



ROADMAP ON AI TECHNOLOGIES & APPLICATIONS FOR THE MEDIA INDUSTRY

SECTION: “WHY ARTIFICIAL INTELLIGENCE FOR THE MEDIA & ENTERTAINMENT INDUSTRY?”



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Why Artificial Intelligence for the Media & Entertainment industry?

The media & entertainment industry (news, film/TV, music, games, social media, advertisement, publishing etc.) is already benefitting from AI advancements that can significantly facilitate, enhance or transform important tasks across the media industry value chain, including but not limited to: automation of existing tedious workflows; automatic content enhancement and creation; personalisation of content and services via enhanced user profiling; improved content recommendations; accurate audience analysis for enhanced audience targeting, content/services development and increased advertisement revenue, at the global but also at the local level; improved accessibility to content thanks, for example, to automatic language translation; accurate forecasting about different businesses aspects; and more efficient decision making in general.

In the following, we briefly summarise the areas in which there is the greatest opportunity for AI to have a significant impact in the media industry by offering solutions in some of the most pressing problems of the industry¹. As we can see, the transformative role of AI has already started to manifest in many of these areas, with important breakthroughs over the last few years in some cases.



Automation of tedious tasks and AI assistants for increased productivity. Media workflows often include tedious or boring tasks, requiring a lot of resources. Some examples include searching large audio-visual archives or the Internet to locate information that can help a fact-checker verify the validity of some statement, analysing large volumes of documents for investigative journalism, producing subtitles or voice dubbing in different languages, producing content summaries, moderating content, organising A/B tests for different product parameters, clarifying complex IPR, etc. AI can help media professionals do their job more efficiently either by completely automating some tasks (e.g. content labelling or multi-lingual translation) or supporting professionals in more creative tasks (e.g. by offering automated suggestions, editing or enhancing content, answering questions, offering predictions about user engagement with content, etc.).



Content & services personalisation. With tons of content and a large variety of services available out there for the audience to enjoy (from news to films, music, games, books, graphics, etc.), media companies are in a constant battle against competitors for the audience's interest, trying to minimise churn rates, maximise user engagement with their content and attract new users. In this race, content personalisation seems to be the winning horse, with more and more media companies investing large amounts of money to personalise their content and services and thus satisfy each customer's unique preferences, experiences, needs and moods. Elaborated profiling based on the continuous collection and analysis of user preferences, behaviours, and actions is already widely used in

¹ The icons used in this and the next page are from flaticon.com

many media sectors (e.g. gaming industry, social media, advertisement, streaming services, etc.), however the trend is moving towards more elaborated approaches that also consider what happens to the user or in the world at the moment. Personalisation encompasses content suggestion, content presentation, interaction with content or personalisation of content itself (e.g. personalised movie trailers). It also means providing content to users where they are and when they want it.



Automated content creation. One of the biggest issues of the media industry is the ever-growing demand for new content. During recent years, AI advances, especially in the areas of generative AI, computer vision and natural language processing, have offered several solutions in this direction by enabling the automatic synthesis of new content based on the use of existing text, video, audio files, or images. The applications are already numerous: procedural content creation for games, deepfakes for the film industry, robot journalism, automated summaries for books and films, creation of new music, generation of script and visuals for advertisement, etc. Automated content creation can increase productivity and creativity in the media industry but also provide new ways of creativity for the general public.



Content indexing and search. The sheer volume of content generated everyday by the media industry nowadays is unprecedented: news items, films, books, music and songs, advertisements, social media posts, reviews, user generated videos, etc. This creates considerable challenges when it comes to efficient content labelling, search & retrieval processes, especially in the case of video and audio, and stands in the way of efficient content monetisation. AI promises to lift these obstacles by exploiting advanced video, audio and natural language analysis for content (e.g. detection and recognition of faces, voices, objects, places, dates, context etc.) that will enable automatic content labelling and will move beyond simple text queries to support visual search or complex voiced questions. This will allow fast and efficient search on large audio-visual archives as well as on the Internet for both media professionals and users aiming to find content that fits specific criteria (e.g. belongs to specific era, shows a specific person, involves a specific type of event – from earthquakes to music concerts-, includes specific human activities etc.). It will improve automatic content recommendation by offering suggestions that match user interests with the actual 'content' of the content, and it will allow media companies to more effectively exploit existing content and profit from it.



Audience analysis. Understanding what the audience wants or needs or how the audience feels is perhaps the number one priority of the media industry. AI and data science have already transformed audience analysis by allowing large-scale collection and analysis of user behaviours, emotions, actions, interactions with content, providing unprecedented insights to audience needs, wants and moods, allowing media companies to more effectively target different audiences and monetise their content. In addition, trend detection allows media companies to react in real-time to what is happening around the world and adapt accordingly.





Forecasting. Predictive analytics can facilitate short-term decisions but also the design of long-term strategies. Accurate predictions with regard to, among others, content engagement and monetisation, user behaviours, sales or churn rates, ad revenue, industry trends etc. can decisively improve decision-making mechanisms in the media industry, allowing for a timely reaction and efficient adaptation to a fast-changing reality.

While the benefits of AI for the media industry are many and important, they do not come without **significant challenges and risks**. The first and most important is **the risk posed to user privacy** by the large-scale user monitoring and profiling mechanisms used by the media industry in order to offer increased personalisation and achieve better user targeting. Equally, disturbing are the phenomena of **AI bias and discrimination** against specific groups of people, including racial bias, gender bias, etc. For example, recommendation engines may discriminate against women when trained with film reviews that are mainly contributed by men while NLP models may introduce bias against underrepresented groups.

Another significant concern is that of **lack of AI explainability**, with AI systems currently being black boxes that are not able to explain how they reached a decision, e.g. recommending specific content or predicting an outcome. More transparency is required about how AI tools work in order for media professionals to trust them.

There is also a growing concern regarding **manipulation of content and misinformation**, making media organisations fear about the negative impacts of the growing amounts of misinformation to the public's trust in the media but also to the freedom of expression. While media companies become more deeply embedded into the platform economy mainly driven by AI there is also concern about the **commercialisation of media organisations** and how that affects their independence or their social responsibility. And finally, there is a growing concern among media professionals about how the increased automation of media workflows enabled by AI may lead to **loss of human jobs** or negatively affect creativity.

This AI4Media Roadmap attempts to analyse this complex landscape of AI in the media sector, highlighting opportunities for growth and transformation but also discussing relevant risks and mitigation measures.





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