



# Media forensics

with Professor Siwei Lyu

## Talking points

### Knowledge

1. How is generative artificial intelligence (AI) different from conventional AI?
2. In the context of photos and videos, what are artifacts?

### Comprehension

3. How would 'poisoning' a video prevent people from using it to make a deepfake?
4. In what way are Siwei's detection tools like X-ray scanners?

### Application

5. Imagine you are scrolling through Instagram and you see a video that does not look quite right. How could you figure out if the video was a deepfake?

### Analysis

6. How can deepfakes impact national security?
7. Do you think that pre-emptive measures or detection techniques will be more effective at solving the problem of deepfakes? Why?

### Synthesis

8. A generative AI algorithm is being used to help rehabilitate stroke patients. How else do you think generative AI could be used to benefit society?
9. In what ways could online platforms such as YouTube and Instagram do more to protect people against deepfakes?

### Evaluation

10. Deepfakes have a massive potential to spread disinformation. How dangerous do you believe this is for society? Give reasons for your answer.
11. Ultimately, do you think that generative AI will be beneficial or detrimental to society? Give reasons for your answer.

## Activities

### 1. Poster Protection

Basing the content on what you have learnt from Siwei's article, create a poster to display in your school to warn your fellow students about deepfakes. Your poster should include some information on what deepfakes are, where students might see them, and why they are a problem. You should also give your fellow students some tips on how to spot deepfakes so that they can avoid being tricked.

Your poster should be eye-catching, to ensure that people take notice of it, but also informative, so that people can better protect themselves. It is important to get this balance right.

### 2. Generative AI for good

In groups of three, discuss your answers to 'Talking point' number 8: How else do you think generative AI could be used to benefit society?

As a group, mindmap your ideas and decide which has the most potential to be a successful research project. Imagine that you are pitching your idea to a committee which has the power to give your project funding.

Create a presentation explaining your idea and persuading the committee to give your research group funding. Explain to them why you think your research project is important and how you would go about conducting your project. Committees like this often have a limited amount of funding that they can give, so do some background research to ensure that you have a solid plan. Siwei's article and the videos in the 'more resources' section below provide a great starting point.

## More resources

- Watch these videos of Siwei discussing generative AI and his research:

▶ [youtube.com/watch?v=Hqd5U7WMD34](https://www.youtube.com/watch?v=Hqd5U7WMD34)

▶ [youtube.com/watch?v=bjo2Zw5LqXo](https://www.youtube.com/watch?v=bjo2Zw5LqXo)

- The Department of Computer Science and Engineering at University at Buffalo, The State University of New York offers a summer school ([www.cse.buffalo.edu/youth\\_programming](http://www.cse.buffalo.edu/youth_programming)) as well as a dedicated programme for high school girls ([www.buffalo.edu/wise.html](http://www.buffalo.edu/wise.html)).

- Visit Siwei's university homepage to learn more about his work: [cse.buffalo.edu/~siweilyu](http://cse.buffalo.edu/~siweilyu)