Under the Hood of Social Media Advertising: How Do We Use AI Responsibly for Advertising Targeting and Creative Evaluation

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ABSTRACT

Digital Advertising is historically one of the most developed areas where Machine Learning and AI have been applied since its origination. From smart bidding to creative content generation and DCO, AI is well-demanded in the modern digital marketing industry and partially serves as a backbone of most of the state-of-the-art computational advertising systems, making them impossible for the AI tech and the programmatic systems to exist apart from one another. At the same time, given the drastic growth of the available AI technology nowadays, the issue of responsible AI utilization as well as the balance between the opportunity of deploying AI systems and the possible borderline etic and privacy-related consequences are still yet to be discussed comprehensively in both business and research communities. Particularly, an important issue of automatic User Profiling use in modern Programmatic systems like Meta Ads as well as the need for responsible application of the creative assessment models to fit into the business etic guidelines is yet to be described well. Therefore, in this talk, we are going to discuss the technology behind modern programmatic bidding and content scoring systems and the responsible application of AI by SoMin.ai to manage the Advertising targeting and Creative Validation process.

CCS CONCEPTS

• **Information systems → Computational advertising**.

KEYWORDS

Digital Advertising, Ads Performance Prediction

1 PRESENTATION OUTLINE

During the past decade, AI has evolved from a scientific concept into a widely-adopted technology that penetrates both industry and our daily lives in all possible ways: "Google Photos" suggests which photos one could share with friends; "Gmail Smart Reply" proposes replies that match one's style and the email he/she has sent in the past; "YouTube Safe Content" uses machine learning techniques to ensure that brands are not displayed next to offensive content; Advertising platforms, like Meta Ads, incorporate "Smart Bidding" when deciding the likelihood of a person to perform an action (e.g. E-Commerce Purchase) on the Brand's website via its AI-powered bidding system. All these technological applications are extremely helpful when it comes to achieving the business KPIs set, but the important question of their responsible utilization has not been comprehensively addressed by the business community, while the scientific literature about the issue is still sparse.

Smart Bidding and Long-Tail Ad Targeting To dive deep into the topic, in the first part of our talk we will discuss the application of the so-called User Profiling [2] in modern programmatic systems that, in turn, facilitates the Advertising auction process where user impressions are distributed not just according to the highest bid, but also aligned with the match level to a targeting audience and the predicted likelihood of a user performing an action. From one point of view, such comprehensive multi-facet user profiling allows for serving better advertising content to social media users improving their experience; but the flip side of the coin is that it, arguably, uses AI to manipulate user purchase decisions by using Psychographics and interests inferred from the private activities social media users exhibiting in their daily interaction with the social network and its website network equipped with Meta tracking code.

To tackle this issue, in SoMin.ai we have adopted a responsible AI approach of setting up Meta Ads via the so-called Long-Tail Targeting and Optimization. Particularly, instead of utilizing user preferences inferred by AI at an individual (personal data) level, we apply AI to run multi-view user profiling at a group level and then use group profiles to target advertising campaigns so that no individual human behavioral traits are revealed and possibly manipulated. In such a way, only the group behavioral traits are utilized in setting up digital advertising campaigns, which makes the Ads efficient yet does not abuse the data that is publicly available about individual users. The reason why this approach is called Long-Tail targeting is that instead of using the most obvious user interests and personality traits, the platform is focused on discovering user group Psychographics [1] - those interests that are correlated with

the daily user activities, but, at the same time, are not bid for by other advertisers on the programmatic auction and therefore is available at a cheaper cost per 1000 impressions (CPM).

The process is explained in Figure 2. From the Figure, it can be seen that the Long-Tail Ad Targeting and Optimization procedure comprises four distinct steps. In the first step, the platform collects multi-view data from public social media data sources; followed by the second step - the raw public data is getting profiled via SoMin.ai psychographic profiling engine, representing the data by a vector of over eleven thousand categories (MBTI Personality Scores, Image Concepts, High-level Interests, etc.); in the third step, the platform uses unsupervised learning [3] to responsibly split users into anonymized groups and perform the group profiling based on the most common cluster member psychographics representations; finally, at the fourth and last step, the platform maps the group representations via semantic embedding into Meta's advertising targeting categories and executes the Meta campaigns in real-time with 30 minutes bid optimization intervals.

Creative Content Scoring and Competitor Analysis The second part of the talk will be devoted to the sensitive topic of visual and creative content assessment. Particularly, we will be demonstrating the ability of modern AI systems to predict the quality of an Ad that is currently run by any business on Meta Ads (see Figure 1 for details). We would be discussing the positive aspect of using such technology when assessing your own Ads before spending digital advertising budgets, but also the more questionable application-competitor Ad analysis. It is always tempting to know if your competitors that are at a similar market share as your business do well in digital channels, but such applications lay on a borderline between right and wrong: if the branded advertising data is publicly presented for the transparency purposes, it is not yet clear if these same data could be used as an insight into the businesses' strategy, tactics, and advertising performance.

As part of this demonstration, we will be showing how SoMin.ai platform can efficiently and accurately predict the performance of Advertising campaigns that are run by brands suggested by the talk audience. The platform predictions will not just reflect the actual likelihood of success of the textual and visual content when published in a form of a Meta Ad, but also explain why these Ads are likely to be successful/failing: the visualization component of the platform is based on visual and textual attention maps, that were trained together with the Ad performance prediction AI and therefore reflect the actual reasons why particular Ads perform well, or not. During the last minutes of the talk, the audience would be invited to discuss the particular Ad scoring results SoMin.ai outputs and the responsibility aspects arising from such technology being released to the market as a responsible AI product.

2 COMPANY AND PRESENTED BIO

SoMin.ai is a global Deep Tech Startup from Singapore active in the AdTech space. Our Long-Tail Dynamic Targeting and Optimization platform has been adopted in 20 geographical markets and was used by over 100 brands and agencies across the globe, including Principal Financial Group, Mothercare, Ferrari, Danone, M1, P&G, Slovak Telecom, WPP Wavemaker, and PHD Media. The company is selected to be Top-3 World's brands to receive the "Gartner Cool Vendor" award in the "AI for Marketing" category.
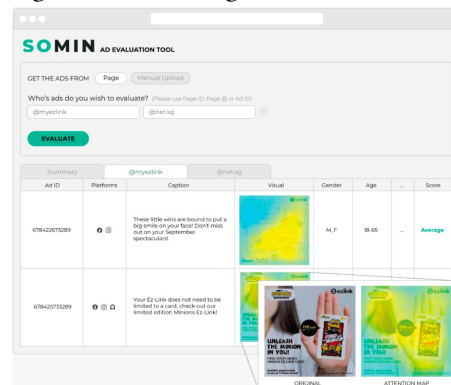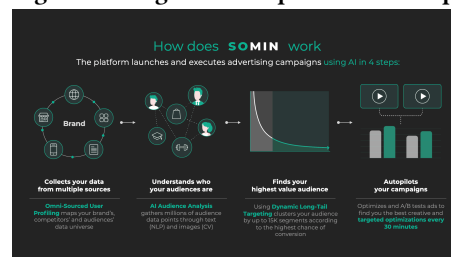
Figure 1: Advertising Creative Assessment

Figure 2: Long-Tail Ad Optimization Steps

Prof. Aleks Farseev is an Entrepreneur, International Keynote Speaker, and the CEO of SoMin.ai. Known to be an expert in Digital Advertising AI, Aleks has also co-authored over 30 scientific publications in top-ranked peer-reviewed journals and conferences. Aleks holds a Research Professor position at multiple universities across Asia and Europe and had successfully conducted university courses and training sessions on Digital Marketing, Influencer Marketing, and AI Technology.

3 CONCLUSION

In this industrial talk, we have discussed the use of AI technology that is involved in modern programmatic bidding and content assessment systems, as well as the responsibility concerns the major industrial players need to be aware of when deploying modern AI algorithms into their daily digital advertising routine. Particularly, we have described the responsible application of user profiling and content recommendation/generation techniques in Digital Advertising by SoMin.ai platform to manage the whole digital advertising loop: from Advertising Targeting to Creative Validation.

4 ACKNOWLEDGEMENT

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