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Artificial intelligence and sports journalism: Is it a sweeping change?

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ABSTRACT

The availability of data feeds, the demand for news on mobile devices, and advances in algorithms are helping to make automated journalism more prevalent. Against the specific backdrop of sports journalism's content, means of production and consumption, the question the paper answers is whether the recent introduction of automatically produced content is merely another evolutionary stage in the field of sport journalism, or has it triggered a revolution that can be defined literally as a sweeping change, both related to production and consumption, in this area?

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1. Introduction

The availability of data feeds, the demand for news on mobile devices, and advances in algorithms are helping to make automated journalism more prevalent [26]. Indeed, the introduction of new machinery and technologies has always prompted queries about potential effects on journalism tradition — its content, its means of production, and its consumption. A quite recent development in the realm of digital journalism, software-generated content, or automatically produced content [7], has produced studies that have analyzed and discussed how this technological development is being implemented in and affects newsrooms [6], journalism practice [10,18], and how journalists consider this development and its impact on their role as journalists [15,30]. The aim of this paper, however, is to look specifically at the field of sports journalism. Against the specific framework of sports journalism's content, means of production and consumption, the question this paper aims to answer is whether the recent introduction of automatically produced content is merely another evolutionary stage in the field of sport journalism, or whether it has triggered an insurrection, that will dissolve human journalists from the profession?

The idea that technological development determines social change is not new. Technology as a key governing force in society, also known as technological determinism theory, is widely discussed, and might be relevant to for the purpose of this discussion [2]. offers the extreme definition of technological determinism as the view that history is “determined by laws ... rather than by

human will” (p. 86) and that these laws involve physical artifacts as a necessary component (p. 88). In his words:

[TD] can be seen as the view that, in light of the past (and current) state of technological development and the laws of nature, there is only one possible future course of social change. This might mean that various technological processes, once begun, require forms of organization or commitments of political resources, regardless of their social desirability or of previous social practices. It could mean that an enterprise (for example, the rail- road) necessitates subsequent technologies (such as the telegraph, or large-scale hierarchically organized steel-production facilities) and requires a pool of labour, the availability of capital, an insurance and banking industry, and so on, so that a fixed and predictable course of economic, social, and cultural change follows inevitably from the adoption of the railroad ([2]; 83–84)

Indeed, for Bimber, society evolves along a fixed and pre-determined path, regardless of human intervention. That path is itself given by the incremental logic of technology. However, Dafoe ([8]: 1052) propose defining technological determinism more moderately as approaches that emphasize (1) the autonomy of technological change and (2) the technological shaping of society. Following [24]; (2), who offer a similar moderate definition, we can situate deterministic theories along a continuum, with *harder* determinists putting more emphasis on the autonomy and power of technology, and *softer* determinists allowing for more social control and context. This moderate definition provides a terminological umbrella for a large set of scholarships, spanning the disciplines

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that study technology.

Thus, the forthcoming paragraphs will shed some light on the subject of sport journalism; the automated content era of sport media, and the techniques human journalists are using to adapt to this newfound reality. The approbation of the former enables further clarification regarding human agency. It answers the question; to what extent, in which ways, and under which conditions sport journalists are able to adapt and further shape their socio-technical reality?

2. The toy-department of journalism?

It is well documented that sports have been covered by the media for almost over 200 years (e.g., [25]). Over time, sports coverage has gradually transformed from the conclusion of the (mostly political) news in the written press into of the media's largest, most focal sections, despite considerable criticism to which it is subjected, as summarized by the familiar ridicule that it is the "toy department of the news media [21,32]." Nonetheless, sport reports and information remain important for media organizations because of their popularity with advertisers and audiences [28]. Looking at the broader importance of sport and the cultural importance of communication and sport [3] affirms that:

In many ways, sport matters because of what it tells us about aspects of society rather than specifically about the nature of sporting competition. At its most basic level, sport offers an insight into character, human nature (the best and worst of), and human creativity. It reveals aspects of individual and collective identity and its rich diversity of forms (when does a game become a sport?) allows us to project our own feelings and emotions through a cultural activity either at the 'live' event or through mediated sporting discourse. It is the ability of sport to connect with the emotional, often rather than the rationale element within us that makes it so compelling. To take the mundane and elevate it into something more than the sum of its parts is a task that sport can perform. The ability to communicate this individually and collectively is a core part of the enduring appeal of this cultural form (p. 89).

Furthermore, it is claimed by many that sports play a key role in the commercialization and globalization of the media. For many years, sports supplements in the written press have significantly grown in number and size and are read almost more than any other newspaper supplement. Indeed, for many, the sports supplement is the central reason for purchasing the newspaper, despite the technological developments discussed in this paper.

Research in the field of sports media has therefore focused a great deal on the reciprocal relations between media and sports. Emphasis has been placed on media content, while somehow neglecting the two poles of the transfer of information axis: Information producers (responsible for the organizational structure, the processes of recruitment and the production of sports information distributed by them) and the reading public.

3. A new era

With software automatically producing texts in natural language from structured data, the evolution of natural language generation is dramatically changing traditional news production, yet the area of robotic storytelling is more than 40 years old [16]: Automatic text summaries have been used in weather forecasts since the 1960s [11], and in sports, medical and financial reports since the 1990s [9]. In recent years, however, software-generated news has gradually become an integral, albeit small, part of the

news-making ecosystem, consequently blurring the boundaries between journalism, computer science, and statistics [15]. "Robot journalism" is a popular but banal conceptualization where illustrators often portray robots typing on computer keyboards. The proper unifying concept to describe this transformation would be computational journalism, which refers to "forms of algorithmic, social scientific and mathematical processes and systems for the production of news" ([31]; p. 381) or, using a more normative definition, "the combination of algorithms, data, and knowledge from the social sciences to supplement the accountability function of journalism" [34]. Thus, one can only assert, like [5]; that computational journalism is concerned with the application of the processes of abstraction and automation to information.

4. Sports and automated content

Sports journalism embodies a contradiction. On one hand, it has over the years often been viewed as the poor relation within journalism, allegedly devoid of the integrity that journalists often like to associate with their profession. Sports journalism has been considered a "soft" form of journalistic practice, lacking the precision or credibility of other forms of "hard" journalism. Sports journalism has been traditionally viewed as an uncritical booster and promoter of sports and its culture rather than a field that challenges and call for the accountability of the powerful organizations and individuals in the world of sports. More often than not, sports journalism posed the easy and banal questions, rather than the penetrating and pertinent ones [4]. To [14]; variance in the practices and norms of contemporary sport journalism are related to widespread transformations across the news industries, as organizations scramble to find sustainable structures and business models. Under the conditions fostered by industrial capitalism and mass communications for much of the twentieth century, news media came to exercise longstanding power by the accumulation of a putatively objective authority built from the systematic administration of news production and the applied expertise of journalists, thereby ensuring the reliability and timeliness of reports. Since technological determinism needs to be coupled with acknowledgement that organizational structure and occupational practices shape the ways in which new technology is adopted and with what effects, it is argued that human action shapes technology [15].

According to Associated Press, robo-journalism will create new jobs in the newsroom – potentially bringing in people with different and more diverse skill sets. Heavily dependent on data, robo-journalism can be seen as part of the evolution of data journalism, a genre which has brought welcome diversity to journalism. Other potential benefits include freeing up journalists to do more investigative work and analysis – where human input is essential. At the same time, however, it is argued that robo-journalism might not work equally well in all fields, which is why most efforts are currently focused on relatively formulaic genres such as business/earnings reporting and sport, where journalists can produce templates and computers fill in the gaps. Sports journalism and baseball in particular, has been considered an ideal domain for computerization and automated journalism because of the wealth of available statistics, the use of prescribed templates and styles and advanced predictive models in sports reporting [30]. Moreover, the training required to ensure the quality of robot-produced texts is expensive and time-intensive, and is feasible in sports journalism due to the relatively high volume of stories.

The introduction of algorithms to automatically generate content from structured data has shaken up the journalism industry – most especially since the Associated Press (AP), one of the world's largest and most well-established news organizations, has started to automate the production of its quarterly corporate earnings

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