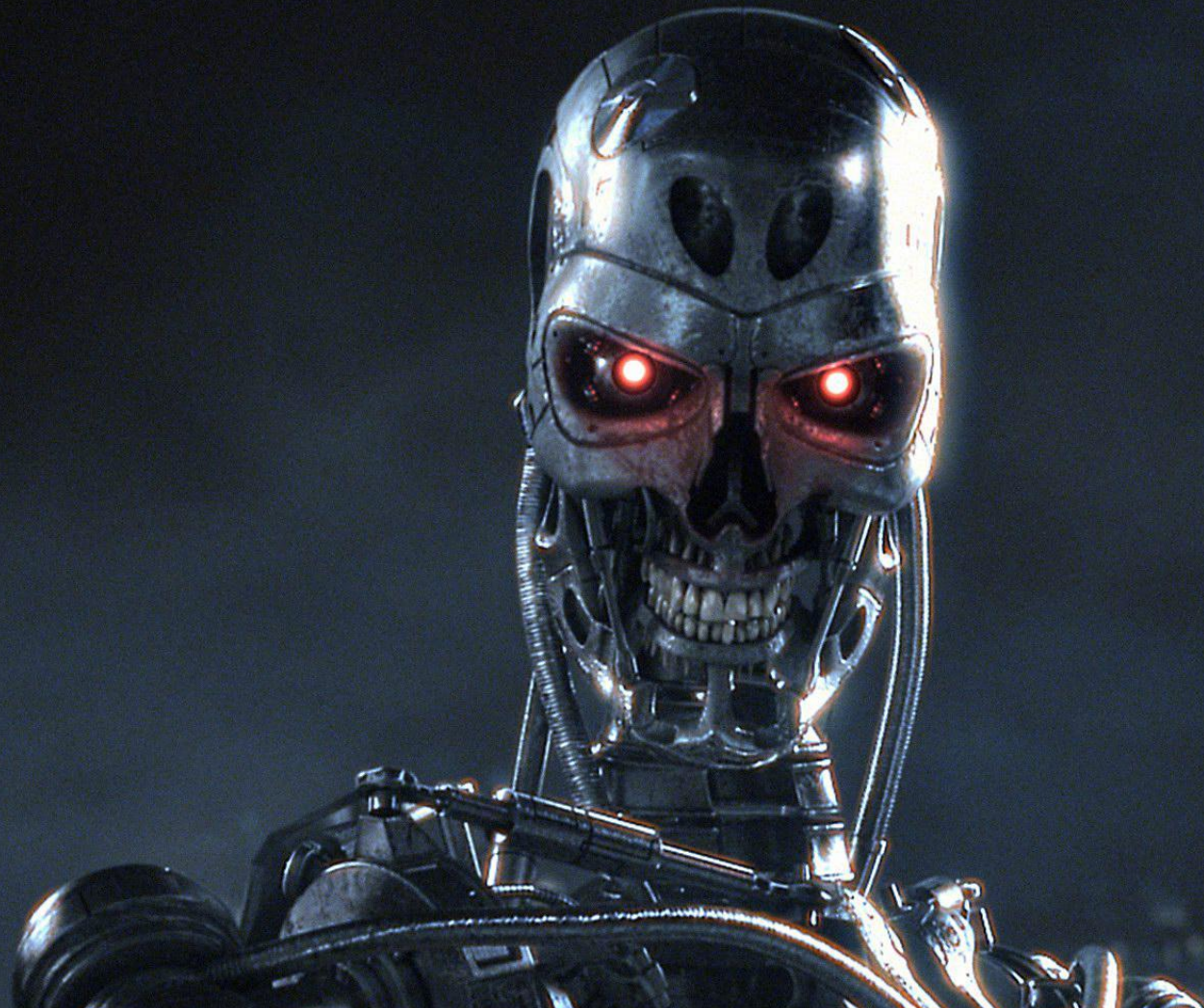



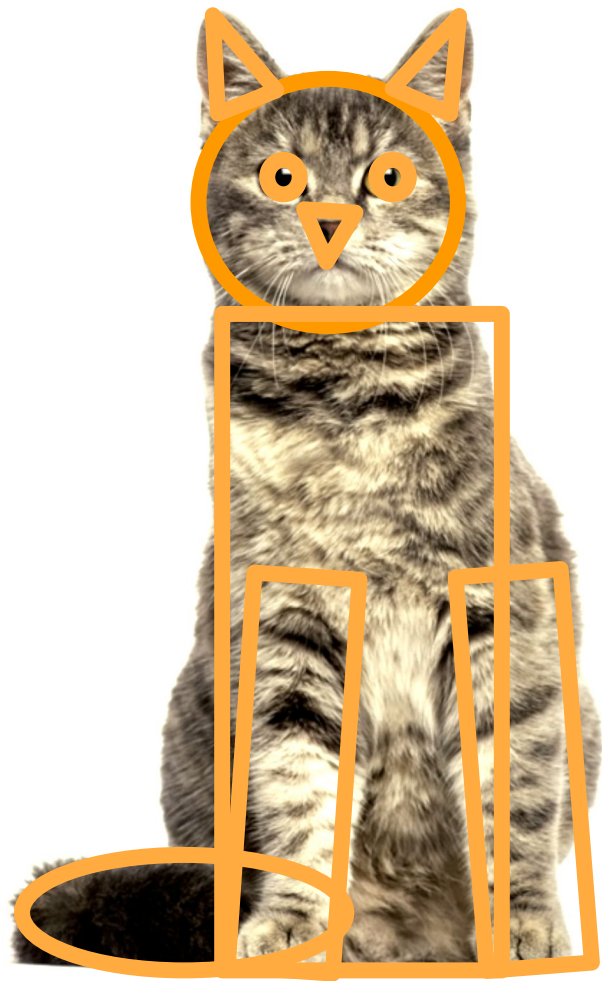
# Une introduction à l'intelligence artificielle

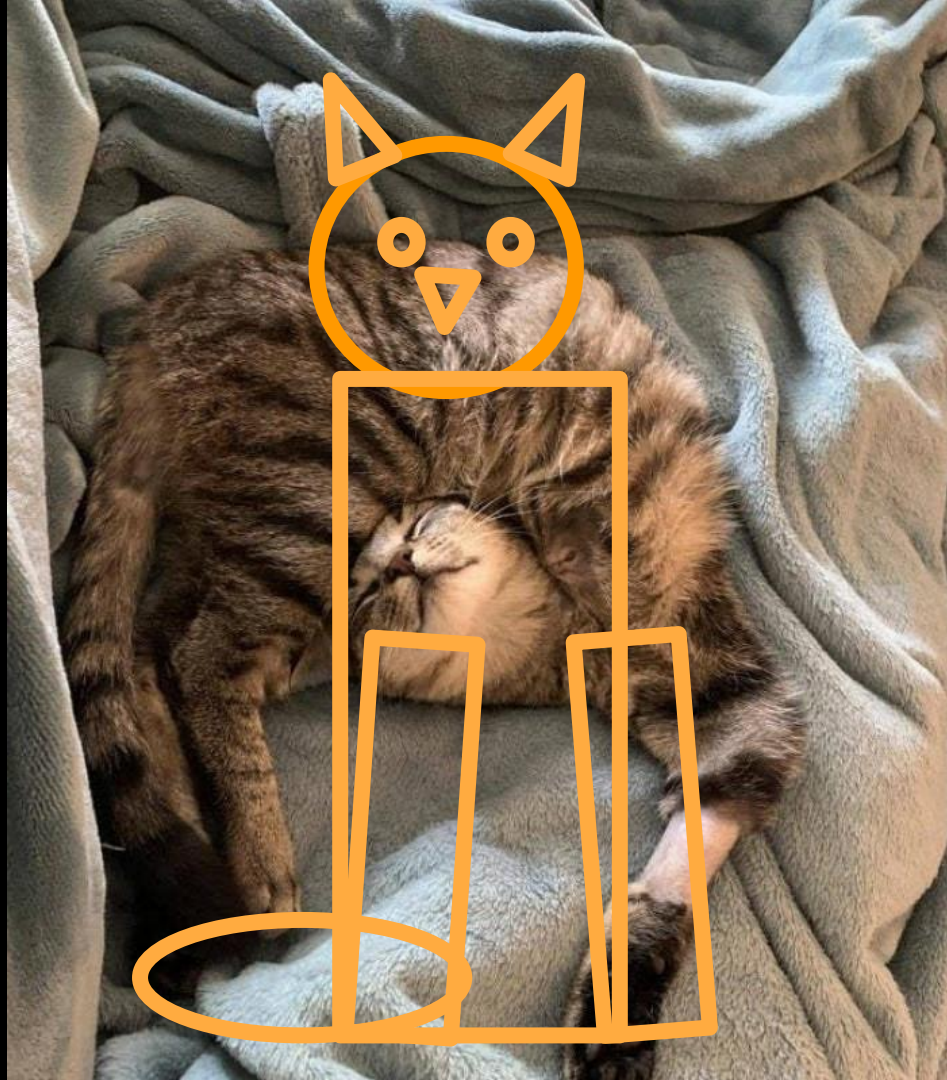
Gilles Louppe  
[g.louppe@uliege.be](mailto:g.louppe@uliege.be)



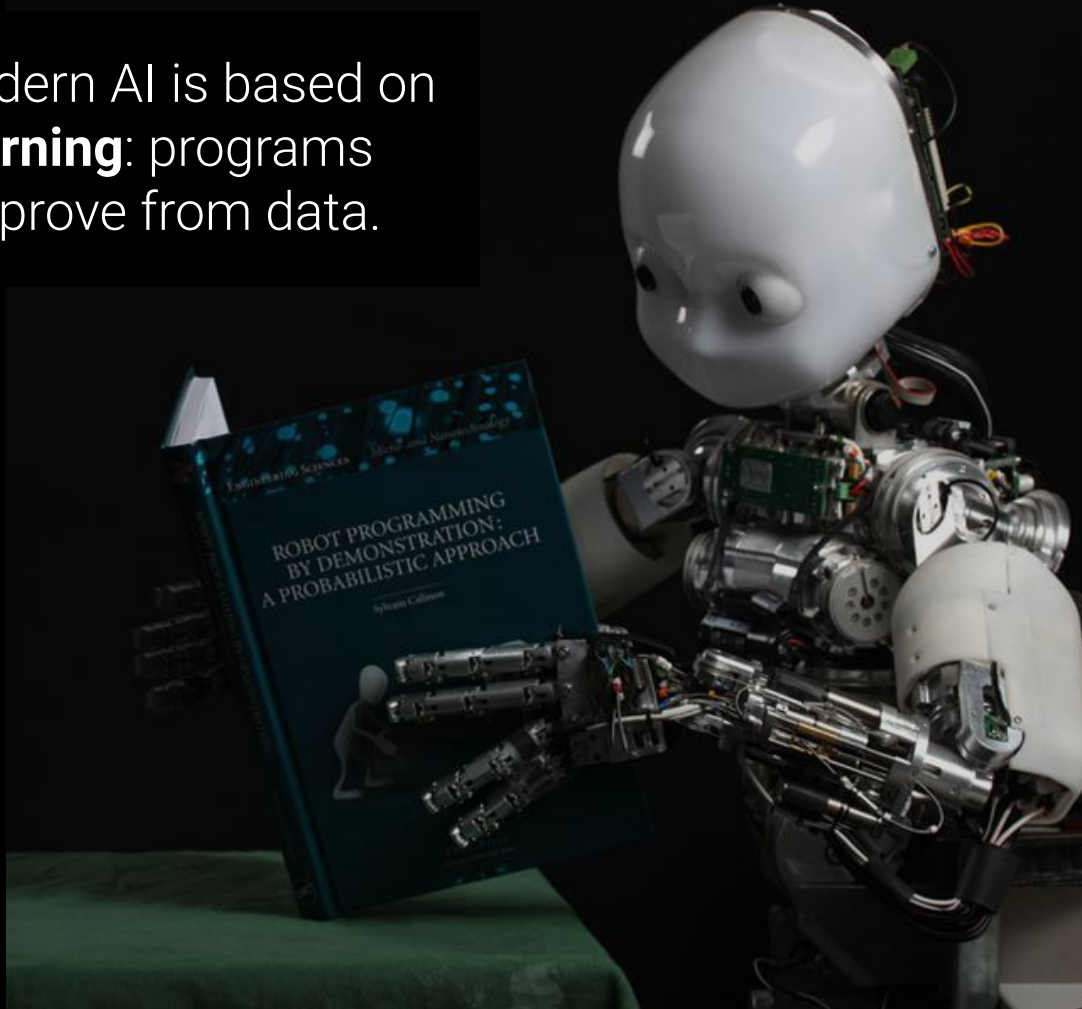


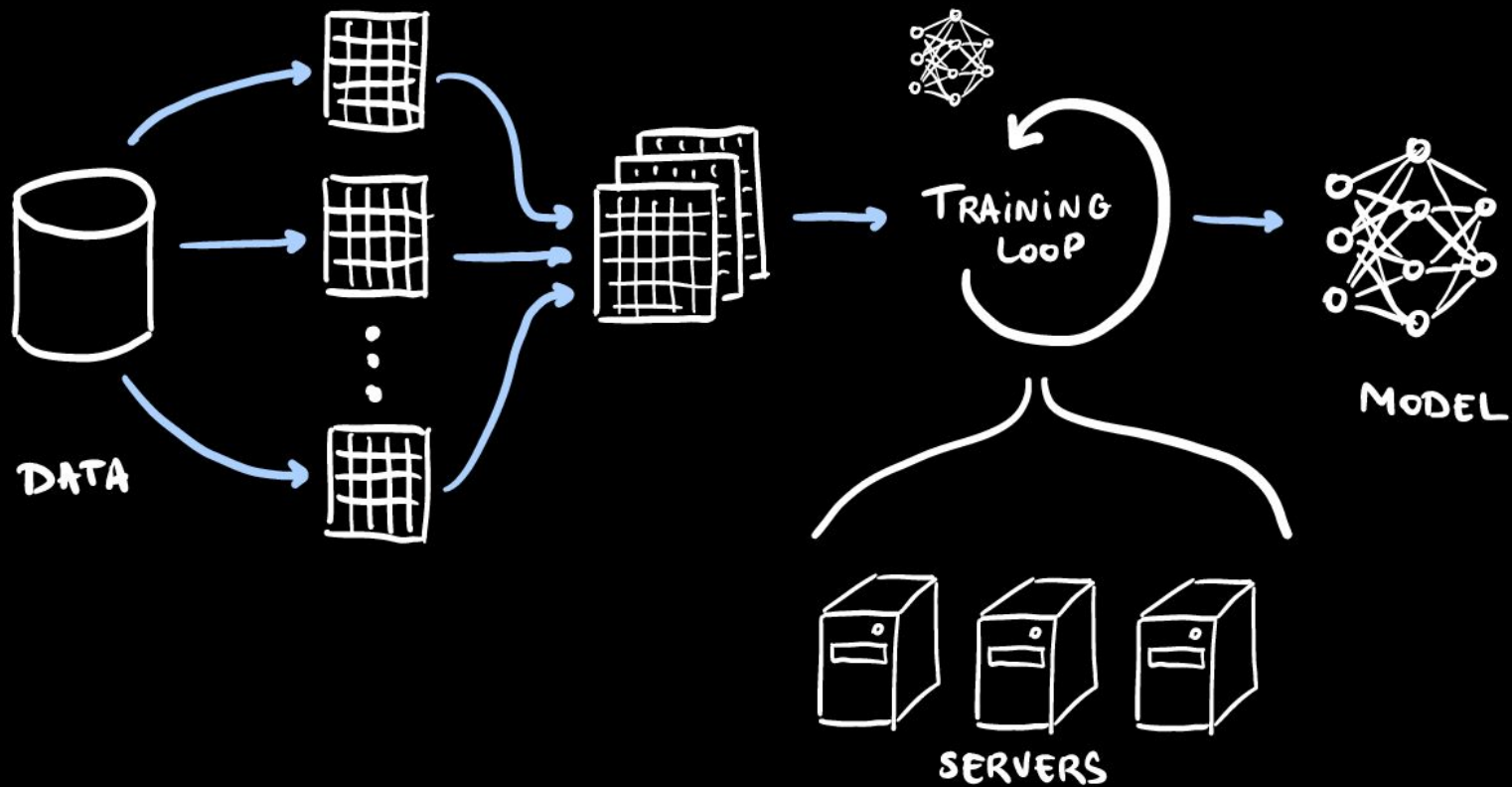
Artificial intelligence  
remains **narrow**.

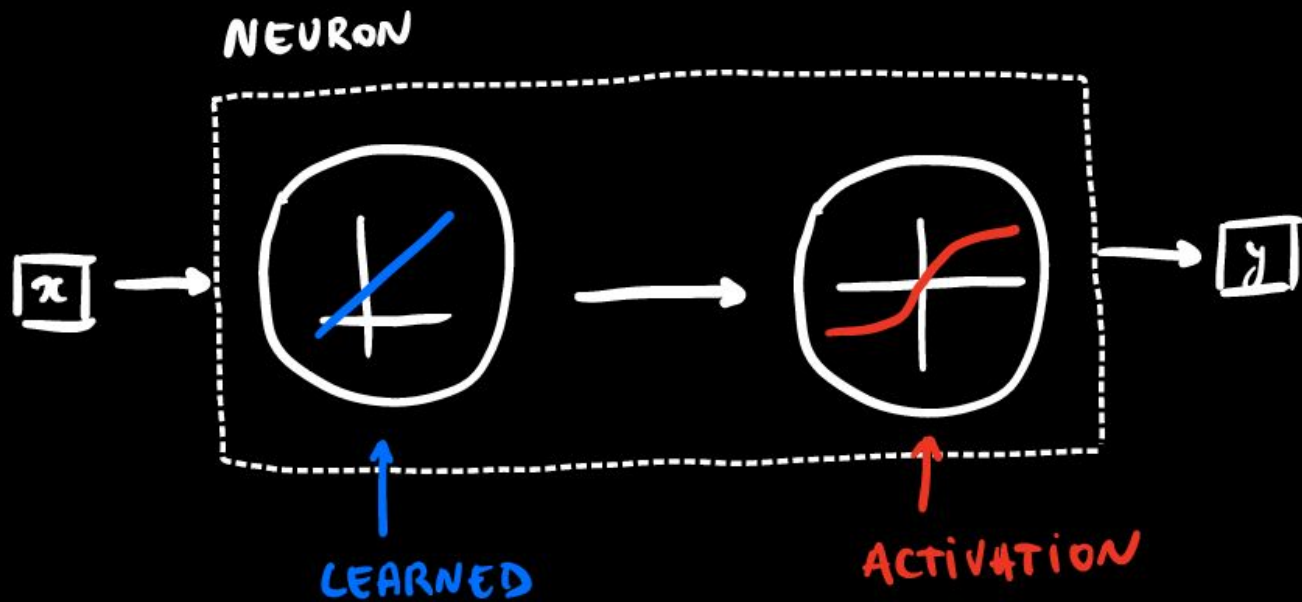




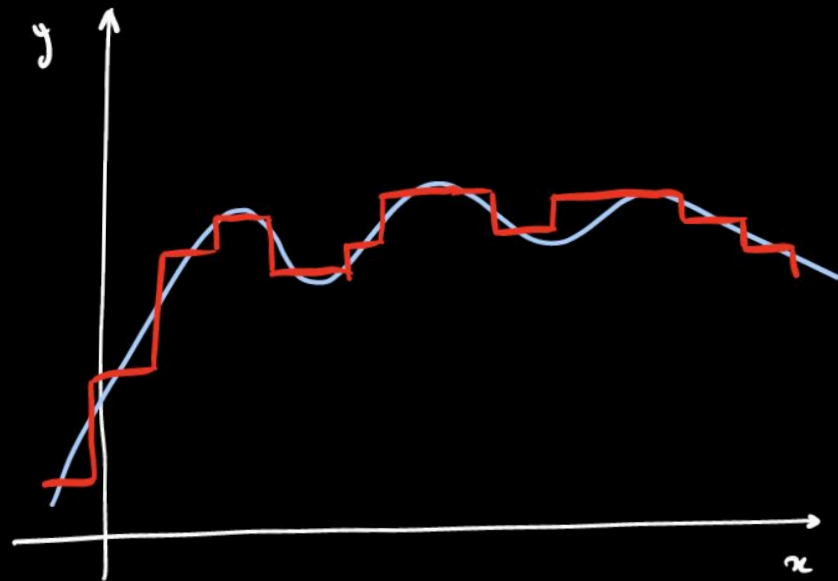
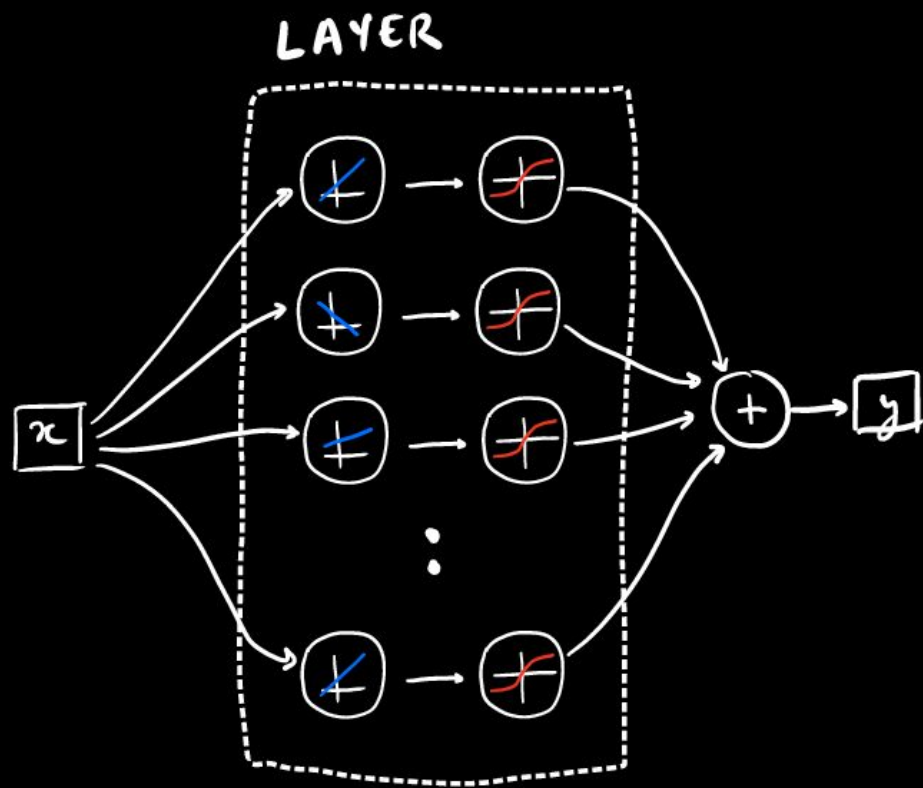
Much of modern AI is based on **machine learning**: programs learn and improve from data.

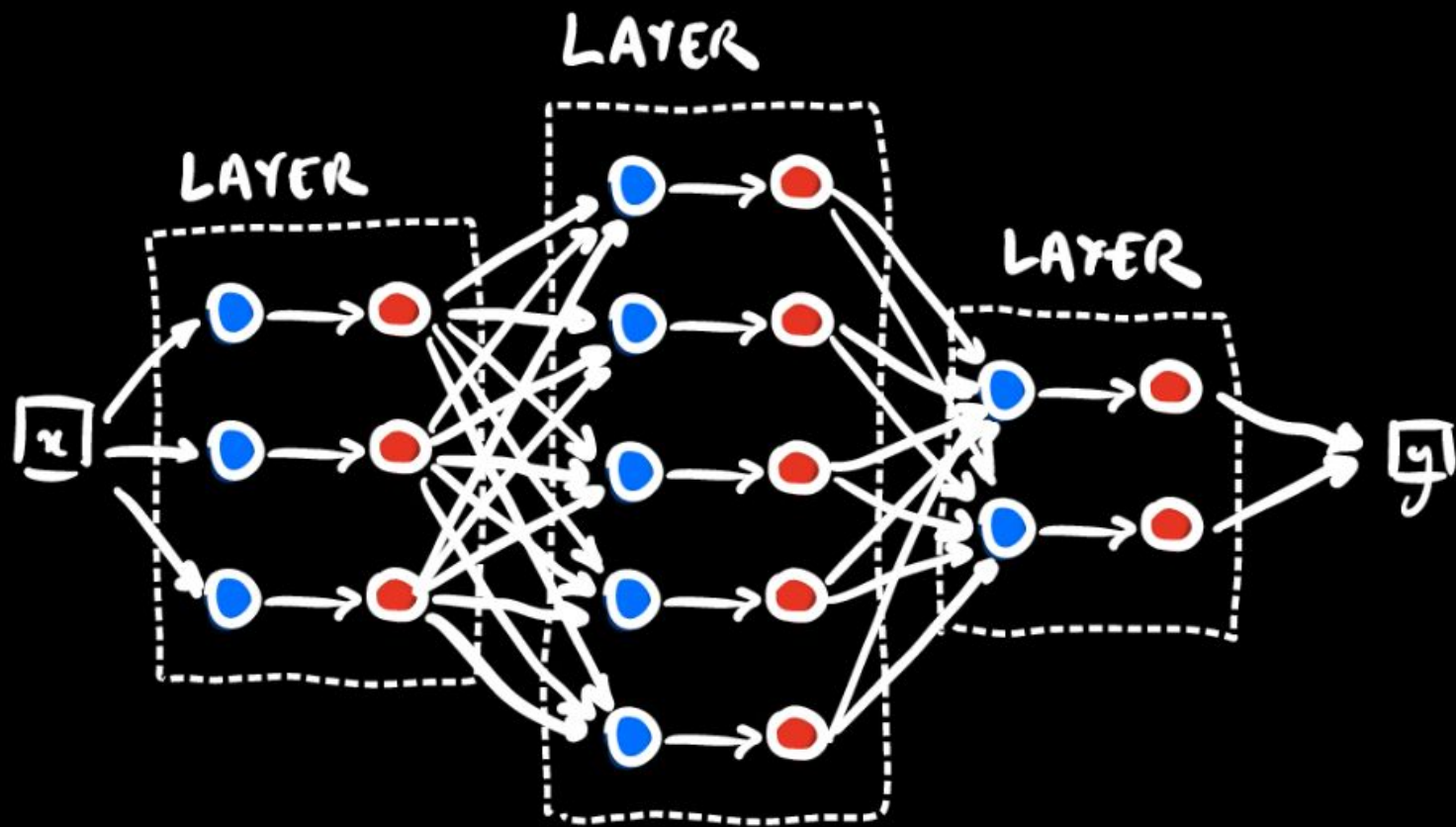


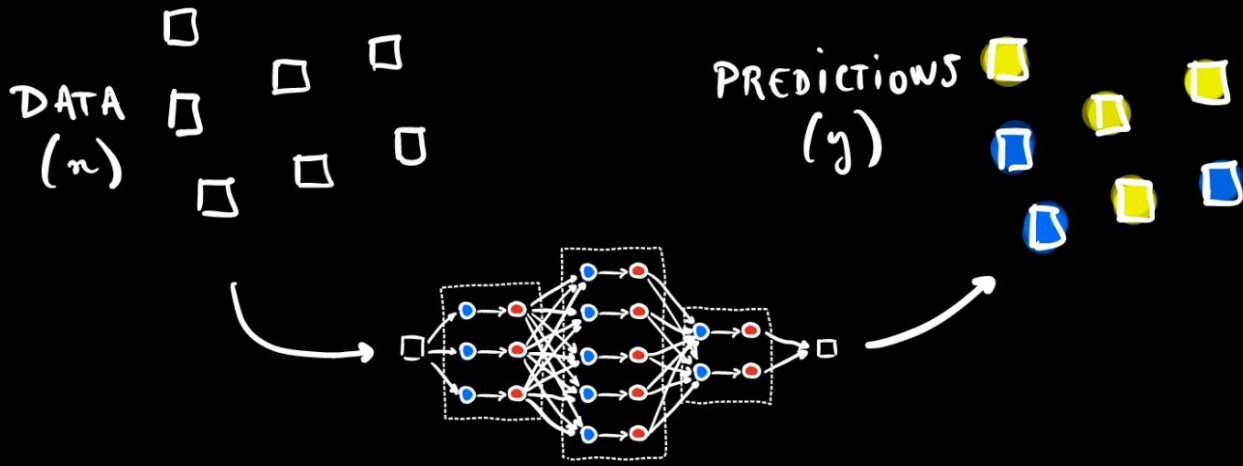










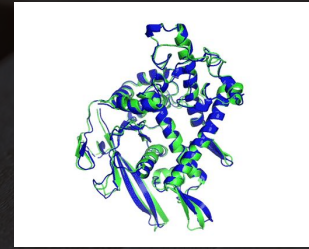
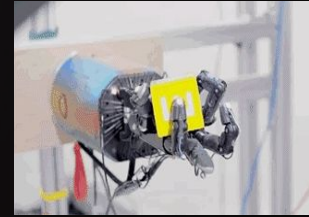




Training a neural network is **like tuning a guitar**, except it is run by a learning algorithm.

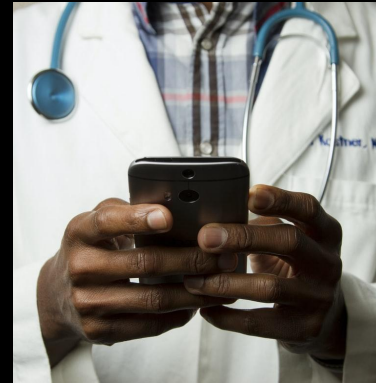


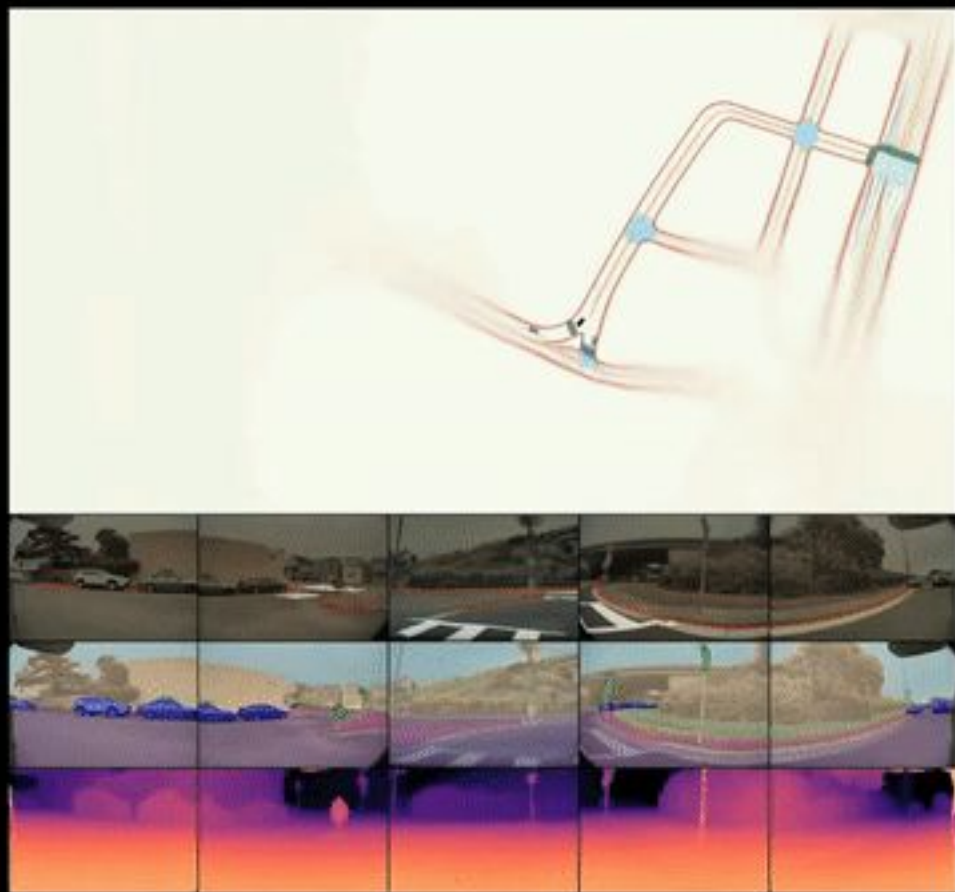
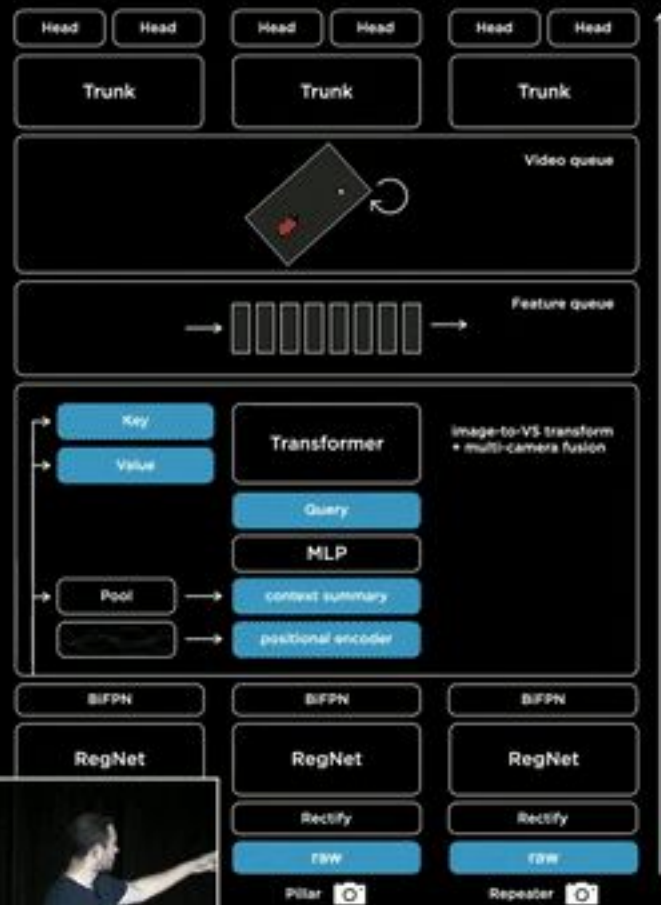
AI is now solving problems that were previously considered out-of-reach, across many domains of science, technology, engineering, and society.





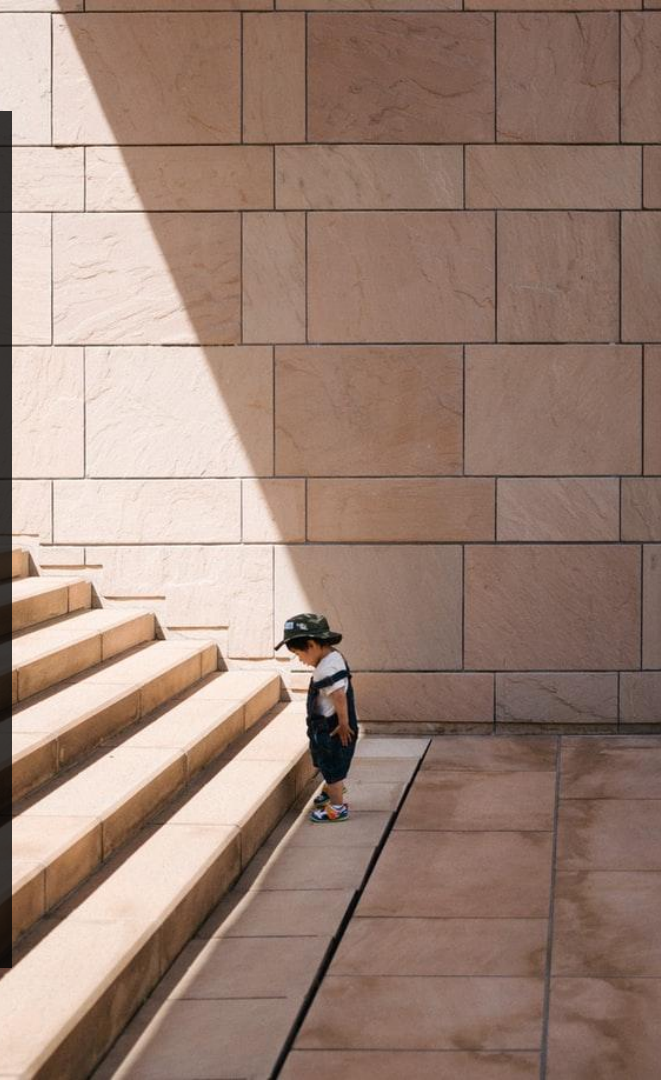
```
31
32
33 self.file = None
34 self.fingerprints = set()
35 self.logdups = True
36 self.debug = debug
37 self.logger = logging.getLogger(__name__)
38 if path:
39     self.file = open(os.path.join(path,
40                               self.file_name), 'w')
41
42 @classmethod
43 def from_settings(cls, settings):
44     debug = settings.getboolean('logger', 'debug')
45     return cls(job_dir(settings), debug)
46
47 def request_seen(self, request):
48     fp = self.request_fingerprint(request)
49     if fp in self.fingerprints:
50         return True
51     self.fingerprints.add(fp)
52     if self.file:
53         self.file.write(fp + os.linesep)
54
55 def request_fingerprint(self, request):
56     return request_fingerprint(request)
```



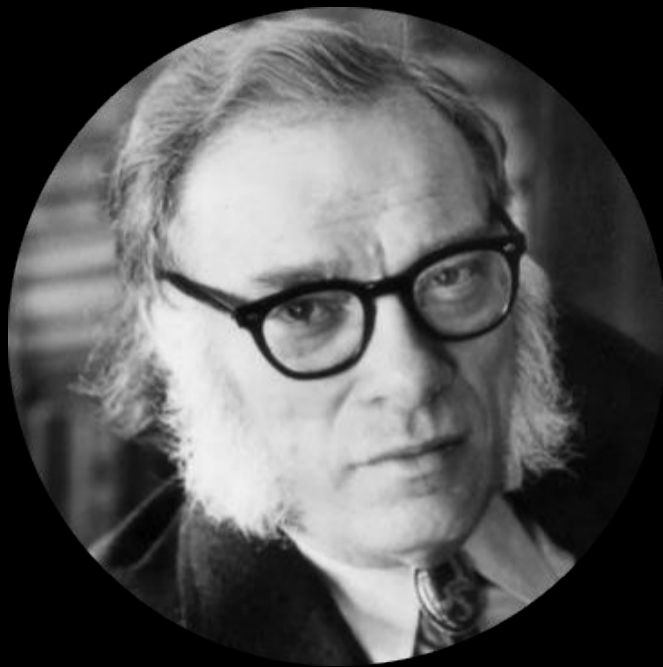


**Great applications ahead**, but a long list of **fundamental challenges** and **questions** remain:

- Why do neural networks work so well?
- How to go beyond narrow AI?
- How to learn from small data?
- How to avoid bias in data?
- How to learn continuously?
- How to build common sense?
- How to be as energy-efficient as animals?
- How to interact with humans?
- How to make an AI explain itself?
- [...]







“What is intelligence, anyway?” - Isaac Asimov