

# AI AND NATURAL LANGUAGE PROCESSING WITH PROFESSOR YULAN HE

## TALKING POINTS

### KNOWLEDGE

1. What is natural language processing?
2. What is an event triple?

### COMPREHENSION

3. Why is it challenging to build natural language processing into computers?
4. Why is Yulan using a combination of text and images to train computers, rather than one or the other?

### APPLICATION

5. How do you think Yulan's work for pharmaceutical company AstraZeneca might apply natural language processing?
6. 'I went to a coffee shop. I had a flat white.' What is the subject, predicate and object of this event?

### ANALYSIS

7. How might what we understand as 'common sense' differ between cultures or social groups? What implications might this have for Yulan's research?
8. Passing the 'Turing test' is a hypothetical scenario in which, during a text conversation, an AI system can convince a human they are communicating with another human, not a computer. Do you think natural language processing would enable AI to pass this test?

### EVALUATION

9. Yulan mentions that only a handful of large tech companies can afford to invest in developing sophisticated AI. Why might this be an issue?
10. Despite AI's many positive applications, the Centre for the Study of Existential Risk lists AI as a potential threat to the future of humanity. Why do you think this is? How can researchers like Yulan help address this risk?

## ACTIVITIES YOU CAN DO AT HOME OR IN THE CLASSROOM

Consider the phrase "I never said he ate my sandwich."

1. How does the meaning of the sentence change depending on which word the emphasis lies? Summarise how you would understand the meaning of each:
  - a. *I* never said he ate my sandwich.
  - b. I *never* said he ate my sandwich.
  - c. I never *said* he ate my sandwich.
  - d. I never said *he* ate my sandwich.
  - e. I never said he *ate* my sandwich.
  - f. I never said he ate *my* sandwich.
  - g. I never said he ate *my sandwich*.
2. Imagine you came across this sentence in a passage in a story, where no word is italicised, so the emphasis is not clear from reading the sentence alone. What information would you use to work out which version (a-g) is meant?
3. Imagine Yulan's AI computer model has read the same passage and sentence within it. How would it utilise the frameworks described in Yulan's article to decipher the sentence's meaning?

## MORE RESOURCES

- Yulan works in the Natural Language Processing Group at the University of Warwick. Its website explores their work and their outreach activities:  
[www.warwick.ac.uk/fac/sci/dcs/research/nlp](http://www.warwick.ac.uk/fac/sci/dcs/research/nlp)
- This article explains more about natural language processing and how it is already used to some extent in the AI we use in our daily lives: [www.futurelearn.com/info/blog/what-is-natural-language-processing-nlp](http://www.futurelearn.com/info/blog/what-is-natural-language-processing-nlp)
- This video from TED-Ed examines how a machine might pass the Turing test:  
[www.youtube.com/watch?v=3wLqsRLvV-c](http://www.youtube.com/watch?v=3wLqsRLvV-c)