



## METHODS AND EFFECTIVENESS OF THE USE OF ARTIFICIAL INTELLIGENCE IN THE FIGHT AGAINST CYBERBULLYING

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### KEYWORDS

cyberbullying  
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information technology  
artificial intelligence  
neural network  
deep learning  
anonymous  
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### ABSTRACT

Online anonymity has exacerbated the problem of unethical behavior, which can, in special cases, go as far as bullying people. To a greater extent, children become victims of cyberbullying, because their understanding of the world has not yet been formed. The issues of control over anonymity, censorship of information stuffing, which can aggravate the political situation in the country, puzzled all countries. But especially close attention to digital censorship has been paid recently. Quarantine and the pandemic have made their own adjustments to cyberspace, making it almost a substitute for face-to-face communication between people. And at the same time exacerbating the problem of aggression. The purpose of the article is to analyze the problem of cyberbullying and give suggestions for its solution. The ways of solving the problem of cyberbullying are highlighted. Artificial intelligence as anti-cyberbullying is the most effective digital censorship tool. Knowing the lexicon of the aggressors, it is possible to compile a dictionary for each resource for artificial intelligence self-learning and the development of anti-cyberbullying for gaming products. An example of a scenario for the use of artificial intelligence in the fight against cyberbullying in the gaming industry is given.

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# METHODEN UND WIRKSAMKEIT DES EINSATZES KÜNSTLICHER INTELLIGENZ IM KAMPF GEGEN CYBERMOBBING

## SCHLÜSSELWÖRTER:

Cyber-Mobbing  
soziale Netzwerke  
Informationstechnologie  
künstliche Intelligenz  
neurales Netzwerk  
tiefes Lernen  
anonym  
maschinelles Lernen

## ABSTRAKT

Die Online-Anonymität hat das Problem unethischen Verhaltens verschärft, das in besonderen Fällen bis zum Mobbing gehen kann. Kinder werden in größerem Maße Opfer von Cybermobbing, weil ihr Weltverständnis noch nicht ausgebildet ist. Die Fragen der Kontrolle der Anonymität und der Zensur der Informationsfüllung, die politische Situation im Land verschlimmern können, haben alle Länder verwirrt. Aber in letzter Zeit wurde der digitalen Zensur besondere Aufmerksamkeit geschenkt. Quarantäne und Pandemie haben ihre eigenen Anpassungen am Cyberspace vorgenommen und ihn fast zu einem Ersatz für die persönliche Kommunikation zwischen Menschen gemacht. Und gleichzeitig das Problem der Aggression verschärfen. Ziel des Artikels ist es, das Problem des Cybermobbings zu analysieren und Lösungsvorschläge zu machen. Die Wege zur Lösung des Problems Cybermobbing werden aufgezeigt. Künstliche Intelligenz als Anti-Cybermobbing ist das effektivste Instrument der digitalen Zensur. Wenn man das Lexikon der Angreifer kennt, ist es möglich, ein Wörterbuch für jede Ressource für das Selbstlernen der künstlichen Intelligenz und die Entwicklung von Anti-Cybermobbing für Spieleprodukte zusammenzustellen. Ein Beispiel für ein Szenario für den Einsatz künstlicher Intelligenz im Kampf gegen Cybermobbing in der Glücksspielbranche wird gegeben.

## **INTRODUCTION.**

In 2017, a 12-year-old New Jersey girl killed herself after months of cyberbullying from classmates at Copeland High School in Rockaway. She is not the only one. According to [bullyingstatistics.org](http://bullyingstatistics.org), more than half of teens and teens have been bullied online, and about the same number have engaged in cyberbullying. For those teenagers who are bullied daily at school or online, the consequences can be devastating. Adolescents are usually impressionable in their desire to form a personality. Daily bullying can feel like psychological torture in a CIA torture chamber. This can lead to anxiety, depression and even suicide.

Cyberbullying also prevents people from trusting the Internet and technology in general. The Internet has helped our society a lot. Technological progress has allowed us to work productively for several decades. Internet trolls that negatively impact our online experience also make it impossible for us to be productive online.

They promote technology as a sinister tool for the next generation of technology users. They prevent people from integrating technology into their lives in a positive way.

Cyberbullying is different from bullying in real life. These characteristics of cyberbullying make it difficult to prevent and stop incidents.

Cyberbullying is hard to detect—often the bully hides behind a façade of humor to subtly harass the victim.

Blocking out people will only add to your reality. On social media groups, it may not be possible to block a person who is bullying you. In particular, in the case of a student, it may not be possible to block a classmate in an educational forum dedicated to meeting the needs of students in the classroom.

Victims of cyberbullying are hard to detect. Victims often have questions about a bullying incident. When the bully hides behind a mask of humor and a fake name, the victims often feel like they are at fault or making something out of nothing.

### **METHODS.**

Cyberbullying is just as dangerous and serious a problem as regular bullying. In fact, it's getting even more disgusting these days, fueled by the spread of technology.

Bringing many new opportunities to education, technology and the availability of the Internet can become a means of harming another person, as seen in this tragic case and, unfortunately, in many others. Part of the problem is that kids this age, both bullies and victims, often don't think things through and act hastily.

This is why we need all available solutions to prevent cyberbullying. And with the development of artificial intelligence, a great new solution may appear.

Nowadays, children - and most victims of cyberbullying are children - have access to devices that allow them to communicate with each other almost anywhere and anytime. Moreover, it gives not only other children, but also adult detractors easy access to the child's private life.

This is what makes cyberbullying so dangerous. In the case of regular bullying, teachers (and parents) have a clearer picture. If one student physically or verbally abuses another in class, it is obvious that action must be taken: the violence must stop, both the attacker and the victim must be spoken to, their parents must be informed of the incident, and so on.

However, when technology comes into play, it is virtually impossible to determine if a bullying incident is taking place unless the participant or bystander informs an adult about it. (And for many children, it can be very difficult to bring yourself to tell someone about what happened.)

Another danger is that with cyberbullying, the victim may not even know who

is behind it, thanks to the ability to anonymize their presence on the network. While law enforcement may well be able to identify the bully, this situation can further discourage the victim from speaking up.

Clearly, the current level of awareness about cyberbullying needs to be raised among people of all ages. There are online safety guides for kids as well as for parents and teachers, Stop Cyberbullying Day is internationally recognized and endorsed by commercial and non-profit organizations, government programs are working to help victims, etc.

All of the above are necessary and are fighting a very important battle. But let's see how we can use technology to fight it.

### **RESULTS AND DISCUSSIONS.**

The difficulty of recognizing online cyberbullying presents a unique challenge for social media companies trying to protect their own online social media communities. Often, these “find needles in a haystack” problems are ideal for solving machine learning. AI can recognize language nuances and effectively classify speech on large amounts of data where humans cannot. Algorithms can also adapt and improve the accuracy of detecting cyberbullies as they learn more about the activities of the aggressor on the Internet.

Since online bullying uses technology, it is natural that technological solutions to the problem are sought.

Machine learning opens up many opportunities for preventing cyberbullying. There are currently many initiatives to create and train algorithms capable of detecting hate and offensive language on the Internet in order to block the user from viewing them and hence cyberbullying.

The advantage of such algorithms over parental control software and keyword blockers is that they must recognize subtle and sarcastic comments, a task that previous solutions fail to do. In addition, the use of machine learning is necessary because swear words and insults can often be intentionally or not misspelled.

In the article “Automatic detection of bullying in texts of social networks”, a group of researchers describes such an algorithm. In its experimental state, it was fairly good at recognizing abusive online behavior in both English and Dutch. The scientists behind the project cite the fact that their system can detect bullying signals as their biggest achievement.

This algorithm also determines who is the aggressor, victim and bystander in each situation, which can help the website moderator do their job faster and more efficiently.

Another study takes a closer look at the limitations of keyword filtering. Based on data collected on Reddit, the researchers concluded that many topical words are

used by both hate groups and support groups, making it difficult for the filter to determine which is which.

Instead, this study proposes to train an algorithm to recognize data generated by communities that "correspond to the linguistic identity" of hate groups. At the same time, he will be able to see patterns typical for such groups and communities in posts on social networks and other Internet resources.

Identity Guard and the Megan Meyer Foundation are using IBM Watson artificial intelligence to monitor children's social media activity for signs of bullying or suicidal thoughts. If he sees them, he reports such cases to parents along with useful resources designed to resolve the situation.

Cyberbullying causes many problems for its victims, but the most devastating of them all occurs when emotionally unstable people are targeted. As with the 12-year-old mentioned at the beginning of this story, this can sometimes lead to self-harm and even suicide.

Machine learning algorithms can already detect suicidal tendencies with high accuracy based on "neural representation of emotions." In the future, emotional AI could become an invaluable tool in recognizing and preventing self-harm. If a machine can understand human emotions based on voice or face recognition, it would mark a huge step forward in using AI to prevent suicide.

While their early stages were quite successful, anti-hate speech AI algorithms still have a long way to go. The biggest challenge for machine learning is probably how difficult it is to determine what is and is not hate speech. For example, the same sentence can be hateful and regardless of who writes it, its cultural and racial background, etc.

In addition, the definition of hate speech varies from community to community and person to person. It can also change with time and with new cultural norms.

While most of the solutions mentioned above are still in the experimental stage, they all seem promising. However, it is important to remember that even when they are properly implemented, this will not mean the end of cyberbullying. On the contrary, one can expect something like an arms race between anti-technology and intimidation technologies.

Thus, it is necessary to use AI to help, but not expect it to do all the work.

### **CONCLUSION.**

Cyberbullying is on the rise every day and every person has a responsibility to protect their own online experience. Artificial intelligence can help flag and control our online activity on these social networks. But like real life police, a third party can do a lot.

Children should be able to find a common language, have common interests

with peers, be passionate. You need to learn to remove barriers, to be less shy, not to be offended, to cope with stress. Necessary team games. The general culture of children should be improved at the same literature lessons. So that children are taught on those problems that now excite them more. We need to discuss the problem of cyberbullying in classrooms, starting from grades 5-6. So that children understand that this is a common problem, that it is not necessary to talk about and share with other people, with adults, to explain how to deal with it. We need regular and mandatory conversations with a psychologist. Children should become more protected from aggression (react less and give emotional nourishment to bullies), more educated not to be led to aggression and not become the same aggressive in response to or against weaker ones (recoup later on others). It is important to teach empathy and cooperation from school, develop emotional intelligence so that a person is more protected and sensitive to the feelings and emotions of others.

Informal events will help to switch aggression to a peaceful direction, and help children find common interests with their peers. It is necessary to teach children in school's sports, dance (hip-hop, etc.), acrobatics, so that excess energy goes into sports.

It is necessary to introduce the concept of cybersport and the charter of chivalry of a cyber-athlete (similar to kung Fu): do not offend the weak, etc. Revoke licenses to play in tournaments for manifestations of cyberbullying, as in real sports. Using public examples of condemnation of well-known leading cyber-athletes, it can be shown that aggression is not acceptable.

November 11, 2019 was named Anti-Cyberbullying Day. The symbol of the day is a yellow heart. Also this year, a Foundation was created to help victims of violence and bullying, and a stream marathon was held. At the same time, in 2019, from November 11 to November 30, an action was held, a flash mob, in social networks, everyone could tell their story about bullying with the hashtag #netcyberbullying.

Summing up, cyberbullying is a serious problem, if it is not dealt with, then each subsequent generation will be more aggressive than the previous one. Currently, there are many measures aimed at controlling and eliminating online bullying. However, this is only the beginning of addressing such an important issue. Only digital methods can be powerless. It is also necessary to teach people the ethics of communication on the Internet in the real world.



**REFERENCES.**

1. Reynolds, K., Kontostathis, A., & Edwards, L. (2011, December). Using machine learning to detect cyberbullying. In 2011 10th International Conference on Machine learning and applications and workshops (Vol. 2, pp. 241-244). IEEE.
2. Azeez, N. A., Idiakose, S. O., Onyema, C. J., & Van Der Vyver, C. (2021). Cyberbullying Detection in Social Networks: Artificial Intelligence Approach. *Journal of Cyber Security and Mobility*, 745-774.
3. Rakhmatov, D., & Nomozova, E. (2020). The use of multimedia technologies in the educational system and teaching methodology: problems and prospects. *International Journal of Discourse on Innovation, Integration and Education*, 1(2), 28-32.
4. Ali, W. N. H. W., Mohd, M., & Fauzi, F. (2018, November). Cyberbullying detection: an overview. In 2018 Cyber Resilience Conference (CRC) (pp. 1-3). IEEE.
5. Rakhmatov, D. (2021). Mobile technologies in the higher education system. *Mental Enlightenment Scientific-Methodological Journal*, 2021(02), 182-196.
6. Zhang, X., Tong, J., Vishwamitra, N., Whittaker, E., Mazer, J. P., Kowalski, R., ... & Dillon, E. (2016, December). Cyberbullying detection with a pronunciation based convolutional neural network. In 2016 15th IEEE international conference on machine learning and applications (ICMLA) (pp. 740-745). IEEE.
7. Рахматов, Д. Р. (2020). Зарубежный опыт цифровой трансформации бизнес-процессов в развивающейся экономике Узбекистана: проблемы, недостатки, противоречия. In *Цифровизация и её влияние на жизнь современного общества* (pp. 186-197).
8. Юсупов, Р. М., Рахматов, Д. Р., & Рахматов, Д. Р. (2020). Безопасность Мультимедийной Коммуникации с Использованием Криптографии. *Инженерные решения*, (10), 10-12.
9. Рахматов, Д., & Ахатов, А. Р. (2020). Кибер жиноятларни юзага келиш омиллари ва кибер этика: муаммо ва истиқболлар. *Science and Education*, 1(1), 227-234.
10. Al-Garadi, M. A., Hussain, M. R., Khan, N., Murtaza, G., Nweke, H. F., Ali, I., ... & Gani, A. (2019). Predicting cyberbullying on social media in the big data era using machine learning algorithms: review of literature and open challenges. *IEEE Access*, 7, 70701-70718.
11. Васильева Е.В. Дизайн-мышление: немного о подходе и много об инструментах развития креативного мышления, изучения клиентских запросов и создания идей : монография. М.: РУСАЙНС, 2019. 204 с.

12. Milosevic, T., Van Royen, K., & Davis, B. (2022). Artificial intelligence to address cyberbullying, harassment and abuse: new directions in the midst of complexity. *International journal of bullying prevention*, 1-5.