

# WHAT IF SOFTWARE WAS HUMAN?

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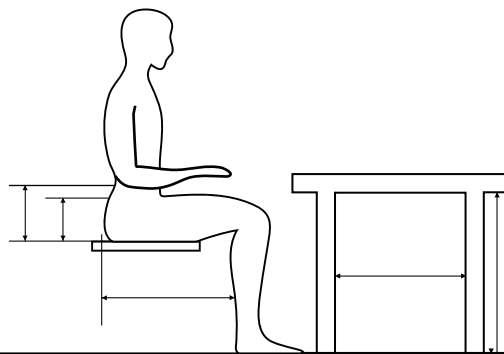
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Do objects have politics? More precisely, do the artifacts that we—as humans—design have intentionality behind them?

For years, philosophers have argued that the objects we create are inherently political. Meaning that when we design objects with a purpose in mind, that purpose carries a specific intent, whether we realize it or not. Why is that, and what does it mean for the future of humanizing software?

The argument is fairly straightforward—we are raised with conscious and unconscious biases, aware or unaware of our own preferences and our own persuasions.

And since we are raised with these biases, the output—the “stuff” that we create—automatically inherits those biases. After all, the objects we create come from us. Our creations are laden with politics, whether we realize it or not.



For example, a table is designed to be of a certain height. It is designed so that a person can sit comfortably at the table, perhaps to either eat or work. Sounds straightforward, right?

Consider this: if the designer fails to incorporate the needs of someone who is in a wheelchair (i.e. the table is too tall) then the table does not satisfy that individual's need to eat or work at it, and therefore the table is useless. The politics of the table is clear: it cannot be universally adopted or used.

So, if physical objects have politics, does that mean software does as well? What about the user experience? How can we be certain that the experiences and interfaces of tomorrow will cater to a universal audience?

Today, there are many cases where software has never been more human; increasingly, the line between man and machine is indistinguishable. The machines and interfaces we make take many forms; from smart phones to IoT devices, and are controlled by touch screens, voice commands, gestures, fingerprints, and more. These machines cater to most users—and that isn't by accident.

People are becoming more and more accustomed to the technology that is integrated into their daily routines, whether it's using voice to check the weather, face recognition to unlock a phone, or even pay for services. And this integration becomes seamless with software that understands how humans work.

It's already happening. Google's AutoML system **recently broke a record** for categorizing images by their content, scoring 82%. In iOS 11, **Apple's Siri digital assistant** uses layers of processing with a neural network that allows iPhones to mimic human speech. **And a recent survey from Dell** revealed that 82% of respondents predicted humans and robots will work together on teams within the next five years.

But machines don't become human-focused overnight. It takes time to infuse empathy and to create systems that serve users from all walks of life. We need to take care when developing intelligent technology to ensure a human-centered approach.

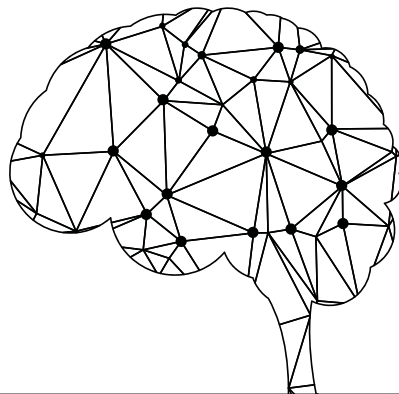
## Just like us?

Intelligent technology is driven by artificial intelligence (AI) and machine learning (ML), which are, in turn, driven by data. These three things drive the ability for humans to imprint ourselves on machines.

AI is technology that allows machines to have the same characteristics of human intelligence—our ability to sense, reason, and think.

Machine learning is an application of AI based on the idea that we should give machines access to data, parse it, learn from it, and then make a determination or prediction about something in the world. So, rather than write task-oriented software routines with a specific set of instructions, the machine is “trained” using large amounts of data and algorithms that give it the ability to learn how to perform the task.

But the real breakthrough is deep learning and neural networks.



Deep learning is a technique for implementing ML that is able to “learn” patterns from large amounts of unstructured data. One popular algorithmic approach is neural networks, a structure that actually imitates the configuration of the human brain. As these neural networks process data, the connected web of parts adjusts itself, and enables the neural networks to interpret future data.

By allowing machines to learn about the nuances of human behavior, the machine itself is able to respond more effectively to the user. Humans are able to interact in a way that feels natural while being “understood” by machines.

But the interface and overall solution suffer when a human-centered design approach is not taken, ultimately hindering the effectiveness or adoption of the solution itself.

A truly empathetic approach to experience design will address:

- The fundamentals of the user experience;
- An empathetic, human-centered approach to understand the user;
- Applying careful consideration and a deep understanding of who will use it and how;
- The value that the product will deliver to the user; and
- The relationship between the business and the customer.

Businesses are becoming more and more creative with regard to how they interact with their customers. So how will you use AI, ML, and experience design to drive your company into the future?

## **Driving business with AI**

Imagine a sales associate using a smart device to see a customer’s past purchases and concluding which products to offer in-person. Or a healthcare professional receiving a diagnosis and using it to influence a method of care. In these capacities, AI works to aid or augment what is ultimately a human decision, speeding the supply of information along.

AI may also be used for intelligent automation, which accelerates decisions without human intervention. Imagine providing 24/7 support to customers, going beyond clunky replies to rather intelligent beings that can communicate effectively. Imagine using robots that can think for themselves while they fulfill orders, zipping, traffic-free, through warehouses to aid with shipping. Imagine autonomous cars that you can send to do your shopping, pick up a friend, or even use yourself for safer transportation.

## **A more human machine using...**

### **Voice**

Voice has gone beyond being prompt-driven to comprehending entire exchanges, tones, and languages. And customers have taken notice, to the point where voice interfaces are regularly used by those who want to be hands-free. According to Gartner, by 2021, early adopter brands that redesign their websites to support visual and voice search will **increase digital commerce revenue by 30%.**

Voice commands can be used in any variety of products, from car dashboards to headphones, going beyond Amazon's Alexa or Apple's Siri. And voice control is under the spotlight as one of the best innovations in the immediate future. Voice interfaces are also being integrated into the healthcare industry as a way for providers to speak directly to log electronic health records (EHRs), for patients to monitor illness, and as an empowerment tool for those who want to live more independently. Voice interfaces can even serve as pseudo therapists, as in the way of **Replika**, an AI "friend" that listens to you.

## IoT

As pervasive as voice interfaces are, IoT devices also make up a large part of the application for human-driven software.

In many ways, IoT mimics many of the functions of the human body. The cloud being the "brain" and the device being the "body." IoT is all about the connectivity of sensors and field devices, connecting physical and digital worlds.

Connected home, personal wearables, and smart cities are only a few of the applications for IoT, but they create a foundation for innumerable other products. In fact, Gartner predicts that by 2020, **IoT technology will be in 95% of electronics** for new product designs.

Connecting devices means more data, which in turn creates more humanistic, personalized experiences for the user. Today, IoT devices can do anything: restock groceries via smart refrigerator, monitor insulin intake via wearable, lock your front door via app, etc.

## Other applications

There's still a lot of exploration to be done in other interfaces for humanistic software. In the realms of augmented and virtual reality (AR and VR, respectively), most are limited to considering gaming and entertainment values. However, there is a strong argument to be made for using AR and VR for training programs in intensive professions, like piloting or managing heavy machinery. There are also possibilities in the world of healthcare, as AR and VR are being explored as an avenue for learning to perform surgery.

## Conclusion

Businesses need to rise to the occasion of what customers expect, and human-driven software and interactions is the new normal. But these systems are incredibly complex, and do not always serve each and every user. That's why a truly human-centered approach, that mirrors as many of our behaviors as possible, is needed. In an age when virtually any company can develop a solution, creators need to address these imperatives.

In the future, machine learning and artificial intelligence might develop software on our behalf. We'll leave it up to the next generation of philosophers to determine if that software is human, or not.

For now, we as humans continue to blend man and machine, and it is absolutely critical to consider human-centered design from concept to production.

Imagine the opportunities that AI and ML will present for your business and ultimately for your customers. But also consider the negative impact of designing without such an approach—your software solution or interface could be laden with politics whether you realize it or not.

The future is now—is your business ready? **Contact SoftServe today.**

## ABOUT US

SoftServe is a global digital authority and consulting company, operating at the cutting edge of technology. We reveal, transform, accelerate, and optimize the way large enterprises and software companies do business. With expertise across healthcare, retail, financial services, software, and more, we implement end-to-end solutions to deliver the innovation, quality, and speed that our clients' users expect.

SoftServe delivers open innovation – from generating compelling new ideas, to developing and implementing transformational products and services. Our work and client experience is built on a foundation of empathetic, human-focused experience design that ensures continuity from concept to release.

Ultimately, we empower businesses to re-identify their differentiation, accelerate market position, and vigorously compete in today's digital, global economy.

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