

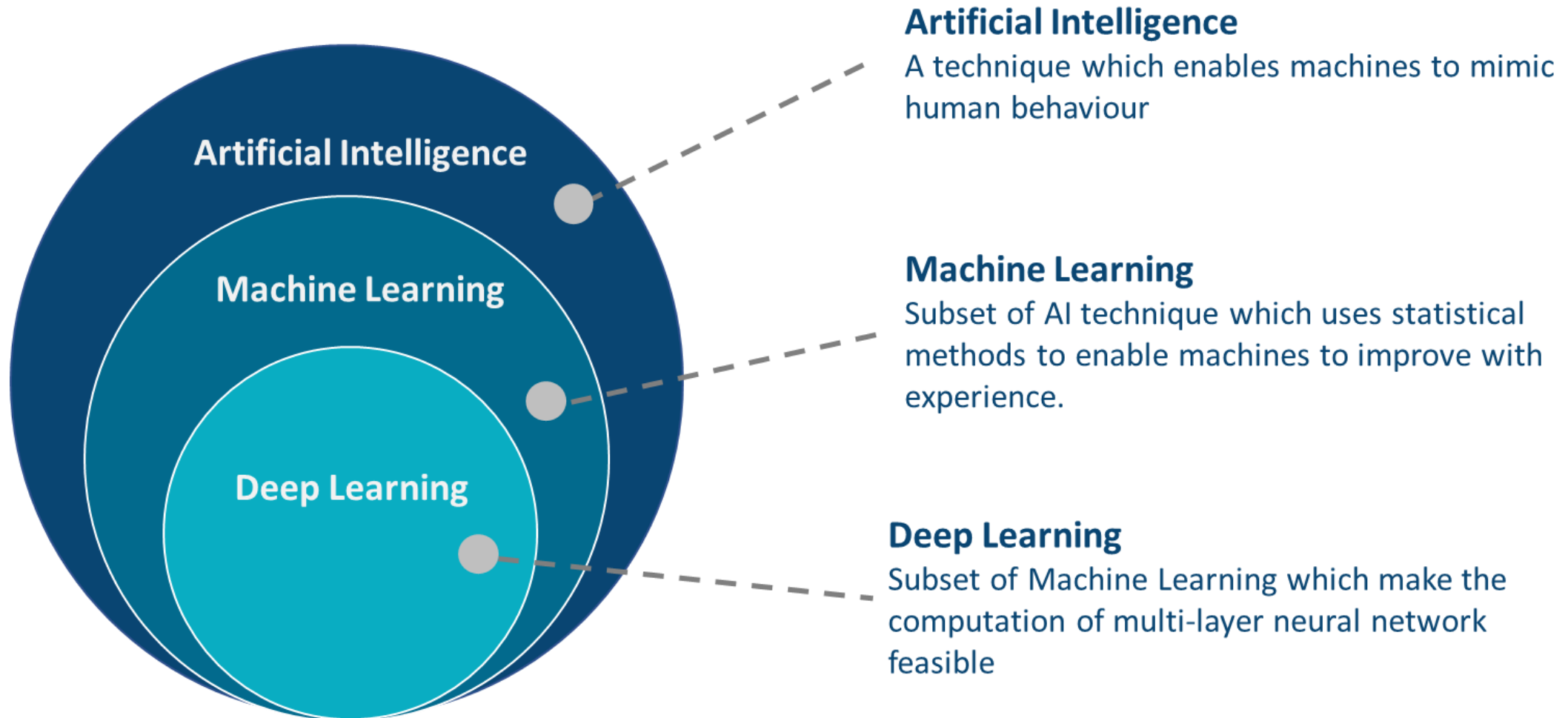
Fundamentals of Machine Learning

INTRODUCTION

Amit K Roy-Chowdhury

Acknowledgments: Adapted from slides at <https://probml.github.io/pml-book/teaching1.html> by Prof. Saw Shier Nee

What is AI? ML? DL?



History of AI

“Can machines think?”

Alan Turing introduces a method for machine intelligence



<https://editions.covecollective.org/chronologies/alan-turing-%E2%80%9Ccomputing-machinery-and-intelligence%E2%80%9D-1950>

First AI Winter

Second AI Winter



<https://www.bbc.com/news/technology-35785375>

AlphaGo defeated Lee Sedol, world champion of Go

1950

1966

1975

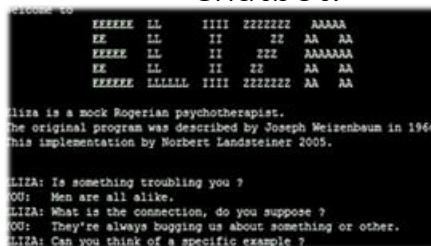
1980

1987

2016

Now

First Chatbot:



<https://www.computerhope.com/jargon/e/eliza.htm>

Expert

Asia-Oceania J. Obstet. Gynaecol. Vol. 20, No. 1: 19-23 19

Development and Evaluation of a Computer Expert System for the Management of Fetal Distress

K. K. Wong,¹⁾ K. H. Ng,²⁾ S. H. Nah,³⁾ K. Yusof,¹⁾ and K. Rajeswari¹⁾

1) Department of Obstetrics and Gynaecology, University of Malaya, Kuala Lumpur, Malaysia

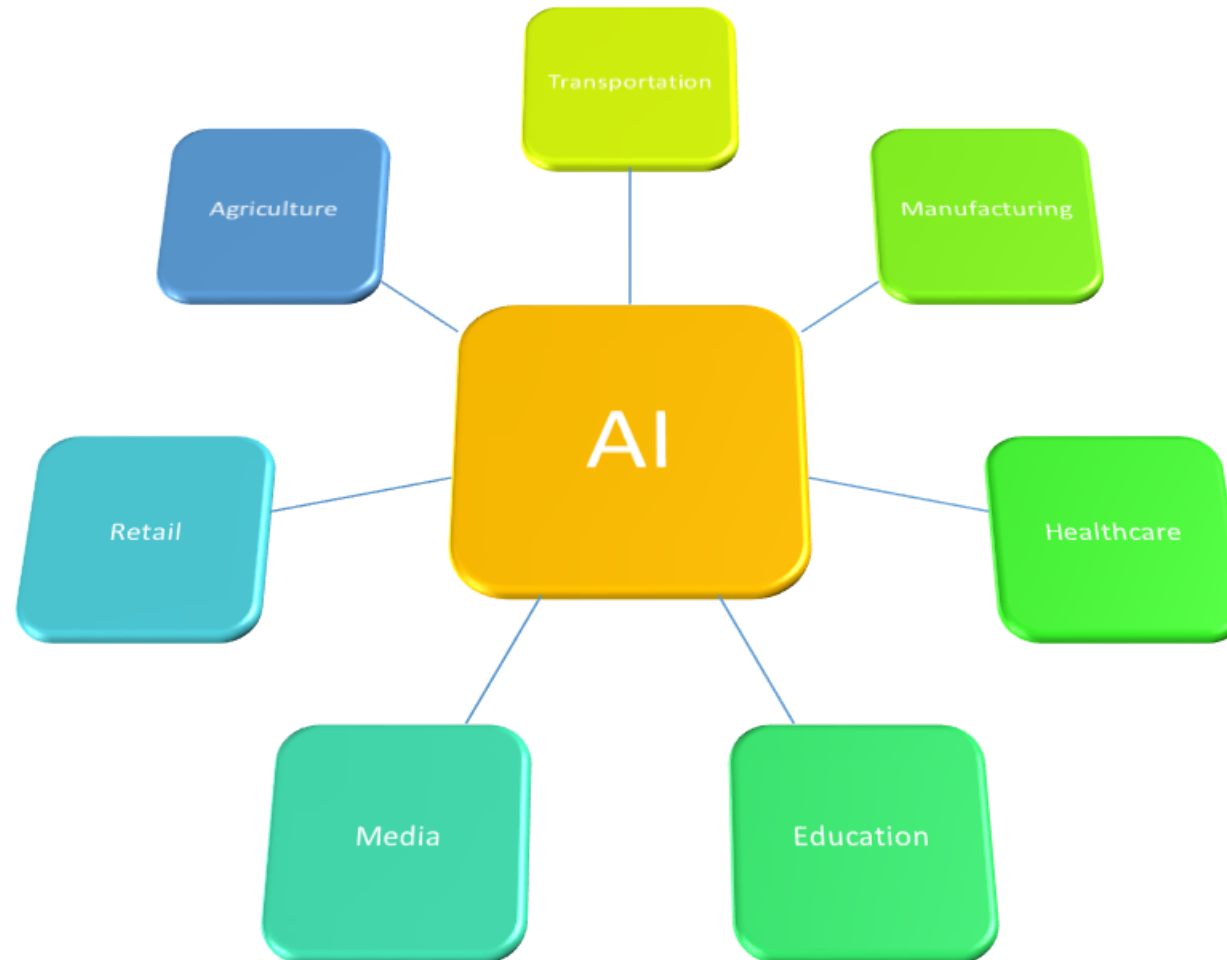
2) Department of Radiology, University of Malaya, Kuala Lumpur, Malaysia

3) Berkeley Systems Sdn Bhd, Petaling Jaya, Malaysia

AI in everywhere



Impact of AI



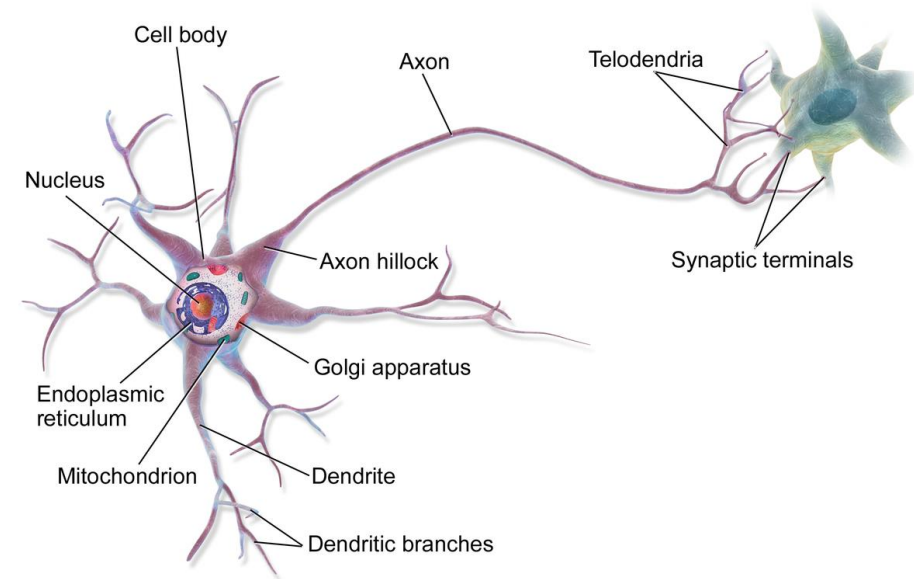
A lot of is automation, without the capability of reasoning.

How human brain works?



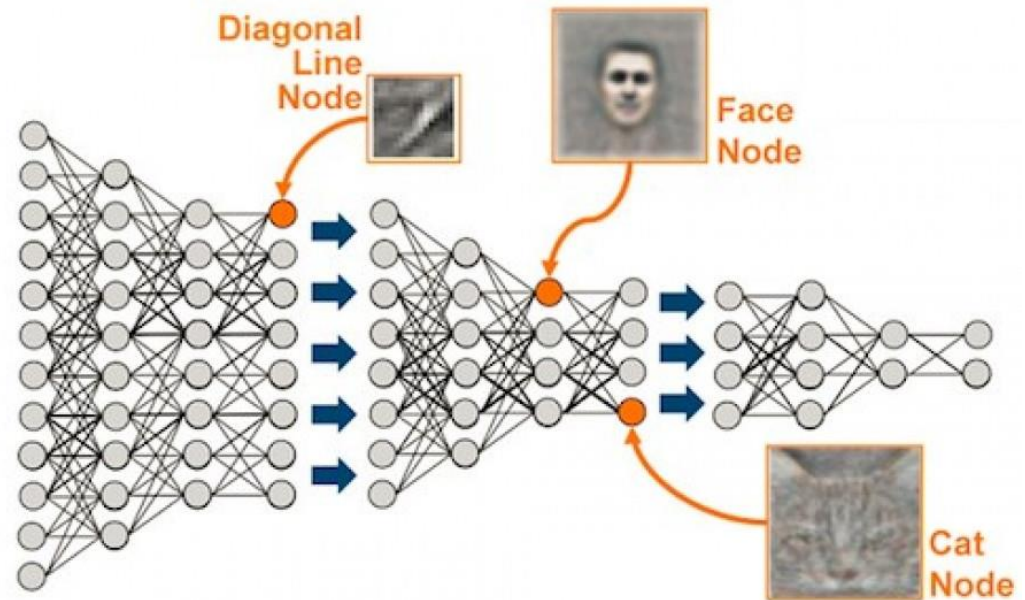
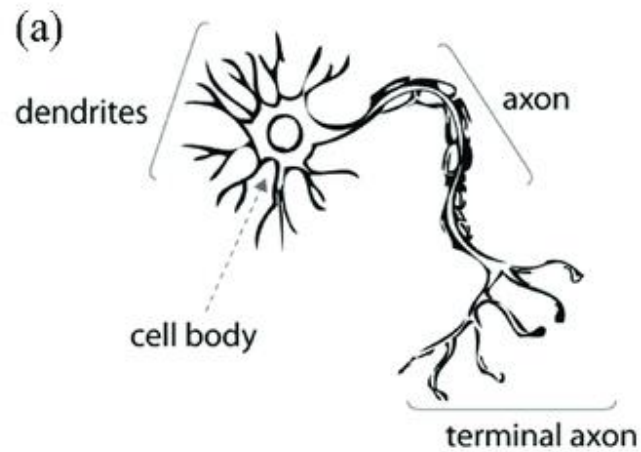
<https://www.livescience.com/29365-human-brain.html>

86 billions of neurons



AI – term coined by John McCarthy

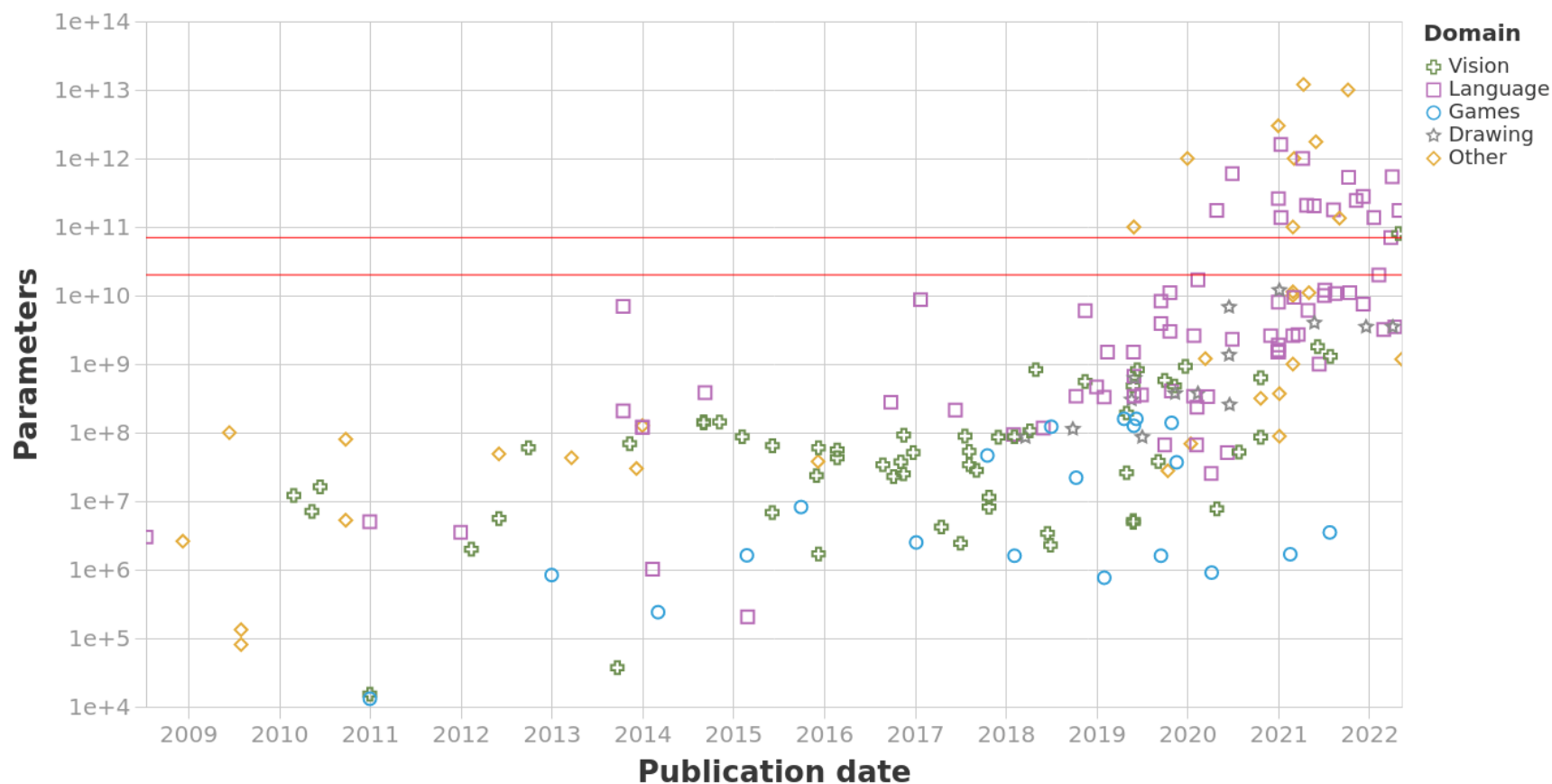
Deep learning Intuition



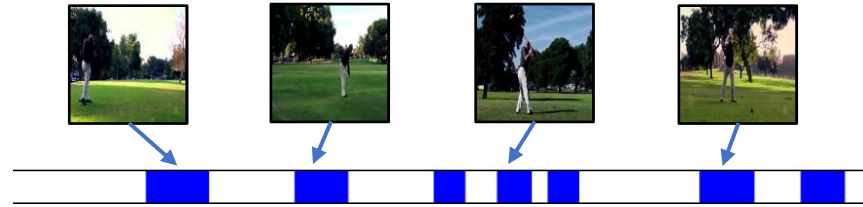
Deep learning - Complexity of Models

Parameters of milestone Machine Learning systems over time

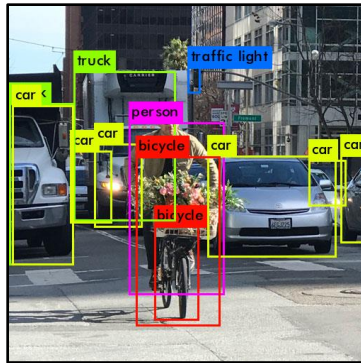
n = 203



Some problems in vision, language, robotics



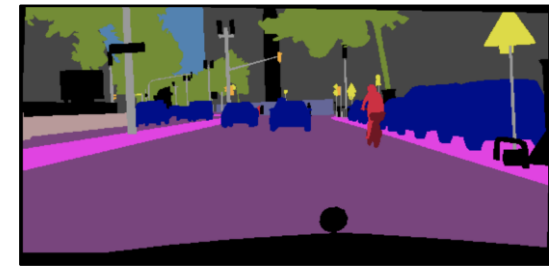
Text Localization



Object
Detection



Robotic Tasks via
Imitation



Semantic
Segmentation