



IBM course AI(mod1)

The Debater Project

Can an AI win an argument?

- IBM's Project Debater, developed since 2012, aimed to build an AI system capable of engaging in complex debates with humans.
- The goal was not merely to answer questions but to listen to and intelligently respond to competitive arguments from humans.
- IBM's ultimate objective was to assist people in making evidence-based and bias-free decisions on challenging topics with unclear answers.

It takes four steps to win a debate

To get a feel for what winning a debate requires, try putting yourself in the AI's position. What would it take to enable you to intelligently debate a human opponent?

Learn and understand the topic, Build a position, Organize your proof, Respond to your opponent

Step 1 = learn and understand the topic

Ingest several billion passages from newspapers, books, and journals. (AI researchers call this collection of learned material a **corpus**.) Then, structure all that content so you can relate concepts to each other and evaluate them, even when they're stated in different ways.

step 2 = build a position

Create an opening speech made of short pieces of text pasted together from the corpus. Your speech should detail your position on the debate topic. It can't be a jumble of phrases. It must present a compelling argument, in logical order, using good grammar.

step 3 = organize your proof

Learn the deeper meaning of the facts that surround your topic. Decide what evidence is strongest and arrange your proof by themes. Adjust your arrangement each time new evidence arrives. This will help you find updated or completely new information that can score points against your opponent's position.

step 4 = respond to your opponent

Listen to your opponent's arguments and rebuttals, then deliver a convincing rebuttal that refutes your opponent and further proves your case.

Cognitive systems understand, reason, learn and interact



Understanding

Cognitive systems understand like humans do.



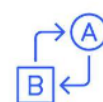
Reasoning

They reason underlying ideas and concepts. They debate. They infer and extract concepts.



Learning

They never stop learning. Advancing with each new piece of information, interaction, and outcome. They develop "expertise."



Interacting

... Allowing them to interact with humans.

Is it difficult to understand human language?

Understanding human language is difficult, even for people who have grown up with it. Human language is incredibly complex, full of strange expressions that seem to contradict each other, metaphors that require cultural knowledge to understand, and

grammatical structures that sometimes turn simple ideas into **tongue-twisters**. Machines require systems that research scientists call **natural language processing**, or **NLP**, to understand human language. IBM Project Debater was the most complex AI system IBM Research had ever built to understand human language.

Whether or not you agree with IBM Project Debater's position in this debate, IBM Project Debater rebutted its opponent with clear and well-argued statements, complete with examples and even a metaphor. This is a major step forward in the field of natural language processing.

IBM Project Debater was a success. Gradually, this artificial intelligence grew more skilled until it could regularly win debates. Once again, this was a major step forward in the field of natural language processing.