Are intelligent agents the beginning of the end for journalism as we know it?

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Algorithms are now generating sports reports and financial news, and making fewer errors in the process than human reporters do. Is this the beginning of the end for journalism as we know it?

LMU communication researcher Dr. Andreas Graefe is studying a novel product of the ongoing wave of digitalization – automated journalism. In the following interview he talks about its potential impact on the lives of professional journalists, and assesses the level of writing skill already attained by the algorithmic variety of reporter.

You have just published a study of automated

journalism. Does this mean that the reports in my daily newspaper will soon be written by robots?

Andreas Graefe: We haven't got quite that far yet. Automated journalism basically involves the generation of texts from data that are readily available in machine-readable form. At the moment, the approach is used primarily for the coverage of financial and sporting news. In both of these fields, reports are largely based on already structured data. But the strategy will undoubtedly be extended to cover other subject areas and topics.

And where is it now being used?

There are several firms in Germany that produce the required software. In fact, the German market is particularly competitive just now. In many online media, previews of football matches are already being produced by computer algorithms.

Are readers informed that that is the case?

Not always. Some of the software providers, for instance, refuse to publish their customer lists. On the other hand many of the media that use these programs make no bones about it. The Weser Kurier, for example, is known for using algorithms in its sports coverage. In the US, Associated Press – one of the world's leading news agencies – also makes use of computer algorithms. AP is of course a significant trendsetter in the business. Forbes magazine has also long used algorithms for text production, and the *New York Times* is experimenting with the approach.

Do readers notice any difference?

Studies have been published in which readers were asked to assess the quality of written texts without any prior knowledge of their sources. Strikingly, computer-generated texts were perceived by the testers as being more credible, although the reports tended to be classified as mechanical and rather dry at the same time. But in that respect at least, the programs will certainly be improved.

Why exactly do reports written by robots appear more credible or trustworthy?

That is a question that has yet to be investigated. Machine-generated sentences are usually short, and these texts generally contain large amounts of quantitative data, i.e. numbers. I would guess that this explains it. Perhaps those readers who turn first to the financial news do not expect, or even hope, to find it presented in a particularly vivid or lively style.

Can our readers tell whether they are being addressed by a robot or a real journalist?

Algorithms still have some way to go before they are capable of conducting interviews! Everything an algorithm can do has been predetermined by the person who wrote it. The programmer decides what the algorithm can and cannot do. The algorithm itself cannot innovate. It can neither recognize unforeseen problems nor can it pose any meaningful questions.

Are algorithms capable of error?

Yes, they do make mistakes. Errors can occur when an unanticipated situation arises during the process of data analysis. For example, AP, the American news agency once incorrectly reported the quarterly figures

for Netflix. The algorithm had written that the price of a Netflix share had fallen by 70% since the previous report. What had actually happened was that the stock had been split in the meantime, and the share price had actually risen by more than two-fold during the period at issue. But the real error had been committed long before. It would have been perfectly possible to program the algorithm in such a way that it would recognize such a large fall as an outlier, and could flag it for a real journalist to check before publication. In the early days of its use, AP journalists did in fact routinely check the automatically generated texts. But as the error rate was progressively reduced – to below the level of mistakes introduced by the human editors – the editing step was dropped. It had simply become too expensive.

In other words, real writers make more mistakes than robotic authors?

People make mistakes when they are distracted, tired or hungry. None of that can happen with an algorithm. However, the vast majority of human errors in this context involve transposition of digits or simple grammatical mistakes.

How do you see this trend developing?

The algorithms will improve. The proportion of automatically produced copy will increase significantly. And news will become more personalized, i.e. news items will be targeted to those readers who are especially interested in them. The algorithms will either implicitly collect data on user preferences or it will provide preset options for readers, as Google News now does, for instance. And there will be more news on demand.

But surely the robots will not completely displace the

flesh-and-blood writer?

Definitely not! The use of algorithms only makes sense when lots of high-quality data is available and large numbers of texts must be generated. Only then is it worthwhile to program a dedicated algorithm – a task that involves a lot of work. We will instead see an increasing trend – in journalism also – toward the integration of human interaction with machine-based processes. Many routine tasks can be allocated to algorithms, giving journalists more time to research and investigate stories. We will see robots producing first drafts, which the journalists will then edit and supplement. I spoke to a sports reporter at AP about this, and he told me that he used to have to begin writing his report as soon as the game was over. Now as algorithms can summarize the game, he actually has time to interview the players.

Will all this lead to job losses for journalists?

It will certainly lead to the loss of those jobs that focus on routine tasks. But it will also generate new sorts of jobs. AP, for instance, now employs an automation editor, whose is charged with spotting new opportunities for automation. And in order to develop new algorithms, one of course needs trained journalists who can stipulate how a news report should be structured and can recognize the relative importance of news items.

What about creative authors? Do they have reason to fear that algorithms will soon be writing books?

Algorithms have already written whole books. But it is not known how long it took to develop the relevant programs. Algorithms are not yet capable of inventing something entirely novel. They lack the required creativity.