Internship proposition: Audit the transparency mechanisms provided by social media advertising platforms

Keywords: audit, privacy, online targeted advertising, Twitter, browser extension, data collection and analysis, machine learning, statistics
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Project Description:
In recent years, targeted advertising has been source of a growing number of privacy complaints from Internet users [1]. At the heart of the problem lies the opacity of the targeted advertising mechanisms: users do not understand *what data advertisers have about them* and *how this data is being used* to select the ads they are being shown. This lack of transparency has begun to catch the attention of policy makers and government regulators, which are increasingly introducing laws requiring transparency [2].

To enhance transparency, Twitter recently introduced a feature (called "why am I seeing this") that provides users with an *explanation* for why they have been targeted a particular ad. While this is a positive step, it is important to check whether these transparency mechanisms are not actually deceiving users leading to more harm than good. The goal of the project is to verify whether the explanations provided by Twitter satisfy basic properties such as completeness, correctness and consistency. The student will need to develop a browser extension or a mobile application that is able to collect the ad explanations received by real-world users on Twitter and to conduct controlled ad campaigns such that we can collect the corresponding ad explanations.

Throughout the project the student will be able to familiarize himself with the online targeted advertising ecosystems, learn to conduct online experiments and measure their impact and conceptually reflect at what is a good explanation.

Requirements:
Strong coding skills**.** Experience in working with data is a plus.

References:
[1] J. R. Mayer and J. C. Mitchell. Third-party web tracking: Policy and technology. In *IEEE S&P*, 2012.
[2] The "loi pour une Republique Numerique" adopted in France in October 2016 and the European "General Data Protection Regulation adopted" in April 2016.
[3] J. M. Carrascosa, J. Mikians, R. Cuevas, V. Erramilli, and N. Laoutaris. I always fell like somebody's watching me. measuring online behavioral advertising. In *CoNEXT'15*.
[4] A. Datta, M. C. Tschantz, and A. Datta. Automated experiments on ad privacy settings: A tale of opacity, choice, and discrimination. In *PETS'15*.
[5] M. Lécuyer, G. Ducoffe, F. Lan, A. Papancea, T. Petsios, R. Spahn, A. Chaintreau, and R. Geambasu. Xray: Enhancing the web's transparency with differential correlation. In *USENIX Security'14*.
[6] M. Lecuyer, R. Spahn, Y. Spiliopolous, A. Chaintreau, R. Geambasu, and D. Hsu. Sunlight: Fine-grained targeting detection at scale with statistical confidence. In *CCS'15*.
[7] B. Liu, A. Sheth, U. Weinsberg, J. Chandrashekar, and R. Govindan. Adreveal: Improving transparency into online targeted advertising. In *HotNets'13*.
[8] J. Parra-Arnau, J. P. Achara, and C. Castelluccia. Myadchoices: Bringing transparency and control to online advertising, 2016. arXiv:1602.02046.
[9] E. Zheleva and L. Getoor. To join or not to join: The illusion of privacy in social networks with mixed public and private user profiles. In *WWW '09*.