

Epilogue

A final comment on the Neural Network.

In this guide, I hope that you have seen how some problems are easy for humans to solve, but hard for traditional computer approaches. Image recognition is one of these so-called “artificial intelligence” challenges.

Neural networks have enabled huge progress on image recognition, and a wide range of other kinds of hard problems too. A key part of their early motivation was the puzzle that biological brains — like a pigeon or insect brains — appeared to be simpler and slower, than today’s huge supercomputers and yet they could carry out complex tasks like flight, feeding and building homes. Those biological brains also seemed extremely resilient to damage, or to imperfect signals. Digital computers and traditional computing weren’t either of these things.

Today, neural networks are a key part of some of the most fantastic successes in artificial intelligence. There is continued huge interest in neural networks and machine learning, especially *deep learning* — where a hierarchy of machine learning methods are used. In early 2016, Google’s DeepMind beat a world master at the ancient game of Go. This is a massive milestone for artificial intelligence, because Go requires much deeper strategy and nuance than chess, for example, and researchers had thought a computer playing that well was years off. Neural networks played a key role in that success.

I hope you’ve seen how the core ideas behind neural networks are actually quite simple. And I hope you’ve had fun experimenting with neural networks too. Perhaps you’ve developed an interest to explore other kinds of machine learning and artificial intelligence.

If you’ve done any of these things, I have succeeded.

