading?"

Overall, she's trying to determine whether a comment contributes to a debate.

"Is the comment providing evidence, fact or some personal experience? Is a comment trying to establish some dialogue with other people in the thread?"

She's also looking at how toxic the comments are, for people who "troll" others, and for how to promote constructive comments. She says filtering out toxicity is important, because that's what drives people away from conversations online.

Taboada hopes her research can help provide some guidelines for identifying fake news and for refining automated content filtering.

"For example, we could flag articles that look fake and then those could be sent to a human to be double-checked," she says.

As well, she hopes her research will make online discussion forums, and social media, a more constructive place for discussion, and a more reliable way to interpret the news.

Outreach: #BCTECH Summit and DOXA

Along with 15 other SFU researchers, Taboada was selected to attend the 2018 #BCTECH Summit, where her group demonstrated two new systems for classifying online content. The first featured a computer with a comment-moderator system that determines whether a comment is constructive or toxic. The second demonstrated how and why some news is fake.

And at the 2018 DOXA Documentary Film Festival in Vancouver, Taboada will sit on a panel to discuss the documentary The Cleaners.

"This film reveals the dark underbelly of our globalized social media culture and the people who are charged with determining what is unacceptable," she says. "In the film, the content moderators are hired by third-party companies to determine what stays up and what comes down."

Looking to the future

Taboada's research is creating hope that, one day, we will have a platform where people can share, engage, critique and foster conversation about the world around us in an environment that encourages respect for the human beings on the other side of the screen – all thanks to harnessing the power of data.

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