

# MACHINE LEARNING WITH DR HAIPENG LUO

## ACTIVITY

### ETHICS AND ARTIFICIAL INTELLIGENCE

While artificial intelligence has the potential to provide humanity with many benefits, there are also many ethical and safety implications that must be considered.

Conduct research online into the ethical implications of artificial intelligence. Think about how more powerful algorithms and humanity's increased dependence on computers might have detrimental impacts. Here are some ideas to help you get started:

- The potential for bias and discrimination
- The denial of individual freedoms and autonomy
- Non-transparent and unexplainable outcomes
- Invasions of privacy
- Isolation and disintegration of social connection
- The potential impacts on the job market

Once you have completed your research, discuss your finding with your classmates.

- Did they discover anything different from you?
- Do you agree or disagree about the potential benefits and disadvantages of artificial intelligence?
- Can you suggest solutions to overcome any problems?

Remember that this topic is still being debated by many scientists, researchers, business leaders and politicians all over the world, so don't expect to agree on everything. Respect each other's opinions and use this as an opportunity to discover different perspectives.

## TALKING POINTS

### KNOWLEDGE

1. How much is the global machine learning market expected to be worth by 2024?
2. What does FATE stand for?

### COMPREHENSION

3. How and why do streaming services such as Netflix use machine learning?
4. How do reinforcement learning algorithms learn about their environments?

### APPLICATION

5. How could Haipeng's new approach to reinforcement learning influence real-world technologies?

### ANALYSIS

6. How is a non-stationary environment different to a stationary environment?
7. What problems might arise from the wide-spread use of self-driving cars? How do you think machine learning algorithms will try to address these issues?

### SYNTHESIS

8. How would you design a framework that ensures artificial intelligence technologies adhere to the principles of FATE?

### EVALUATION

9. Do you believe that self-driving vehicles are a good idea? Why, or why not?

### CREATIVITY

10. What other real-world applications can you think of in which artificial intelligence might be useful?

## MORE RESOURCES

- The University of Southern California offers a wide range of summer schools for high school students: [summerprograms.usc.edu](https://summerprograms.usc.edu)
- Learn more about the International Collegiate Programming Contest, which inspired Haipeng to become a computer scientist: [icpc.global](https://icpc.global)
- The Society for the Study of Artificial Intelligence and Simulated Behaviour has resources and events that will help you explore the field of machine learning: [www.aisb.org.uk](https://www.aisb.org.uk)