

A Game Framework Based on the Disinformation Warfare in Russo-Ukrainian War

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Abstract

From 2022, when Russia began its invasion of Ukraine, to the present, the number of speeches and information directly/indirectly related to Russo-Ukrainian war has continued to increase in mass communication venues such as SNS and TV. This study proposes the idea of a game system that simulates the spread of disinformation by focusing on the information published by Ukraine as a list of disinformation speakers, especially on the topics they talk about. The game system is intended to provide players with psychological immunity against disinformation by simulating the spread of disinformation.

Keywords: Disinformation, Russo-Ukrainian war, Game System

1. Introduction

Russo-Ukrainian war has two parts. On February, 2014, Russia annexed Crimea. Also, in February 2022, Russia has invaded the Donbass region of Ukraine. In this war, the discourse and information directly and indirectly related to Russo-Ukrainian war continues to grow in mass communication spaces such as social networking sites and television. In this context, Russia sees the information space as another battlefield, with NATO [1] and Ukraine (<https://cpd.gov.ua/>) reporting on the situation. Ogata [2], [3], [4], [5] has collected discourses on Russo-Ukrainian war and summarized them as “Russo-Ukrainian War as Narrative Warfare” [6], while Ono and Ogata have published articles on this war, proposing the concept of a narrative-generating game based on Russo-Ukrainian war [7], [8].

This study proposes the idea of a game system (we call the game system as simply “game” in the following description) that simulates the spread of disinformation by focusing on the discourses compiled by Ogata [2], [3] [4] [5] and published by Ukraine as a disinformation speaker list, especially the topics that the speakers talk about. The game is designed to help players develop psychological immunity to disinformation by simulating the spread of disinformation.

2. Background

Disinformation is information that influences a person’s perception and distorts their decision making.

For example, fake news, which spreads sensational or conspiratorial content, including falsehoods, is a typical example of disinformation. Today, battles that make full use of disinformation, in addition to the conventional domain of warfare, are positioned as a new domain of warfare and are called cognitive warfare [9]. On the other hand, Ogata, who believes that falsehood is not the only means of attacking opponents in battles that affect the perception of the target, has proposed the term “narrative warfare” as a domain in which attacks are made regardless of whether the content is true or false [6]. For example, one method might be to present a distorted conclusion as the conclusion of a logic that only mentions the truth about individual elements. Maan have focused on narrative warfare, and they have been exposed to it from the time of the emergence of the Islamic State to the present day [10]. Narrative warfare in Russo-Ukrainian war has also received attention [11].

Attempts to position players on the disseminators of disinformation have been experimented with by Roozenbeek and Linden [12] with *Bad News* [13]. *Bad News* is a web game that provides a virtual experience of a fake news speaker. In this game, each player follows the game’s instructions and gradually increase their influence on public opinion by selecting one of fake new candidates. The player can efficiently increase their influence by selecting more appropriate fake news, and their influence decreases if they select an inappropriate fake for the occurred event. Roozenbeek and Linden found that this game allows each player to “cognitive resistance against fake news strategies.” There are similar games on the market, such as *Plague Inc.* [14]. *Plague Inc.* is a simulation game. Each player in the game becomes an

epidemic and aims to wipe out humans. The player can select the game mode of fake news.

3. Proposed Game System

The structure of the game is presented after an overview of the proposed game. At last, an example of the game play is shown.

3.1. Overview of the proposed game

The game proposed in this paper is a game in which the player is a Russian spreading disinformation about the Ukrainian model. The goal of each player is to convert more Ukrainian faction to the Russian faction (“faction” in this paper does not mean a particular political party, people who believe in the state.). The game presents the player with events that occurred during Russo-Ukrainian War, and the player chooses the disinformation to spread accordingly. The Ukrainian faction is a set of non-player characters (NPCs) that are not controlled by the player, and each NPC has a trust parameter. This trust represents the level of trust in Ukraine, and the disinformation chosen by the player will fluctuate this value. The Ukrainian faction will switch to the Russian faction if the trust parameter falls below a certain value.

This work does not include factors such as the spread of misinformation (“misinformation” is false information that is spread without malicious intent), the phenomenon of disinformation having a greater impact due to biased information on social networking sites, or the range of influence of disinformation or the number of people affected. These elements are considered important for simulating disinformation and will be discussed as future topics.

3.2. The flow in a game play

A player becomes the sender of disinformation and changes the parameters of non-player characters (NPCs) made up of several people, to change the NPC’s faction.

The game repeats the turn as many times as the number of events that make up the scenario, with (i) the generation of events, (ii) the selection of disinformation, and (iii) the calculation of effects as a single turn. At the end of the turn, the amount of trust in the Ukrainian faction of NPCs is scored.

When choosing disinformation, the player chooses one of the disinformation candidates. The mechanism changes the parameters of all NPCs based on the selected disinformation.

3.3. Components of the proposed game

The proposed game has non-player characters (NPCs), events, and disinformation. These attributes are used to calculate the score that evaluates the player, or are values related to the game play.

Non-Player Character (NPC)

- Trust: if this value is 0, the NPC has completely lost trust in the faction. This value also indicates resistance to false information.
- Characteristics: What personality traits the NPC has. If there are no characteristics worth mentioning, it is set to null. Currently, it indicates if the NPC has conspiracy theorist traits.

Event

- Characteristics: Classification of the event. Disinformation is more influential if it matches the “Characteristics” in the disinformation.

Disinformation

- Strength: The degree to which the disinformation affects the NPC’s trust.
- Reality: The degree to which the disinformation is factual, indicating the likelihood that the NPC will accept the disinformation; if this value is low, the likelihood of acceptance is low.
- Characteristics: Classification of the disinformation. If the disinformation is appropriate to the nature of an event, it will have a greater influence on the NPC’s trust.

Disinformation in the proposed game based on *СПІКЕРИ, ЯКІ ПРОСУВАЮТЬ СПІВЗВУЧНІ РОСІЙСЬКІЙ ПРОПАГАНДІ НАРАТИВИ* (*Speakers who promote narratives that are in tune with Russian propaganda*, <https://cpd.gov.ua/reports/spikery-yaki-prosuvayut-spivzvuchni-rosijskij-propagandi-naratyvy-2/>). This list was revised once, and before and after the revision, excluding duplicates, the list contained 89 speakers. In this paper, if the same speaker sent the same disinformation before and after the revision, it was classified as a single source, and if different speakers sent the same disinformation, they were classified as different sources. The classification was then done in a bottom-up fashion and organized as disinformation used in the game. Each classification and the example of its breakdown are provided as the [Appendix](#).

The trust value of the NPC is reduced based on the following [Eq. \(1\)](#) and [Eq. \(2\)](#) First determine whether the NPC is affected by the disinformation ([Eq. \(1\)](#)), and then determine the degree of influence ([Eq. \(2\)](#)). If the NPC is committed to a conspiracy theory, the trust value used in the [Eq. \(1\)](#) and [Eq. \(2\)](#) Regarded as half the value.

$$P = 100 + (R - T) \quad (1)$$

$$A = S - T/4 \quad (2)$$

P: Probability of decreasing trust, A: Amount of trust decreases, R: Reality in selected disinformation, T: Trust that the NPC has, S: Strength in selected disinformation

3.4. A game session example and a short discussion

The following shows the example of a game session. There are five NPCs. One NPC in the five NPCs believes in the conspiracy theory. The session has six events. “Disinformation” in the following description means the fake information selected by a player. “NPCs” in the description includes the changed “Trust” in the respective NPC (“Number”).

Event 1: “Russia have launched an invasion.”

Disinformation: “The U. S. is provoking/inspiring Russia.”

NPCs: Number 0: Trust 82 (conspiracy thinking) / Number 1: Trust 95 (nil) / Number 2: Trust 95 (nil) / Number 3: Trust 95 (nil) / Number 4: Trust 95 (nil)
Average: 92.4, Total trust: 462/500

Event 2: “Russia occupied a city.”

Disinformation: “Russia has not attacked civilians.”

NPCs: Number 0: Trust 62 (conspiracy thinking) / Number 1: Trust 88 (nil) / Number 2: Trust 88 (nil) / Number 3: Trust 88 (nil) / Number 4: Trust 88 (nil)
Average: 82.8, Total trust: 414/500

Event 3: “A massacre occurred.”

Disinformation: “The massacre in Bucha is a fake.”

NPCs: Number 0: trust 9 (conspiracy thinking) / Number 1: trust 50 (nil) / Number 2: trust 88 (nil) / Number 3: trust 50 (nil) / Number 4: trust 50 (nil)
Average: 49.4, Total trust: 247/500

Event 4: “The war continues.”

Disinformation: “Ukraine/Zelensky wants war.”

NPCs: Number 0: trust 0 (conspiracy thinking) / Number 1: trust 32 (nil) / Number 2: trust 80 (nil) / Number 3: trust 32 (nil) / Number 4: trust 32 (nil)
Average: 35.2, Total trust: 176/500

Event 5: “The war continues.”

Disinformation: “Russia will win the war.”

NPCs: Number 0: trust 0 (conspiracy thinking) / Number 1: trust 10 (nil) / Number 2: trust 70 (nil) / Number 3: trust 10 (nil) / Number 4: trust 10 (nil)
Average: 20.0, Total trust: 100/500

Event 6: “Russia has retreated.”

Disinformation: “They should not hunt down Russia.”

NPCs: Number 0: trust 0 (conspiracy thinking) / Number 1: trust 0 (nil) / Number 2: trust 57 (nil) / Number 3: trust 0 (nil) / Number 4: trust 0 (nil)
Average: 11.4, Total trust: 57/500

In the above session, the value of trust to Ukraine of the conspiracy theorist (Number 0) is rapidly reduced. In the other NPCs, the NPC of Number 2 continues to have the value of trust to Ukraine. However, the values of trust of the other NPCs, Number 1, 3, and 4, finely become 0. When we see the entire process, we know the accelerated growth of suspicion to Ukraine.

In the game, the value of trust is also the power to resist the influence of disinformation. NPCs are repeatedly

exposed to some type of disinformation and the influence of disinformation for all NPCs are gradually increased.

4. Conclusion

In this paper, we proposed the idea of a game system related to disinformation in the context of Russo-Ukrainian war and developed a simple prototype dealing with disinformation. We used one pattern of disinformation used actually in Russo-Ukrainian war. This game framework, including several NPCs and a human player, simulates the spreading process of disinformation. The goal of a player in one session is to change NPCs from Ukrainian faction to the Russian faction. The player may acquire the knowledge to prevent influences of disinformation through the game process. In the future, we would like to extend the scale of the game.

Acknowledgements

This research was supported by JSPS KAKENHI (JP21K17870).

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Appendix: The types of disinformation

The following categories are based on the *СПИКЕРИ, ЯКІ ПРОСУВАЮТЬ СПІВЗВУЧНІ РОСІЙСЬКІЙ ПРОПАГАНДИ НАРАТИВИ* (Speakers who promote narratives that are in tune with Russian propaganda, <https://cpd.gov.ua/reports/spikery-yaki-prosuvayut-spivzvuchni-rosijskij-propagandi-naratyvy-2/>). “~~~” is a space to insert a specific word, one of the U.S., NATO, Ukraine, or Zelensky.

1. ~~~ is provoking/inspiring Russia
2. It is a proxy war between ~~~ and Russia
3. The West is running a propaganda campaign
4. Russia-hatred (Russophobia)
5. NATO expansion is bad
6. Ukraine is suppressing Russian speakers in the country
7. Ukraine/Zelensky wants war
8. Ukraine is committing acts against humanity
9. Bucha massacre is a fake
10. Ukraine has a biological weapons laboratory
11. We should not give arms to Ukraine
12. Ukraine started war before February 24/Maidan Revolution
13. Ukraine is a Nazi
14. Ukraine should make concessions
15. Ukraine did not comply with the Minsk agreements
16. Russia will win the war
17. Sanctions are not getting through to Russia
18. Russia has not attacked civilians
19. ~~~ should negotiate with Russia/Putin
20. ~~~ should not blame Russia/Putin
21. ~~~ should not hunt down Russia
22. Crimea is Russian territory
23. Russia has freedom of speech

For example, 1. “~~~ is provoking/inspiring Russia” includes the following contents. Other types also include many contents. Small amount of contents are classified as “Other” and was not discussed in this paper.

The U.S. and Ukraine have actively provoked Russia into aggression./ The U.S. and Ukraine have aggressively provoked Russia into aggression. / Putin has been humiliated and Russia persecuted for decades. / The West provoked

Russia into war with Ukraine. / Zelensky provoked Russia into launching special operations against it. / The U.S. has provoked Putin for years. / The events in Ukraine are a provocation by the U.S. and NATO. / The U.S., through NATO, provoked Russia to war in Ukraine. NATO and the U.S. provoked Putin. NATO provoked Putin. NATO provoked Russia The West provoked Putin. / The West provoked Russia. / The U.S. provoked Russia. /The West provoked Putin. / Arming Ukraine provokes Russia. / Zelensky is provoking Putin. / NATO has crossed the “red line.” / The U.S. and UK have crossed Putin’s “red line.” / For eight years, Ukrainians have been provoking Russia. / Putin’s decision to invade Ukraine was NATO’s fault. / NATO intentionally deployed on the Russian border. / The U.S. and Europe provoked the Russian president. / The U.S. is responsible for Russia’s attack on Ukraine. / The U.S. needs to stop the madness in Ukraine provoked by the U.S.

Authors Introduction

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