

My name is Yen-Chu Yu, and I major in mathematics. There is a wide range of jobs for math major students since math can be applied to many fields, especially for problem solving and analyzing. For example, cryptographer, mathematician, and economist are some common jobs for math degree students. Talking about computers doing math, we can all agree that most of the math calculations can be done with a calculator. On the other hand, the reasoning behind the equations and calculations are out of computer's capability because the concepts and theories are too abstract and require higher level thinking rather than some basic logic gate operations. In the future, maybe training an even more complex neuro network can overcome this kind of problems.

Designing a turning test for math AI with mostly fall into the two aspects: logical reasoning and calculations. The judge for logical reasoning doesn't necessarily need professional knowledge since all we need to check is that the computer gives a consistent and convincing reasoning. The questions would mostly be asking the reason of a certain math operation, such as why adding two numbers together or what does the given data represent? For the calculation, we might need people who can solve the questions which will be given to the computer, so they will be able to grade the working process and final answer. Questions can involve arithmetic or calculus operations and solving for unknown, but noting that geometry problems might fall into category of logical reasoning since it involves more logical thinking instead of calculations. In reality, we rely mathematicians to solve problem, and in the process of problem solving, it's necessary to communicate, understand, and apply various methods to the problem. Thus, only when combining two parts together, we can say that computers are actually intelligent in math.

In the next 10 years, I believe that computers can aid us in more different ways to doing math related works, such as more efficient ways to compute data, more accurate simulations, and faster information exchange. However, I don't think computers will be able to solve real life problems on their own any time soon.

When creating my math chatbot, I've realize it's actually very hard to implement a wide varsity of math operation within a week, so I decided to just implement really basic ability to recognize a math problem in the conversation. But I don't think that my chatbot will pass my turning test with such basic functions, and more importantly it doesn't have any problem solving ability that makes it actually intelligent.

Work cited

<https://www.zdnet.com/article/ai-aint-no-a-student-deepmind-flunks-high-school-math/>

<http://archive.is/mt4RO>