

Ethical Issue in Computer Vision and Artificial Intelligence

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1 Introduction

Computer vision(CV) is a field of computer science which deals with identifying, processing images and provide useful results based on the observation. CV is closely linked to artificial intelligence as it is required in processing the gathered data . Artificial intelligence(AI) is the ability of computer systems to be able to think like human beings or any living thing. It must be able to make decisions without assistance.

2 Ethics issue in computer vision

2.1 Espionage (Spying)

Surveillance cameras are always gathering information about people. Large cloud-based data of photos and videos are available online. Identities of people can be easily captured. And thus, the agencies and individuals can perform spying. Many times, the policies about CV based product are not read and mentioned properly, people do not know how this data will be handled. Sometimes even the innocent may be accused.[5, 4]

2.2 Identity theft

Data gathered by cameras contain information about the people. Image classification can classify, filter images from a vast data making extraction of sensitive information easy. Thus, leading to theft or insult in some form. The face recognition can detect person's ethnicity, race, gender which may lead to discrimination by differential products' deployment. A collection of photos can be aligned to get a whole story about a person or a community.[5]

2.3 Malicious attacks

Majority of security deals with CV (Facial recognition, biometric impression). It can be vulnerable to attack. For example, Trojan horse attack (replacing

the recognition system's feature extractor with a program that creates feature set desired for theft), Spoofing (the features generated by recognition systems are replaced by fake synthetically generated features). CV tools like reverse image search has developed to an extent that they can solve the captcha used for authentication test. This leads to compromise in security.[5]

2.4 Reliability

Unlike human vision which appears to be a single integrated unit, computer vision does not work like human brain. It breaks the problem into multiple sub-problems. The computer vision has to go through large amount of data to give a result even when the information is very trivial. Due to so many processes to be done by a CV machine the chances of mistake are high. CV may not recognise materials under copyright and may lead to copyright infringement[5]. Spoofing can be done. E.g. – a system developed for detecting informal settlements using satellite can be spoofed by covering rooftops with different materials[2].

3 Ethical issues in AI

3.1 Unemployment

Now it has become possible to do many predictive jobs very precisely by machines. This will replace many human jobs by automated robots. They are able to produce more revenue by lesser labour involvement. You may say this will also create new better jobs. This was true during 20th century but in this century, it has been seen that newer technology has not created jobs. E.g. – in 1979 general motors had 800,000 employees and made 11 billion USD, in 2012 google made 14 billion USD while employing 58,000 people. In 2004 Blockbuster had 84000 employees, made 6 billion USD. In 2016 Netflix had 4500 employees, made 9 billion USD.[1, 3]

3.2 Wealth inequality

By using AI a company can reduce humans in the industry. Thus the wealth created by the industry will go to fewer people, widening the wealth gap.[1]

3.3 Interaction of people

Nowadays due to large increase in data consumption, the development in interaction apps has attracted many developers to add AI to it. Making it more attractive, addictive. This has led to lesser interaction between people, isolating many people from the immediate physical society. This makes the people misbehave, interpret the things wrongly.[1]

References

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