

**Computational Propaganda:
Investigating the Impact of Algorithms and Bots on Political Discourse in Europe**

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Abstract. Social media can have an impressive impact on civic engagement and political discourse. Yet increasingly we find political actors using digital media and automated scripts for social control. Computational propaganda—through bots, botnets, and algorithms—has become one of the most concerning impacts of technology innovation. Unfortunately, bot identification and impact analysis are among the most difficult research challenges facing the social and computer sciences. COMPROP objectives are to advance a) rigorous social and computer science on bot use, b) critical theory on digital manipulation and political outcomes, c) our understanding of how social media propaganda impacts social movement organization and vitality. This project will innovate through i) “real-time” social and information science actively disseminated to journalists, researchers, policy experts and the interested public, ii) the first detailed data set of political bot activity, iii) a deepened regional expert network able to detect bots and their impact in Europe.

COMPROP will achieve this through multi-method and reflexive work packages: 1) international qualitative fieldwork with teams of bot makers and computer scientists working to detect bots; 2a) construction of an original event data set of incidents of political bot use and 2b) treatment of the data set with fuzzy set and traditional statistics; 3) computational theory for detecting political bots and 4) a sustained dissemination strategy. This project will employ state-of-the-art “network ethnography” techniques, use the latest fuzzy set / qualitative comparative statistics, and advance computational theory on bot detection via cutting-edge algorithmic work enhanced by new crowd-sourcing techniques. Political bots are already being deployed over social networks in Europe. COMPROP will put the best methods in social and computer science to work on the size of the problem and the possible solutions.

Importance. This project will expand our understanding of how this is done, and advance the conversation among researchers in the computing, engineering, and social scientists about the size of the problem and the possible solutions. But doing this well means building a multi-disciplinary team under the leadership of someone with experience working on the social impact of innovation in computer science. The team will interview bot-makers in key countries in order to generate insight into the inner workings of political bots and botnets. This information will allow keen understandings of the nuances of hashtag usage, back-end social media site construction, and bot mechanics. COMPROP will demonstrate how bots impact the social systems in which they are deployed and how specific aspects of computational propaganda, data used for coercion, discrimination, and control, play out globally. Such

research will potentially generate new theoretical understandings and will uniquely contribute to the standing theory of a variety of fields associated with the computer and social sciences.

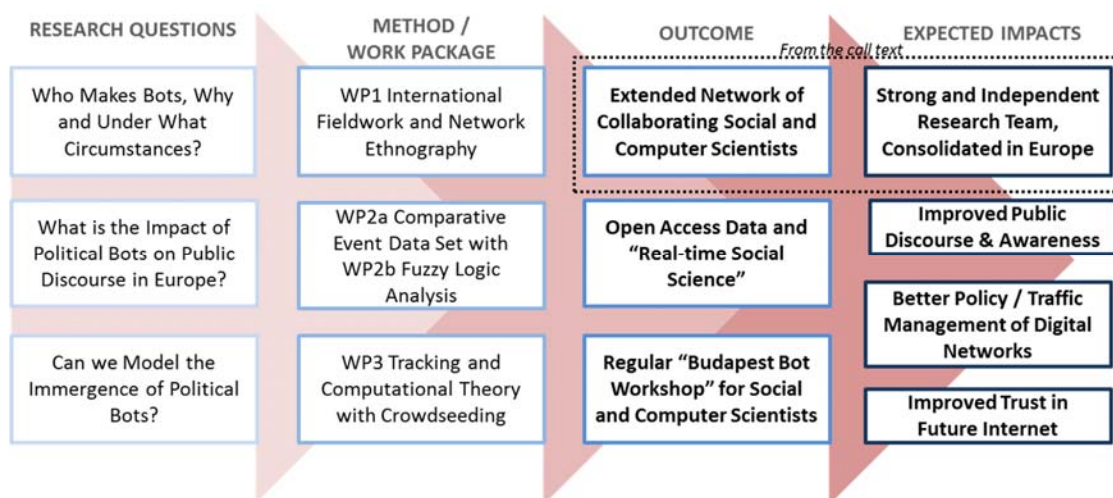
Impacts. Our team is after specific evidence of how learning, design and repurposing occurs among bot makers, not simply an archive of bot features. Timely research on the bot activity can best serve European foreign policy experts, computer scientists—and democracy—now. Policy makers in Europe need greater literacy in the impact of innovations in science and technology on politics, beyond what pundits provide. Social science research on human computer interaction is now extremely relevant for public policy. COMPROP will generate new knowledge for the benefit of:

- Europe’s technology industry, which can integrate findings to improve digital traffic management;
- Civil society, which will understand the emerging impact of digital manipulation over hardware and software and develop sophistication with tracking and response as needed;
- Policy makers, who will have more tools for understanding the balance between free speech, political manipulation, policy oversight of media and elections;
- Scholars, who will have new methods of integrating qualitative and computational research, and deeper appreciation of the value of working between social and computer science.

The event dataset produced by this research will have a broad impact on the network of industry and university researchers working on the problem of computational propaganda. Indeed, while our COMPROP proposal will result in new computational theory about bot tracking based on our grounded study of bot producer networks, the PI is certain that the dataset will have a broad impact on the network of researchers working on detection. The cleaned dataset and codebook will be specifically shared with the teams of bot detectors who participate.

The scholarly output of scientific papers, monographs, conference papers and presentations, coupled with the regular publication of the COMPROP policy paper series, dedicated project website and blog posts will ensure wide dissemination of our findings. Moreover, our social media outreach and project specific dissemination events (annual COMPROP Bot Workshop) will help anchor the new interdisciplinary community built around our work.

The outcomes of this project will be better awareness of the impact of bots on political life and better sophistication at identifying the content in our social media stream that is generated by automated scripts. By the end of this project the PI and research team will have raised public awareness of the impact of bots on political life and the average level of sophistication at distinguishing bot-generated content in social media feeds. The policy papers, original research and dissemination we do to



journalists will raise the issue in news coverage and improve the ability of journalists to cover political manipulation over social media networks as a public interest news issue. Engineers and computer scientists will have a better sense of the targets of their efforts at blocking bots and preventing them from eating up bandwidth, clogging traffic and polluting social interaction. Policy makers across Europe who specialize in the oversight of free and fair elections, media regulation and freedom of expression will be better equipped to understand how bots impact their policy domains and find public policy tools for discouraging their use and minimizing their impact.