Barun ICT Global News

Oct & Nov 2022

YONSEI UNIVERSITY Barun ICT Research Center

01

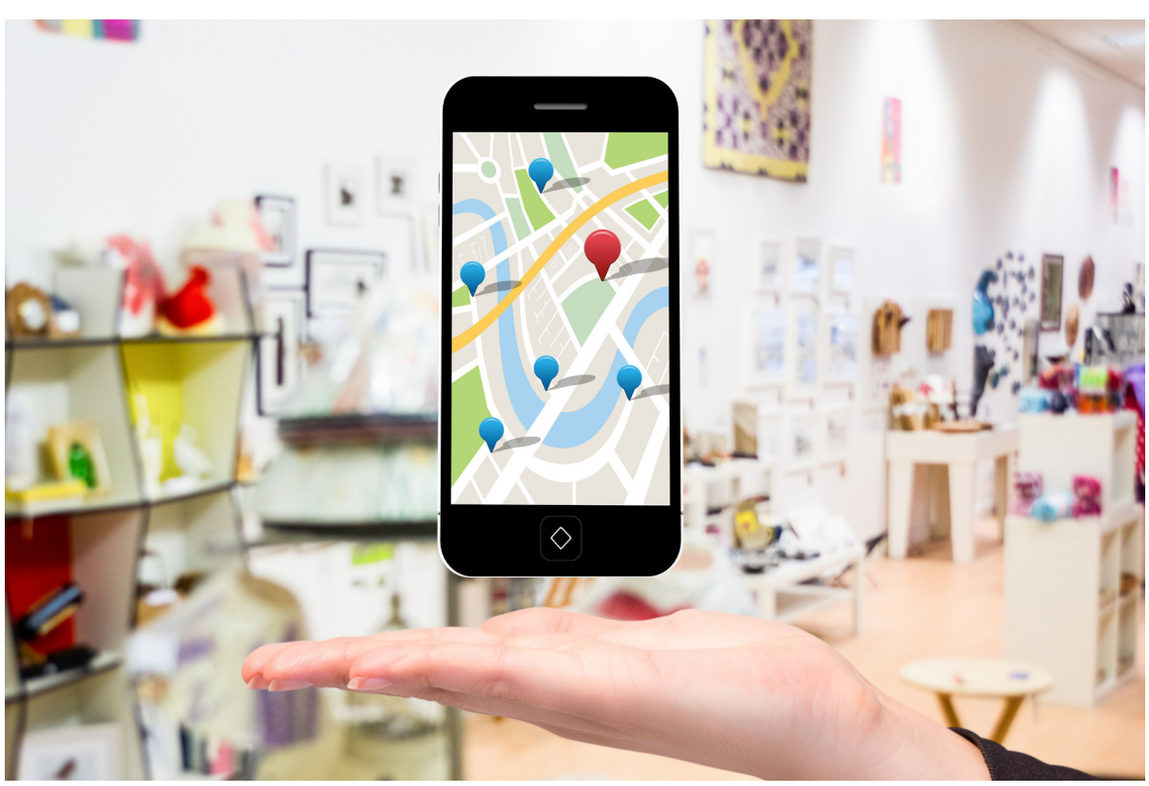
Exploring Privacy Concerns of Built-in Location Sharing in Popular Apps

Yewon CHOI

Department of Life Science and Biotechnology, UIC, Yonsei University

Real time location sharing has become so popular that you can see it in built-in apps – it functions as a default without your express consent. For Apple, you have Find Me, which can be used to locate not only your missing iPhone but also a friend. Android devices usually come with Google Maps preinstalled which allows you to sneak a peek at others' locations. The two apps are not alone in providing the location tracking service. A host of other apps on the market provide you with the same.

The apps can be an enormous violation of privacy – they take away a certain level of freedom in relationships. Galperin, a cybersecurity specialist, spoke to the New York Times about how people now feel the push to share their information with friends [1]. This can later become problematic when you no longer want to maintain the friendship. Indeed, another interviewer for the same article told the New York Times that the first thing she did when she broke off a friendship with a couple of old friends was unsharing location information [1].



Another big concern is the impact that this will have on teens. Teenagers are more than happy to try out new technologies. There is a high possibility that teens will end up using the apps without considering the negative impacts they may have. Plus, it's well known that teens are most vulnerable to peer pressure. This means that some may be coerced into sharing unwanted information. To add on, there is always a possibility that these apps will be utilized to track down a victim of school violence by their bullying peers [2].

South Korea, one of the most wired countries in the world, has already experienced many problems with apps of a similar kind. A location-sharing app for couples once came under fire because the app allowed partners to see everything about each other starting from their locations to who they called or if their battery levels were running low. While some people said that they enjoyed using the app, others criticized it by pointing out that apps like this would only make couples pry [3]. At other times, location-tracking apps for couples have been used to commit crimes. There was an incident where a person used a similar app to steal a motorcycle by hiding a phone with the app installed on it in the vehicle. Possible regulation or at least social discussion of the nature of these apps is warranted [4].

Sources

[1] Huang, K. (2022, Aug 20). How the Find My App Became an Accidental Friendship Fixture. The New York Times. https://www.nytimes.com/2022/08/20/technology/find-my-app-friends.html

[2] Kim, N. (2020, Nov 14). 요즘 10대들, '위치추적 어플' 깔아 서로 뭐하는지 실시간으로 감시한다. Insight. https://www.insight.co.kr/news/312124

[3] Park, E. (2019, Oct 25). 위치 추적부터 통화 내역까지… '커플로드' 진화하는 커플 앱의 명암. The Kookje Daily News. http://www.kookje.co.kr/news2011/asp/newsbody.asp?code=0700&key=20191025.99099011646

[4] Choi, W. (2013, Jun 12). '커플 위치 추적' 어플로 오토바이 절도. YTN. https://www.ytn.co.kr/_ln/0103_201306120109239484

02

Considering the Cause and Impact of E-Waste

Sereimony SEK

Department of Computer Science, Yonsei University

According to The Global E-Waste Monitor 2019, there was approximately 53.6 million tons (Mt) of e-waste discarded. Among these, only 17.4% was documented to be collected and recycled. The rest was thrown into residual waste or recycled under inferior conditions. In 2030, more than 74Mt of e-waste is anticipated to be produced. As a result, the amount of e-waste generated globally is rising at a startling rate of about 2 Mt per year I [1].

When electronics are being discarded into a landfill or non-dumping site, they can be exposed to air, heat, and water which causes the components to be contaminated and release toxic substances that then accumulate in our environment including the soil, water, and air. Mercury, beryllium, thallium, cadmium, and arsenic are some of the most highly contaminated substances from electronic waste. The matter can expose people especially waste collectors to polychlorinated biphenyls (PCBs) and brominated flame retardants (BFRs), which have been linked to cancer, miscarriages, neurological damage, and lower IQs [2].

Apart from its damage to the environment and health, it is also important to take into account how

technological products affect climate change. Unlike food waste, e-waste is not biodegradable, meaning it cannot be decomposed and dissolved by natural agents. Thus, it can remain on earth for thousands of years, leaving a carbon footprint and contributing to global warming.

On a global scale, some countries have come up with policies and regulations to tackle this overwhelmingly large amount of e-waste. For example, all the European Union's members have now incorporated Waste Electrical and Electronic Equipment Directive (WEEE Directive), into their national laws. The Extended Producer Responsibility (EPR) states that "Users of electrical and electronic equipment from private households should have the possibility of returning WEEE at least free of charge" [3]. This gives new life to e-waste and gives businesses a competitive incentive to design equipment with lower costs and liabilities. South Korea also implemented a similar program in which the MOE collects large household appliances such as washing machines and air purifiers for free. Starting as a pilot project in 2012, operating only in Seoul, this later expanded to other cities such as Busan, Daegu, Daejeon, and Gwangju and then nationwide in 2014 [4].

However, these government policies do not work without buy in from citizens. That is why it is important for us all to be aware of e-waste and take part in preventing it from getting worse. We should recycle and reuse when possible and when not, donate and discard correctly at proper recycling centers.

Sources

[1] Forti, V., Baldé, C. P., Kuehr, R., & Bel, G. (2020). The global e-waste monitor 2020. Quantities, flows, and the circular economy potential, 1-119.

[2] The growing environmental risks of e-waste. Geneva Environment Network. (n.d.). Retrieved September 1, 2022, from https://www.genevaenvironmentnetwork.org/resources/updates/the-growing-environmental-risks-of-e-waste/

[3] Hodges J.D. (2007, June 1). What is WEEE and why should you care? Eco PC Review. (n.d.). https://web.archive.org/web/20090802112435/http://www.ecopcreview.com/weee1

[4] United Nations Development Programme. (2019). Sustainable Development Goals Policy Brief 7: E-waste Management in Korea Focusing on Seoul. https://www.undp.org/seoul-policy-centre/publications/sdg-policy-brief-7-e-waste-management-korea-focusing-seoul

03

An Overview of Ethical Hacking

Qiyan Emily WU
Department of Economics, UIC, Yonsei University

Ethical hacking, also known as penetration testing or hat hacking, is the practice of testing one's own security vulnerabilities. By assessing the overall security of a system, ethical hackers can help identify weaknesses and address them before an incident [1]. Ethical hackers usually utilize similar techniques as malicious hackers, but the main difference is that they would not cause any damage to the existing data but only aim to spot the potential routes for leakage. The concept of ethical hacking was first introduced in 1995 by John Patrick, the vice president of IBM. However, the practice has only become popular as more and more people began to focus on cybersecurity.

Although such digital practice seems innocuous, there are potential concerns and risks that need to be addressed. For example, one of the disadvantages of ethical hacking is the risk of information disclosure. Since ethical hackers can freely access the company's confidential data, there remains a risk that they may either intentionally or unintentionally relay the important information to other parties [2]. Such disclosure can also result in legal disputes between the company and the hackers, especially when the ethical hackers are externally employed. Ethical hacking may also become a burden to the firms expenses; many developing

countries such as Pakistan do not have domestic training for proper hacking, and therefore hackers have to obtain certification issued from abroad, which raises the overall cost of the service [3].

Nevertheless, ethical hacking is still a useful method that should be applied to organizations that handle personal information and data. Recently there are also many firms designed to provide such service specifically. For example, Detectify, a security platform that connects ethical hackers to corporate systems, has recently secured 10 million dollars from the funding project led by Insight Partners [4]. According to the company's CEO, the platform aims to test customers' entire attack surface in order to discover potential risk. Likewise, although firms may also employ individual hackers to examine their corporate systems, it may be safer to utilize the developed platform to prevent potential legal and ethical concerns.

Meanwhile, many developing countries are also actively developing an environment that could foster the education and employment of ethical hackers. Earlier this month The Union Bank of India announced that it had inaugurated the Ethical Hacking Lab at the Cyber Security Center of Excellence, and will utilize such mechanism to not only protect the bank's user information but also applied to other areas such as digital assets and channels [5]. Ethical hacking is thus a practice that should be applied to all industries, and organizations should construct infrastructure beforehand in order to fully address cybersecurity issues.

Sources

[1] Jain, Aditi. (2022, July 05). Ethical hacking issues: professional, legal, social & cultural. KnowledgeHut. https://www.knowledgehut.com/blog/security/ethical-hacking-issues

[2] Johansen, Rowena. (2017, March 24). Ethical hacking code of ethics: security, risk & issues. Panmore Institute. https://www.knowledgehut.com/blog/security/ethical-hacking-issues

[3] Imran, M., Faisal, M., & Islam, N. (2019, November). Problems and Vulnerabilities of Ethical Hacking in Pakistan. In 2019 Second International Conference on Latest trends in Electrical Engineering and Computing Technologies (INTELLECT) (pp. 1-6). IEEE.

[4] Wiggers, Kyle. (2022, September 29). Detectify secures $10M more to expand its ethical hacking platform. TechCrunch. https://techcrunch.com/2022/09/29/detectify-secures-10m-more-to-expand-its-ethical-hacking-platform/

[5] Arora, Sumit. (2022, September 29). Union Bank of India inaugurated ethical hacking lab. Adda247. https://currentaffairs.adda247.com/union-bank-of-india-inaugurated-ethical-hacking-lab/

04

Stock Price Prediction: Methods and Challenges

Sereimony SEK

Department of Computer Science, Yonsei University

Stock prices reached all time highs during the pandemic with Tesla's value rising from $117 billion in January 2020 to $658.39 billion by the end of that year [1]. Zoom, which was at the center of demand with remote work, increased its market value by $93 billion in the same year [2]. In response, researchers, financial analysts and data scientists are working on different techniques to find patterns in stock price prediction. The goal is to find the high and lows and the future changes in stock value - it presents the possible rates of increase or decrease in upcoming days or months. If share movements can be predicted accurately, investors will be able to gain more and avoid risks when purchasing the stock.

There are two major methods in stock market analysis: fundamental and technical analysis. Fundamental analysis determines a stock's value by examining the external and internal elements that might influence the stock's price. This type of analysis is better for long term investment as the results do not change much in the short-term. Technical analysis uses indicators to calculate the company's performance. It uses the data of the current price market to make predictions about the stock's future. Instead of regular investors, this technique is used by expert analysts by implementing machine learning techniques to optimize accuracy. The

method mainly utilizes a deep learning framework for time-series called Long Short-Term Memory (LSTM). However, these techniques are not 100% accurate. It is rare for expert analysts to predict the stock prices even with 60% to 80% accuracy [3]. Consequently investors should consider many indicators in order to ensure that the price prediction is closest to the possible range and make investment decisions accordingly.

Predicting stock prices is challenging because the future, by nature, is unforeseeable. Experts assume stock prices will go up or down based on current trends, but this will only be true if the trend remains. Moreover, stocks are especially complex and involve many factors: supply and demand, political events, inflation, deflation, changes in economic policy, world affairs and industry performance. No one could have predicted the COVID-19 pandemic, but its effects were devastating.

Just like the weather forecasting, it is impossible to perfectly predict the stock market. Yet there are many academic papers being written and thousands of researchers working on solving this complicated problem. It might take longer for this issue to be solved and improved. Therefore, instead of relying on stock price prediction, let's use these findings and research to help in determining risk.

Sources

[1] Sharma, R. (2022, July 13). Why Tesla (TSLA) skyrocketed during the pandemic. Investopedia. Retrieved September 27, 2022, from https://www.investopedia.com/why-tesla-skyrocketed-during-pandemic-5211590

[2] Peter, C. (2021, March 10). The impact of covid-19 on Capital Markets, one year in. McKinsey&Company. Retrieved September 27, 2022, from https://www.mckinsey.com/capabilities/strategy-and-corporate-finance/our-insights/the-impact-of-covid-19-on-capital-markets-one-year-in

[3] Sajumon, A. (April 17). Stock Market Prediction – How to Predict Stock Price for Next Day? Fisdom. Retrieved September 27, 2022, from https://www.fisdom.com/predict-stock-price-for-the-next-day/

05

Bruce Willis Becomes First Actor to Sell Deepfake Likeness

Taylor Nicole STARR

Department of Life Science and Biotechnology, UIC, Yonsei University

Iconic actor Bruce Willis has become the first celebrity to sell the rights to his likeness to a deepfake production firm. This means that he will be able to participate in the filming of upcoming projects, such as commercials, without ever having to be on set [1]. His goal is to create an artificial twin of himself, through his likeness being superimposed on the body of another.

Deepfake technology is "synthetic media in which a person in an existing image or video is replaced with someone else's likeness" [2]. It has been utilized not only in photos, but also videos and audio recordings that allow a person and their likeness to be manipulated by AI technology [3]. This is done through two different techniques - face swapping, which removes the face of the actual person taking part in the video and allows it to be covered by another person's, and facial manipulation, which allows the technology to imitate the face of another [3].

Deepfake technology is not a new invention, and has garnered largely negative responses, reactions, and attention with its rise in popularity. Undoubtedly, it is important to acknowledge both the positive and negative impacts of advancing ICT. If you are concerned that an image may have been deepfaked, there are

dozens of errors and flaws that allow you to discern a real image from a fake one. Deepfake content has been known to demonstrate inconsistent eye blinking, mismatched jewelry and accessories, and a lack of definition in some features. A smile may appear duller, or a face may appear far fuller than usual.

However, the technology is also incredibly beneficial and can have several positive impacts. The first and foremost is undoubtedly entertainment, which allows media companies to utilize an actor without needing them to be actually available. This is especially relevant to Willis, who has retired in an effort to help treat his personal health issues. He has chosen to be the pioneer of this new industry, after giving US firm Deepcake the rights to his image. The most recent use of his image was in an ad for Russian mobile phone company Megafon [4].

Undoubtedly, this a bold career move into an industry that very few others have attempted to embark on. Although Willis is the first actor to do so, he will almost certainly not be the last who will choose to utilize and profit off their image in this way. It is a positive for those pushing for the correction and fair use of deepfake technology, for things such as e-commerce and communication.

Sources

[1] Jones, T. (2022). Actor Bruce Willis Becomes First Celebrity to Sell Rights to Deepfake Firm. Collider. Retrieved 30 September 2022, from https://collider.com/bruce-willis-sells-rights-to-deepfake-firm-deepcake/.

[2] Johnson, D. (2022). What is a deepfake? Everything you need to know about the AI-powered fake media. Business Insider. Retrieved 30 September 2022, from https://www.businessinsider.com/guides/tech/what-is-deepfake.

[3] Office, U. S. G. A. (2020, October 20). Science & Tech spotlight: Deepfakes. Science & Tech Spotlight: Deepfakes | U.S. GAO. Retrieved September 30, 2022, from https://www.gao.gov/products/gao-20-379sp

[4] Garbutt, E. (2022, September 30). Bruce Willis becomes first actor to sell the rights to his likeness to Deepfake Company. gamesradar. Retrieved September 30, 2022, from https://www.gamesradar.com/bruce-willis-deepfake-sell-megafon-advert/

Barun ICT Global News

Publisher: Beomsoo KIM
Editor in Chief: Sungju Lee
Editors: Alexandra STEPHENSON, Yeeun KIM
Translators: Kyongju YU, Yeeun KIM, Subin BAEK
Designer: Subin LEE

Oct & Nov 2022

** Please note that any external contributions to the Global News do not represent Barun ICT's official views.*

YONSEI UNIVERSITY

Barun ICT Research Center

Barun ICT Research Center, Yonsei University
50 Yonsei-ro, Seodaemun-gu, Seoul 03722, Korea
+82-2-2123-6694 | www.barunict.org

https://www.instagram.com/barunict/
https://www.facebook.com/barunict/