PhD proposition: Detection and impact analysis of issue and political ads
LIG (within the MIAI 3IA institute)

Keywords: online targeted advertising, issue and political ads, Facebook, data collection and analysis, machine learning, statistics, cognitive biases
Lab: Laboratoire d'Informatique de Grenoble (LIG), Grenoble, France
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Project Description:
The 2016 United States presidential election was marked by an information war that took place into different social media platforms [9, 20]. Particularly, the election was marked by the abuse of targeted advertising on Facebook. For example, a group of Russian citizens and companies were indicted by U.S. authorities for trying to influence on the 2016 US election trough the Facebook Ads Platform [1, 6]. Since then social media platforms such as Facebook and Google released transparency platforms where they give access to interested parties to ads that are identified as 'political' by their platforms.

While this is an important step, in the dataset we collected using AdAnalyst (adanalyst.mpi-sws.org) we observed that there are ads related to politics and important issues that are not labeled as such by Facebook. Hence, we believe it is important for independent parties to audit ads on Facebook as well.

The goal of the PhD thesis is to detect and study problematic ads in social media and assess the impact they have on users. The candidate is expected to contribute in two ways:

1. The first goal of the thesis is to propose algorithms to detect issue and political ads using machine learning tools such as convolution neural networks and natural language processing tools. The student can thereafter focus on other kinds of problematic ads that promote for example bogus cures for diseases, anti-vaxxer blogs, or scammy financial services.
2. The second goal of the thesis is to design and perform experiments that can evaluate whether and to which extent people are influenced by these problematic ads that appear in their Facebook timeline. This is important as users have no control over what ads appear in their timeline, and users might be influenced by ads even if they do not click on them.

The student will be able to work with more than 200k real-world ads received by more than 1000 users we collected using our browser extension AdAnalyst (www.adanalyst.mpi-sws.org). Throughout the project the student will be able to familiarize himself with the online targeted advertising ecosystems, and apply machine learning techniques on real world data.

Requirements:
Candidates should hold (or be about to get) a MSc degree in computer science and have:

- Strong coding skills**.**
- Experience in working with data.
- Strong motivation.
- Interest in the societal impact of data-driven systems.
- Interest in cognitive sciences and experimental research.

Application instructions:
The position will be open until filled, interested candidates are invited to send their application as soon as possible. The start of the PhD is expected in Fall 2019. Interested candidates are invited to send the following documents:

- a detailed CV,
- a list of courses and grades during the MSc (and if possible earlier years),
- a list of 2-3 references willing to support their application,
- a short statement of interest and any other information useful to evaluate the application.

Additional information:
The PhD student will be a member of the new MIAI institute (one of the four interdisciplinary institute on artificial intelligence in France created by the government in June 2019), as part of the "Explainable and Responsible AI" chair. As such, he/she will benefit from a lively research environment as well as a broad training offer on all aspects of AI. The PhD student will be a UGA student. He/she will be register at the MSTII doctoral school of Univ. Grenoble Alpes and be a member of the LIG Lab.
Interested candidates are encourage to contact directly the advisor if they have any question about the position.

References:

[1] Auditing Offline Data Brokers via Facebook's Advertising Platform
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The Web Conference (WWW), May 2019
[2] Measuring the Facebook Advertising Ecosystem
A. Andreou, M. Silva, F. Benevenuto, O. Goga, P. Loiseau, A. Mislove
The Network and Distributed System Security Symposium (NDSS), February 2019
[3] On Microtargeting Socially Divisive Ads: A Case Study of Russia-Linked Ad Campaigns on Facebook
F. Ribeiro, K. Saha, M. Babaei, L. Henrique, J. Messias , O. Goga, F. Benevenuto, K. P. Gummadi, E. M. Redmiles
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[4] Investigating Ad Transparency Mechanisms in Social Media: A Case Study of Facebook's Explanations A. Andreou, G. Venkatadri, O. Goga, K. Gummadi, P. Loiseau, A. Mislove
The Network and Distributed System Security Symposium (NDSS), February 2018