

# The Future Electronic Pharmaceutical Brain

Implementing Artificial Intelligence into Drug Development

Article and design by: Steve Varghese



Hello!

## Technology is Everywhere

From Electronic Medical Records to Automated Medication Dispensing Systems, technology is the norm in every doctor's office and hospital in the country. However, there is one type of technology that is slowly making its way into the healthcare field: **Artificial Intelligence**

## Artificial Intelligence

Artificial intelligence is a branch of computer science that is focused on building smart machines that can perform tasks that would normally require human intelligence.<sup>1</sup> It can be seen everywhere you look. Here are some examples:



Apple's Siri Function



Spam Filters in Email

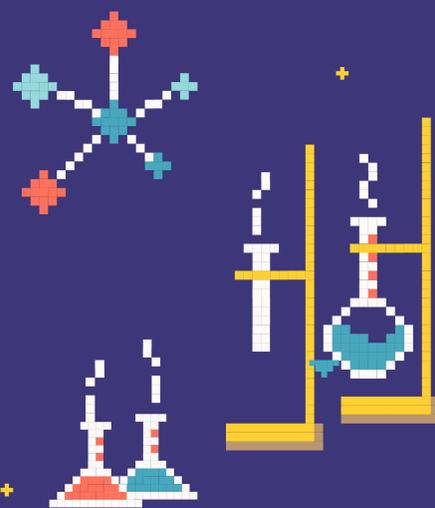


Snapchat Filters

## Increased Efficiency

Artificial Intelligence can be applied to every stage of drug development. This technology has shown that it has the capability to:

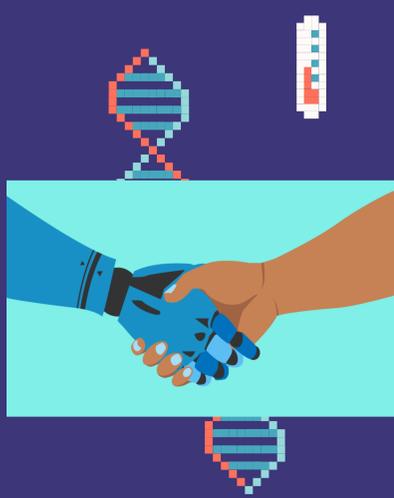
- Perform QSAR analysis
- Optimize *de novo* drug design
- Complete *in silico* evaluation of absorption, distribution, metabolism, excretion and toxicity properties?



## Collaboration

Artificial intelligence companies are already starting to collaborate with pharmaceutical and healthcare companies.

- DeepMind Technologies, a UK based AI company and subsidiary of Google, and the Royal Free London National Health Service Foundation collaborated with each other to assist in the management of acute kidney injury.<sup>3</sup>
- Atomwise, a pioneer in healthcare AI, has worked with Harvard, Stanford, and pharmaceutical companies to invent new potential medications for 27 disease targets.<sup>3</sup>



## The Time is Now

Artificial intelligence is becoming mainstream, so it is important for healthcare companies to begin adopting it. Now is the time for healthcare workers to become the pioneers of this technology.



### References:

1. Copeland BJ. Artificial Intelligence. *Encyclopedia Britannica*. Accessed October 1, 2020. [www.britannica.com/technology/artificial-intelligence](http://www.britannica.com/technology/artificial-intelligence).
2. Zhong F, Xing J, Li X. *et al*. Artificial intelligence in drug design. *Sci China Life Sci*. 2018;61:1191-1204. doi: 10.1007/s11427-018-9342-2
3. Mak KK, Pichika MR. Artificial intelligence in drug development: present status and future prospects. *Drug Discov Today*. 2019;24(3):773-780. doi: 10.1016/j.drudis.2028.11.014