Foundations: Problem-Solving

People use problem-solving skills every day, whether they know it or not. In its most basic form, problem-solving is the process of finding solutions for certain issues. Whether it's something as simple as basic arithmetic, or as complex as quantum supremacy, people problem solve every day. Due to the nature of the concept of problem-solving, the methods and processes used can vary drastically from person to person. Thus, there are many ways to reach the same solution for a problem, driving people to create more efficient methods and processes as time goes on.

Recently, an article was published by the Financial Times titled “Google claims to have reached quantum supremacy”, and it has been quite a hot topic. A paper that was written by researchers at Google claims they have reached quantum supremacy, meaning that they were successful in having a quantum computer perform a calculation that was previously thought to be impossible. According to Google researchers, this event is “the first computation that can only be performed on a quantum processor” (Waters). For a currently unknown reason, the paper published by Google has been removed from the NASA website.

This is a massive leap forward in quantum technology, and is a start for more developments to come. I find this very interesting because once true quantum supremacy is
reached, calculations that are currently impossible with modern technology would be ‘simple’ with the power of quantum computers. This is related to problem-solving in the sense that it will create more methods of reaching certain solutions. While this current milestone has very little practical application to the real world and jobs, it sets a foundation for others to build off of in the future.

I learned that classical computing can only achieve at such a high level, and newer technology needs to be developed for significant progress to be made. People have hit a wall in processing speed, as people have yet to discover how to speed up electrical signals to make a computer operate faster. This is where problem-solving comes in, how can we make the electrons move faster? That’s why this quantum computer debacle is very interesting, it sheds some light on new technology that can compute anything at a much faster rate.

This topic of problem-solving and quantum computers is very exciting for me. Having a quantum computer that would be able to solve problems that normally would take millions of years on a classical computer will help technological growth exponentially. It might even lead to many more entirely new technologies people have not even thought about before, opening the door to more problem-solving capabilities and skills.

In lecture, we discussed how there are not only many possible methods to a single solution, there are also sometimes several solutions to a single problem, that can all be reached by several methods (Onesti). Taking this same concept and applying it to the article raises the question, what if quantum computers aren’t the best solution? There might be much more to these processes than people know about. This is a driving force behind many developments in human history, so who’s to say there aren’t other solutions for computational speed and power
besides quantum computers. Either way, I believe these recent findings show an exciting future for everyone in the technological field.

While the paper published by Google has been removed, it shows that these computational power and speed issues are being actively worked on. I find it very interesting how scientists are working with concepts that only a few decades ago were purely theoretical (Fisher), and I am very excited to see what the future of computing has in store.
Works Cited


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