

## **Down the AI Hole with Gary Marcus**

This week, we interviewed Gary Marcus, the infamous AI critic. The future of artificial intelligence is not an optimistic one for him!

Gary's criticism dates to the early 1990s while he was an apprentice under Steven Pinker, and the two published a paper making this bold claim: neural networks can't even learn language skills as a little child could. His claims have only become bolder through the years. During the interview, Gary touched on several such problems with the direction deep learning seems to be taking. However, he still stands by a quote he wrote a decade ago, saying, "Hinton has built a better ladder, but a better ladder doesn't necessarily get you to the moon".

A big concern area right now is large language models. While most of the industry is focused on creating the likes of GPT-3, it will only delay the course of AGI for Gary.

While machine translation has seen success, machine comprehension is playing catch-up. "People are not acknowledging the limits," he said. Models like GPT-3 and DALL-E are only creating an illusion to fool humans into thinking the machine can comprehend well. DALL-E looks to progress in some ways, but Gary pointed out its lack of ability to solve the problem of language or recognise relationships.

This reality of AI faking its way through also makes Gary suspect the idea of technological singularity- when machines will be more intelligent than humans, is a 'gross oversimplification'. Also, considering that intelligence is not singular but has different facets, Gary believes there will be "no magic moment of singularity". He also advocated for the nativist approach, innate machinery and a hybrid model of AI to change the direction of AI development. These were also his key argument in his 2017 debate with Yann LeCun, organised by the NYU centre for mind, brain and consciousness.

The debate was only the beginning of his drive to relay the limits of deep learning. He also received criticism from fellow researchers and tech enthusiasts. "The number of valuable recommendations ever made by Gary Marcus is exactly zero," Yann LeCun said, responding to Gary's paper detailing why deep learning paper isn't taking us to AGI. "LeCun kind of bullied me," Gary said. "It was like people following a political leader; everybody on Twitter jumped on me. Having a famous person tells you that you're wrong doesn't mean you're wrong."

Read the complete interview by our staff writer **Avi Gopani** here:

<https://analyticsindiamag.com/what-makes-gary-marcus-angry/> **(12-minute read)**