Concerns in Political Advertising and Data Privacy: Google Ads

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Abstract

The use of data science in political advertising through Google Ads raises significant concern for bias, privacy, and misinformation. This paper takes a look at how Google's ad targeting and search query personalization contribute to filter bubbles. The role of Google Ads tools in monitoring competitors highlights concerns around privacy, fairness, and plain out manipulation during times of elections and political campaigns. While the original focus of this paper was primarily on Google's practices, the research process evolved to incorporate predictive modeling of election outcomes using 2020 election data.This project also highlights the responsibility data scientists have in ensuring data privacy, clean testing practices, and ethical reporting, especially when influencing democratic processes. The findings serve as a foundation for future research with 2024 and 2028 election data and emphasize the urgent need for regulation and transparency in political digital advertising.

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Introduction

Google, as the world's leading search engine and advertising platform, plays an outsized role in shaping public discourse. In political advertising, its influence has sparked growing debates over issues such as data privacy, algorithmic bias, and public manipulation. According to OpenSecrets, political ad spending has exploded in recent election cycles, reaching unprecedented levels in both traditional and digital media OpenSecrets (2024). This case study explores how Google Ads and personalization techniques impact political campaigns and voter behavior, and questions whether these practices are ethical in today's increasingly data-driven world.

At first, the aim of this research was to study Google's role in political ad bias. As the project devoloped, it became clear that the real ethical concerns began to expand beyond Google's role alone. The process of gathering, analyzing, and applying political data started to raise even larger concerns about transparency, responsibility, and democratic integrity.

Data Science Application in Google Ads

Advertisers, like myself, use tools such as Google's keyword planner, audience segmentation, and real-time bidding to reach specific demographics. Google's search engine results are personalized based on users' search history, location, and past interactions, leading to what is commonly referred to as the 'filter bubble' effect. Ekström et al. (2024) found that users tend to select search queries aligned with their ideological beliefs, which then reinforce partisan viewpoints through Google's ranking algorithms.

Midway through the research, I shifted focus toward a more technical application: using historical election data to predict state outcomes. By running Logistic Regression and Random Forest models, I was able to achieve remarkably high prediction accuracy. The Logistic Regression model reached 100 percent accuracy, while the Random Forest model reached 80 percent accuracy.

To perform my analysis, I manually collected first-party data by pulling individual

candidate ad spend figures across all 50 U.S. states, specifically focusing on Google political ad spend. This required gathering detailed datasets that included each state's population, median income, education levels, party registration percentages (Democratic and Republican), total ad spend, candidate A and candidate B's specific spend amounts, the election winner, and voter turnout rates. By combining demographic data with financial ad targeting information, I was able to construct a comprehensive dataset to run predictive models and assess how ad spending correlated with election outcomes.

The findings suggest that election outcomes are predictable with high confidence when leveraging well-structured demographic and historical voting data. This opens possibilities for using machine learning to forecast future elections, especially once 2024 data becomes available and, eventually, for the 2028 cycle.

Yet, as the models became more accurate, ethical concerns also grew. If election outcomes can be predicted with such precision, it raises serious questions about how this information might be used not just for analysis, but for manipulation. This is where the importance of ethical data practices for data scientists becomes undeniable.

Ethical Concerns and Impact

A study Ekström et al. (2024) found that individuals tend to select search queries aligned with their political inclinations, and Google algorithms further reinforce these biases by displaying politically skewed search results. As many may know skewed results often are a form of unproportionate results that have a pretty strong effect on outcome. This can be a dangerous territory when on the topic of a country's future.

Google Ads operates on vast amounts of user data, raising concerns about privacy violations, particularly in political campaigns. The use of PPC spy tools and advanced tracking mechanisms allows political parties to refine their messaging to exploit voter fears and biases. The reason this is an issue is because in recent years Google's ad approval process has been criticized for inconsistencies in enforcing policies on misinformation and political transparency. Zuiderveen Borgesius et al. (2016) highlights that while filter bubbles

are often exaggerated, there is good evidence that automated personalization influences political opinions over time. When combined with paid Google Ads, campaigns can strategically ensure that certain groups receive information of the same kind at a higher frequency than an opposing viewpoint.

Additional Information

To explore the influence of political advertising further, I conducted a small-scale mock trial in a classroom setting. Fourteen participants were exposed to a series of campaign ads promoting only one candidate. In the final voting, 37 percent of participants selected the advertised candidate, despite the absence of alternative campaign information. This exercise demonstrated how minimal but focused exposure can meaningfully sway voter decisions, reinforcing the real-world implications of personalized ad targeting.

Personal Testimony

My interest in this topic stems from personal experience. As both a first-time voter and an emerging marketer during the past two elections, I observed firsthand how digital advertising could subtly and powerfully shape opinions.

At the time, I noticed that ads and search results I received seemed oddly specific, touching on deeply personal aspects of my life and background. While impressive from a technological standpoint, it also felt invasive and uncomfortable.

As I continued to grow in the digital marketing world, I saw how political climates, current events, and public sentiment heavily influenced campaign strategies. This realization deepened my concern about the lack of ethical boundaries in digital advertising. It also showed me that as data scientists, we have a duty not only to use data effectively but also responsibly. We must ensure that testing is fair, data is clean, and results are reported honestly, especially when the results have the potential to influence public belief and national outcomes.

Conclusion

This project taught me that while predictive modeling can reveal powerful insights into elections, it also exposes vulnerabilities in democratic systems. It's exciting to predict outcomes using data, but it's also dangerous if that knowledge is used to manipulate rather than inform.

Looking forward, I hope to continue this work by applying similar modeling to 2024 election data once finalized, and eventually compare it to the 2028 election. The goal will not only be technical improvement but a deeper focus on ethical standards in handling election-related data.

Data scientists must recognize that our work carries real-world consequences. We are not just building models; we are shaping conversations, influencing perceptions, and, sometimes, impacting democratic choices.

Political advertising and data privacy must be regulated carefully, and voters should be encouraged to critically evaluate the ads and information they are exposed to.

If we fail to take ethical responsibility seriously, we risk allowing technology to erode the very democratic ideals it was meant to enhance.

References

Ekström, A. G., Madison, G., Olsson, E. J., & Tsapos, M. (2024). The search query filter bubble: effect of user ideology on political leaning of search results through query selection. *Information, Communication & Society*, *27*(5), 878–894.

OpenSecrets. (2024). *Online ads - pulled ad spend for some states and total ad spend.* Retrieved from `https://www.opensecrets.org/online-ads`

Zuiderveen Borgesius, F. J., Trilling, D., Möller, J., Bodó, B., De Vreese, C. H., & Helberger, N. (2016). Should we worry about filter bubbles? *Internet policy review*, *5*(1), 1–16.