

MOORE WILL NEVER DIE

In 1965, Intel co-founder Gordon Moore observed that the capacity of computer chips doubles every two years; not only describing the industry's exponential growth at the time, but also setting in motion a self-fulfilling prophecy for the technological development of our society in the decades to come. Last year, aged 94, he passed away. As we commemorate his legacy, we take a look ahead: will we be able to keep Moore's Law alive, and do we even want to, given the ecological impact technology has on our planet and its energy resources?



Maarten
Steinbuch

In 2018, I had the honor to meet the Dalai Lama. At the time, I was struggling with the question whether or not a robot can experience human emotions and feelings, like love. So, when I was presented with the opportunity to pick the mind and wisdom of one of the world's greatest spiritual leaders, I asked him: Can a robot fall in love? Can robots develop a conscience, the way humans do? The Dalai Lama smiled at me, and he told me that the deepest level of conscience, our being at its core, isn't something physical or chemical – and therefore isn't something we can build or construct using technology.

The power of tech

But, as I went home I thought to myself, 'what if it actually is?', what if everything – including our feelings and consciousness – is a product or a result of the chemical processes taking place in our brain? Then we can study it, learn from it, try to understand it and eventually maybe even build something capable of performing these same processes responsible for emotions or feelings: we can replicate the human brain with technology. It would take an infinite amount of data, and an even more powerful computer to process – but it would be possible.

I have always been a tech optimist. As a little boy, playing around with the tech boxes from Philips, I learned about the endless opportunities of technology. Technology is my gateway to understanding the world; it's what I'm passionate about. I'm curious about the way things work. So, I became a mechanical engineer. Later on, all grown up, I actually got to work at Philips myself. This is where I first learned of Moore's Law. I learned and saw up close how rapidly electronics evolved from this law. It catalyzed the implementation of deep fundamental knowledge in the industry – setting in motion a wave of technological development which led to modern society and all of its technological advantages.

Moore's Law is about us

To me, Moore's Law is much more than a quote from the Intel CEO in a tech magazine in the '60s. I think of Moore's Law as a formula defining our society, representing human's will to keep moving forward. So far, we've been proving that formula right. Over the past decades, we as humans were able to take a technological leap, setting in motion a wave of exponential growth unmatched in history. Because make no mistake, Moore's Law isn't just about technology, and it most certainly isn't a force of nature – it's about us: people. If we decide to stop innovating, if we decide to stop moving forward, Moore's Law will stop as well.

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Lately, some tech institutes and industry leaders are starting to hold back – saying the Law no longer applies, is beginning to decline and will eventually come to a standstill. But I think and see quite the opposite. I see researchers at TNO investigating and implementing new technologies, like photonics and smart materials. Engineers working at leading Dutch chip companies, like ASML, NXP and Nexperia, producing billions of chips that enable our society. And as a lecturer at Eindhoven University, I get to educate the next generation, who are eager and curious to shape the future of technology.

Playing with technology

Don't get me wrong, I'd be the last to say that (new) technology isn't without risk. Of course, it can be scary, and we should be concerned about its ecological impact and how we take care of our energy resources. But let's not forget that we are in charge here. We are shaping our society, responsible for making healthy choices, applying technology in ways that benefits us, our planet, nature and our future. I believe that, if we keep making smart decisions, there isn't a problem technology can't help us solve.

One of my favorite toys to play with is Pleo: a dino-like creature, comparable to a modern-day version of a Tamagotchi. Pleo starts with a blank page, and as you play with it, it begins to learn. It grows, starts to behave differently and grows a character based on its interactions with you. If you stop playing, Pleo stops learning. When I showed Pleo to the Dalai Lama, he instinctively took it into his arms and started to pet it. This interaction showed me that, instead of being scared, we should approach technology with curiosity, kindness and an open mind. This is the way to keep moving forward as a society, step by step. And if we get lost somehow, we can always look at Moore's Law, and see where it got us so far.