

Survey on astroturfing awareness

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Abstract – This paper describes astroturfing as an organized effort to influence someone's thinking in order to gain benefit in various ways. Insufficient information and lack of critical thinking are good grounds for using false assumptions to influence the minds of others and their actions. This paper focuses on the survey conducted among students of the Polytechnic of Rijeka about astroturfing awareness or lack thereof. The results show that astroturfing has to be taken seriously because it is a powerful tool for manipulation and a threat to the credibility of initiatives and organizations which has a negative impact on the entire Internet community. The most effective detection techniques are development of education and critical thinking and acquaintance with astroturfing and its methods.

Keywords – *astroturfing; grassroots; sockpuppets; crowdturfing*

I. INTRODUCTION

Astroturfing is a global phenomenon, although well known as a concept only among security experts and "Internet freaks". The word "astroturfing" is rarely mentioned, but its consequences and some forms are well described in various papers and articles. Astroturfing existed well before the Internet in relation to various political parties and initiatives, lobbying, marketing etc.

The main objective of the study was to inform the university community on the concept of astroturfing and its most common forms, as well as to measure the extent of general knowledge on this subject among student population through a survey among the students' group. The study was divided into four sections. The first part included basic information on astroturfing and its evolution in the course of time, as well as criticism and concerns it raises. The second part featured several examples of astroturfing campaigns for political, business, state and military purposes. The third part referred to the survey and its results. The last part disclosed a final review.

II. THE ASTROTURFING IDEA

In his play "Julius Caesar", William Shakespeare described how Cassius used false letters, allegedly written by people of Rome, in fact by Cassius himself, to convince Brutus to kill Caesar. This example shows astroturfing as a globally known negative phenomenon.

The term "astroturfing" was coined by a Texan senator Lloyd Bentsen in his famous statement: "A fellow from Texas can tell the difference between grassroots and AstroTurf... this is generated mail." This statement was

actually Bentsen's comment on numerous letters he had allegedly received from "citizens" promoting the insurance companies' interests [10]. This example shows the common political astroturfing methodology used to oppress the campaign targets, such as persons, organizations etc. in order to affect the laws retrieval.

Astroturfing is opposite than grassroots because grassroots is not the fake campaign, but a legal alliance of the whole community to solve a collective problem. Astroturfing is fake grassroots conducted by state or other organization in order to promote a particular objective [17]. Hence highly effective, astroturfing became a powerful commercial tool used by various companies (commercial astroturfing) to affect the citizens' opinions and attitudes. The citizens became targets and casualties, but also the means of conducting further astroturfing campaigns [19].

Over time, astroturfing techniques changed and the Internet development enabled possible reach of the campaigns. It became very difficult to distinguish real grassroots campaigns and astroturfing. Widespread social networking and poor validation possibility for various claims and stories showed new possibilities for the state and military organizations. For example, some countries used their own teams with only one purpose: to decrease negative perception of the state on social networks through a large quantity of positive ones [7]. On the other hand, military organizations were not interested in opinion making in their own states, but they wanted to manipulate the other countries' citizens [3] [7]. New techniques were also developed, such as "Sockpuppets", that is fake accounts developed to enable various astroturfing activities to a certain person or organization [6]. These techniques are difficult to trace and very convincing because of the anonymity the Internet provides. Furthermore, posts can be sent by automatized programmes (bots) instead of real people. Furthermore, Internet surroundings caused the appearance of paid organized astroturfing ("crowdturfing"), where companies astroturf upon client's request, making it difficult to detect this because real persons are being used [20].

III. CASE STUDY

A. Political Astroturfing

The usual method of political astroturfing consists of sending a large number of letters to journalists or politicians to show bigger support to law or initiative than there actually is. For example, after the terrorist attack on

September 11th, 2001 in the United States of America, the state began to control its citizens on a large scale, which caused great public discontent. In order to simplify the control procedures, President George W. Bush passed the USA Patriot Act [18]. To ensure the necessary backing, he created a false grassroots movement using Republican website *GPOTeamLeader.com* as a new followers' recruitment center. The website was primarily used to recruit new team leaders expected to recruit a large number of followers and, therefore, help to lobby by contacting media and various politicians in the form of spontaneous patriotism and support President Bush's initiatives. They were awarded the President's signed photographs. A year later, team leaders were enabled to use website resources to make the President's messages far-flung by using pre-formatted texts and topics. The users could have sent up to 6 or more letters simultaneously. The vast number of those letters to senators and editors enabled easier passing of the controversial laws because it looked like Bush had much larger support than it actually was the case. Several years later, the website got a *CapWiz* tool, an online advocacy software which allowed users to send advocacy messages and alerts on a large scale, which enabled George W. Bush to manipulate the public opinion to a large extent. The tool enabled users to send hundreds of e-mail messages to media, senators, and congressmen to express fake support for the President's politics [5].

B. Commercial Astroturfing

The tobacco industry has also used astroturfing techniques several times as a marketing tool [16]. Philip Morris hired a PR company *Burson-Marsteller* to create a campaign meant to affect the legislator and to diminish the awareness of smoking adversity. The PR company formed the *Advocacy Communications Team* that founded *National Smokers Alliance* using Philip Morris's funding. It enabled the Alliance to form a group of 300,000 members using advertisement, telemarketing, and similar expensive techniques [16]. Also, young activists recruited new members in the local bars and bowling alleys. The activists were paid by a new member they recruited. The members were sending letters of protest to legislators criticizing laws which banned smoking. Smoking was regarded as a human right and a sign of personal freedom. That particular campaign was not a grassroots movement, but professionally guided astroturfing. The vice president of *Burson-Marsteller* was leading the Alliance together with other *Burson-Marsteller* executives.

In 2010, the *Alliance of Australian Retailers* launched a PR campaign as an answer to the new cigarettes package legislation [4]. They claimed that the business activities of local shops will greatly suffer because of the new legislation. The documents which leaked revealed that various tobacco companies had donated a large amount of money for the campaign. The campaign ended unsuccessfully, but slowed down the passing of the new legislation.

C. State Astroturfing

State astroturfing began in China in 2004. The state hired a group of Internet commenters to promote its opinions as their own and paid them 88 dollars per month

and 50 cents per post. The country started using astroturfing campaign to strengthen positive attitude towards the state and the government. The rise in criticism was followed by a rise of astroturfing [2].

It is estimated that after 2008, there have been 200,000 – 300,000 people involved in astroturfing attempts. The members are recruited among students and government offices and regularly trained [7]. Consequently, an American news portal [1] detected a lot of positive Chinese government propaganda on their own pages.

D. Military Astroturfing

Military astroturfing is very secretive – it includes sophisticated person-oriented software. The American Airforce ordered a software able to manage false user identities, so-called "sockpuppets" [15]. One person should be able to manage at least 10 carefully made false identities with false personal history and all other details. The false identities must not be detected by any sophisticated enemy and have to be from various countries. IP addresses used were to be changed on a daily basis, but every identity might get a static IP address which can be easily changed. Software had to enable false identities to be displayed at certain locations in the USA or abroad. The access to software had to be secure and enabled from any government facility [15]. It is known that the US Government signed a 2.76 million dollars contract with company *Ntrepid* for software development, which was meant to promote pro-American attitude abroad under the control of *CentCom* which controls American operations in the Middle East [15].

Furthermore, such software was used in the *Earnest Voice* operation, American astroturfing campaign outside America spreading pro-American attitude on social networks. *Sockpuppets* were used to artificially support locals whose attitudes suit American government [3].

IV. THE SURVEY

With the aim to establish the extent of general knowledge of astroturfing among student population, a survey was carried out between June 15th and 29th, 2018. Since the majority of the student population take part in social networking, the survey has been carried in 3 different Facebook groups of the *Polytechnic of Rijeka* (altogether 237 members). The respondents in first 2 groups (203 members) were the students of *Professional Study of Informatics* (Second and Third Year of Study), and only 20 of them (9.85%) filled in the survey form. The fact suggests a mild disinterest in the topic. The third group (34 members) consisted of *Specialist Graduate Professional Study of Information Systems* students. They showed greater interest – 12 of them (35.29%) filled in the survey. Although the pattern in the study is relatively small ($N = 32$), it can be considered representative due to its structure. The pattern structure is shown in Table I. The pattern consists the students of various age, academic year and field of study. Most of the accepted respondents (96.88%) are aged 21 – 27. Most of them (62.5%) attend *Professional Study of Informatics* (50% the third academic year).

TABLE I. THE PATTERN STRUCTURE

		<i>The Pattern Structure (N = 32)</i>		<i>N</i>	<i>%</i>
Age	21			3	9.37%
	22			6	18.75%
	23			7	21.88%
	24			6	18.75%
	25			5	15.63%
	26			2	6.25%
	27			2	6.25%
	43			1	3.12%
Course of Study	Professional Study of Informatics		20	62.50%	
	Specialist Graduate Professional Study of Information Systems		12	37.50%	
Year of Study	Professional study of informatics	Second Year	4	12.50%	
		Third Year	16	50.00%	
	Specialist Graduate Professional Study of Information Systems	First Year	11	34.38%	
		Second Year	1	3.12%	

Only a small number of students (3.12% of the pattern) attend the second academic year. A total of 37.5% of the respondents attend Specialist Graduate Professional Study of Information Systems.

A. Survey Structure

In order not to reveal the respondents' personal data, the survey was anonymous. The first parts of the blank form included basic questions regarding the respondents (their age, academic year and field of the study). The second part consisted of questions regarding astroturfing and it was divided into two lines, depending on the respondent's answer to the first question. The second line of questions was intended to establish the level of the respondent's knowledge of astroturfing.

TABLE II. SURVEY QUESTION

		<i>The Pattern Structure (N = 32)</i>		<i>N</i>	<i>%</i>
Are you familiar with the term astroturfing	Yes			4	12.50%
	No			28	87.50%

B. Survey Results

In order to precisely identify the awareness of astroturfing danger and outspread, it was necessary to evaluate the respondents' knowledge about the topic.

The respondents were asked whether they are familiar with the term astroturfing or not (Table II.). Based on the response to that question, the respondents were divided into two survey groups (N1 and N2). The first survey group included respondents who were familiar with the term astroturfing (4 of 32), and the second survey group included respondents who were not (28 of 32 respondents, i.e. 87.5%). This shows that the majority of students know nothing about the concept. Since there is no proper research on the topic in Croatia, and the only information available comes from several articles [11], the answer to this particular question is probably the respondents' personal opinion on widespread conspiracy theories contamination.

The remaining survey questions and answers are presented in Table III and Table IV. In the first survey group (N1=4), 3 of them (75%) also answered "Yes" to the second question "Do you think that astroturfing is commonplace in everyday life?" (Table III.). Only 1 respondent (25%) answered "No". A total of 3 (75%) of the informed respondents think that there were astroturfing attempts to affect their opinion and 1 of them thinks he/she has never encountered any astroturfing attempt. All of the 3 affected respondents are more aware of political astroturfing, and less of astroturfing at the state level. Furthermore, all of the 3 informed respondents think that people in their surroundings are not immune of the astroturfing attempts, but half of them considers they are immune. That shows a great level of self-esteem of these respondents, but it is their utterly personal opinion. One might suppose that the respondents are able to recognize some astroturfing attempts, but it is doubtful to what extent. Since each individual forms his/her opinion in interaction with their surroundings, depending on the information available, it is hard to obtain objective and trustworthy information.

A total of 3 of 4 respondents (75%) from the first group think that astroturfing might be suppressed by better-problem oriented education. Only 1 respondent thinks that education is not the way to solve this problem. All 4 of the informed respondents claim that Croatia has no protective legislation against astroturfing attempts. Furthermore, 3 of 4 respondents think that the European Union has some protective legislation, but they did not provide an example of any legislation. As an interesting notion, one respondent from the second group (not familiar with the concept) mentioned GDPR (General Data Protection Regulation) as European astroturfing legislation. All members of the first group are convinced there is no astroturfing protection software.

The answers of the second survey group (N2 = 28), that is not familiar with astroturfing, are presented in Table IV. The second question was whether they think that state or other organizations try to indirectly affect their opinion: as much as 21 respondents (75%) answered "Yes", while only 7 of them (25%) answered "No". Those who answered "Yes" were asked whether they recognized any influencing attempt.

TABLE III. RESPONDENTS WHO ARE FAMILIAR WITH ASTROTURFING

		NI (N=4)	%
Do you think that astroturfing is commonplace in everyday life?	Yes	3	75.00%
	No	1	25.00%
Have you ever experienced an attempt to influence your opinion through astroturfing?	Yes	3	75.00%
	No	1	25.00%
		N(N = 3)	%
By whom: ^a	Countries	1	33.00%
	Political parties	3	100.00%
	Big corporations	2	66.67%
	Grassroot Movements	2	66.67%
	Other	0	0.00%
Do you think people around you are resistant to such a kind of attempt to influence their thinking?	Yes	0	0.00%
	No	4	100.00%
Do you think you are resistant to attempts to influence your mind?	Yes	2	50.00%
	No	2	50.00%
Do you think that such an attempt to influence you or others can be prevented by better education about the problem?	Yes	3	75.00%
	No	1	25.00%
Do you think there is legislation in Croatia to protect you from this attempt to influence you?	Yes	0	0.00%
	No	4	100.00%
Do you think that the European Union has legislation to protect you from such an attempt to influence you?	Yes	3	75.00%
	No	1	25.00%
		N (N = 3)	%
Are you familiar with any legislation? ^b	Yes	0	0.00%
	No	3	100.00%
Do you think there is a software to protect you from such an attempt to influence you?	Yes	0	0.00%
	No	4	100.00%

a. The respondents could both choose more than one answer and write their own answers.

b. This question only applies to respondents who have answered "Yes" to the question whether they believe there are regulations in Croatia or the European Union, so that% is counted on that base.

As much as 15 respondents answered "Yes", 13 of them recognized the attempt made by political parties, 10 by big companies and 8 of them identified attempts made by the state or civil sector. One respondent added the newspapers-made attempt.

Regardless of the answer to the previous question, the respondents were asked if they considered that people in their surroundings are immune to astroturfing attempts. The majority of 16 respondents answered "No".

When asked if they considered themselves immune, only 1 respondent answered "Yes". This result shows the lower self-esteem in the group regarding the first group results.

All of the respondents were asked whether they think that better education might solve the astroturfing problem. The majority of them (19 out of totally 21) answered "Yes". That answer is significantly different when comparing the group results to those of the first group.

Regarding the protection legislation in Croatia, 18 respondents thought there wasn't any.

Regarding the European Union legislation, 10 respondents thought there is such legislation, 1 of them

offered GDPR as an answer, and 11 respondents thought there wasn't any.

Regarding protective software, 7 respondents thought that such software might exist, but they were not able to provide any examples. A total of 14 respondents thought there was no such software.

C. Results Interpretation

Although most of the respondents are aware of the attempts to affect their opinion and attitude, the majority of them do not know the astroturfing concept and are not aware of the frequency of these attempts. Awareness of the astroturfing danger is much larger abroad, but there are certain articles in Croatia [11] which describe the danger of astroturfing.

Most of the respondents are aware of political parties' astroturfing which is in line with common recognizing of political astroturfing as the most widespread and the oldest one.

TABLE IV. RESPONDENTS WHO ARE NOT FAMILIAR WITH ASTROTURFING

		N2 (N=28)	%
Do you think that states or other organizations want to influence your opinion / attitude in an indirect way (e.g. by posting on social networks with bogus accounts or false initiatives)?	Yes	21	75.00%
	No	7	25.00%
Did you recognize an attempt to influence your opinion or attitude?	Yes	15	71.43%
	No	6	28.57%
		N (N = 15)	%
By whom: ^a	Countries	8	53.33%
	Political parties	13	86.67%
	Big corporations	10	66.67%
	Grassroot Movements	8	53.33%
	Other Press	1	6.67%
Do you think people around you are resistant to such a kind of attempt to influence their thinking?	Yes	5	23.81%
	No	16	76.19%
Do you think you are resistant to attempts to influence your mind?	Yes	15	71.43%
	No	6	28.57%
Do you think that such an attempt to influence you or others can be prevented by better education about the problem?	Yes	19	90.48%
	No	2	9.52%
Do you think there is legislation in Croatia to protect you from this attempt to influence you	Yes	3	14.29%
	No	18	85.71%
Do you think that the European Union has legislation to protect you from such an attempt to influence you?	Yes	10	47.62%
	No	11	52.38%
		N (N=10)	%
Are you familiar with any legislation? ^b	Yes	1	10.00%
	No	9	90.00%
Do you think there is a software to protect you from such an attempt to influence you?	Yes	7	33.33%
	No	14	66.67%
		N (N = 7)	%
Are you familiar with some examples of software? ^c	Yes	0	0.00%
	No	7	100.00%

a. The respondents could choose more than one answer and write their own answers.

b. This question only applies to respondents who answered the question whether they believe there are regulations in Croatia or the European Union, so that % was also counted.

c. The question relates only to respondents who answered "Yes" to the question whether they think that there is software so that % was also counted.

It is commonly known that political parties encourage their youth organizations to "like" the posts and articles of

their political party members, as well as the articles which are in line with the political party attitude.

It is known that, youth organizations aside, Croatia has professional astroturfers who open new Facebook pages and groups and influence Facebook members to "like" or "dislike" various articles [11]. To avoid legal consequences, they are discreetly discrediting the political opponents making the false posts. Opening such pages and groups and their administration has become a profitable business. Sockpuppets' articles are not illegal since the administrator avoids the elements that might be considered calumny [11].

The majority of respondents considered themselves more immune to astroturfing attempts in comparison to their surroundings. It is commonly known as "superiority illusion" or "Lake Wobegon effect"[21]. People usually underestimate others and have a high opinion of themselves. A survey on Stanford University shows that 87% of students think better of themselves than their colleagues [22]. In general, the lack of objective information is making the students' attempts to defend themselves from sophisticated astroturfing campaign less successful.

The majority of the respondents agree that astroturfing influence can be prevented through better education. The main problem is insufficient research and expertise on

astroturfing, so the main source is various newspaper articles that might be the astroturfing attempts, too.

The students think that there is no proper anti-astroturfing legislation in Croatia, but they are not aware that Croatia has some legislation for particular cases of astroturfing. For example, in 2007, the Consumers' Protection Act was passed [8] according to which the malpractice can be punished. In 2009, another law, on false advertising, was also passed [9]. As mentioned before, the Criminal Act recognizes the calumny concept. Croatian laws are not appropriate for the fight against astroturfing, except for some commercial astroturfing examples. Croatia, as an EU Member State, has to apply the European Union's Unfair Commercial Practices Directive [13].

The majority of the respondents think that the European Union legislation solutions are better than Croatian, but it is not so overwhelming as it should be to protect against astroturfing attempts, especially not those made by great state actors as the USA or Russia (that is a great problem today). GDPR was not made as a protective tool against astroturfing, although it may help detect some attempts when using stolen personal data. The complexity of astroturfing praxis disables the legislators to pass the laws which could regulate astroturfing comprehensively [14].

Software as a protective tool was not considered by students, although scientists from Indiana University developed software which could detect astroturfing on Twitter [12].

V. CONCLUSION

Astroturfing is an effective and complex "special war tool" based on a false presentation of an astroturfing campaign as a legitimate grassroots movement. It emulates grassroots in order to achieve someone's particular aims. Therefore, astroturfing cannot be ethical.

Manipulating others' opinions and attitudes is as old as the humanity itself. The techniques changed during the periods of time, becoming more complex and expensive. It is hard even to detect contemporary campaigns. Today, astroturfing campaigns need precise planning, sophisticated thinking on how to avoid legal consequences and data leaks as well as complex organizational structure. Otherwise, the target attacked can detect the attempt and it can easily fail.

Internet development enabled astroturfers to easily reach billions of people. The complexity of the astroturfing techniques and a variety of different media disable the efforts to make effective protective software. One software has been developed for Twitter.

It is expected that the problem of astroturfing is going to become more complex than it is today, but also various defense techniques, including legislation, software, and education are going to be developed as well. Critical thinking is an effective defense against astroturfing which every individual should be able to develop.

The majority of students' pattern are well aware of astroturfing as an imminent danger, although not acquainted with the word "astroturfing" itself.

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