kuala lumpur

school of ai

Machine Learning 101

AI , Machine Learning & Deep Learning

AI

- A computer system able to perform tasks that normally require human intelligence
- Machine learning and Deep Learning included under umbrella of AI

Machine Learning

- “field of study that gives computers the ability to learn without being explicitly programmed.” Machine-learning programs, in a sense, adjust themselves in response to the data they’re exposed to.

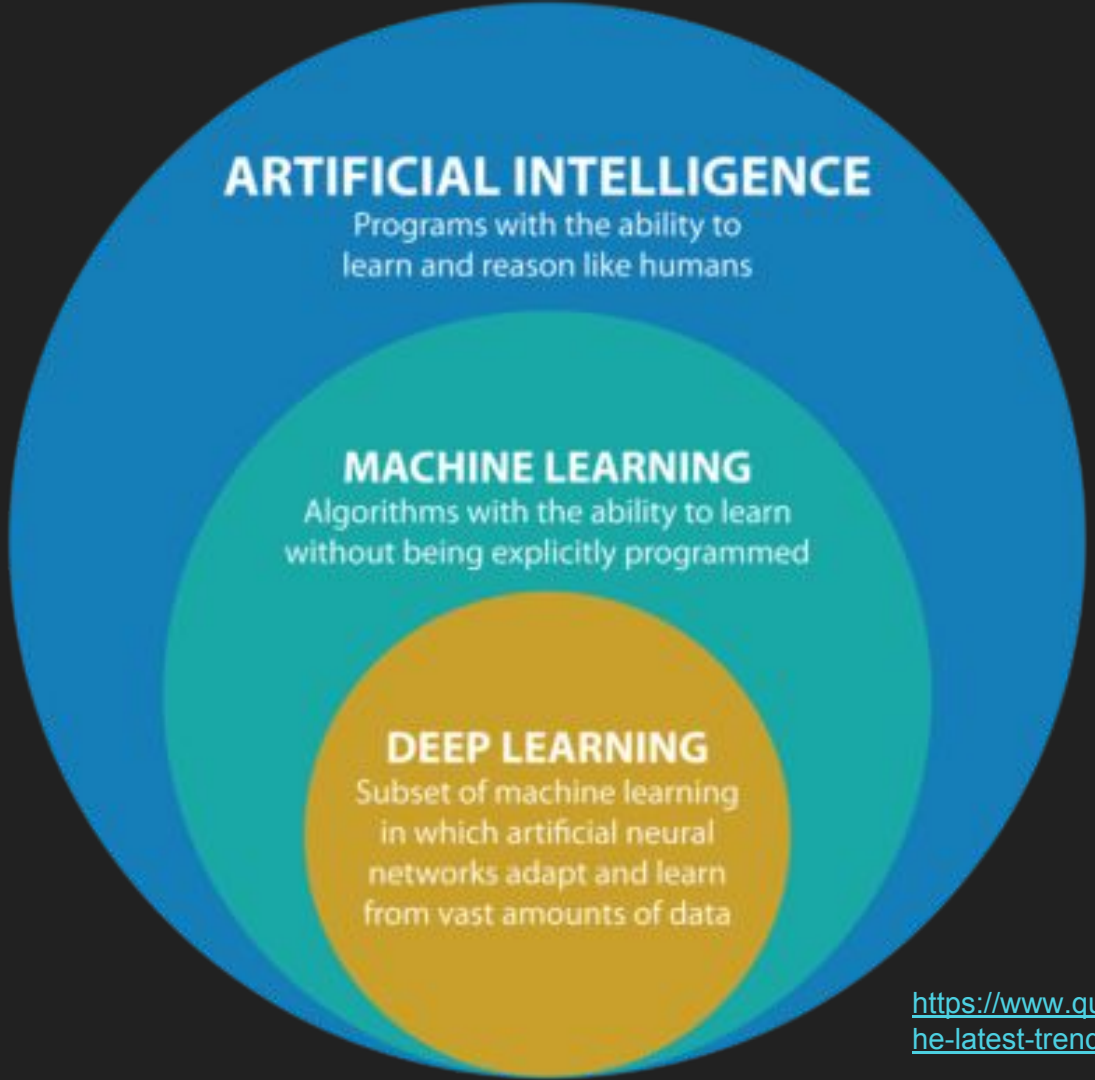
Deep Learning

- Deep learning is a subset of machine learning. Usually, when people use the term deep learning, they are referring to deep artificial neural networks

- Deep is a technical term. It refers to the number of layers in a neural network.

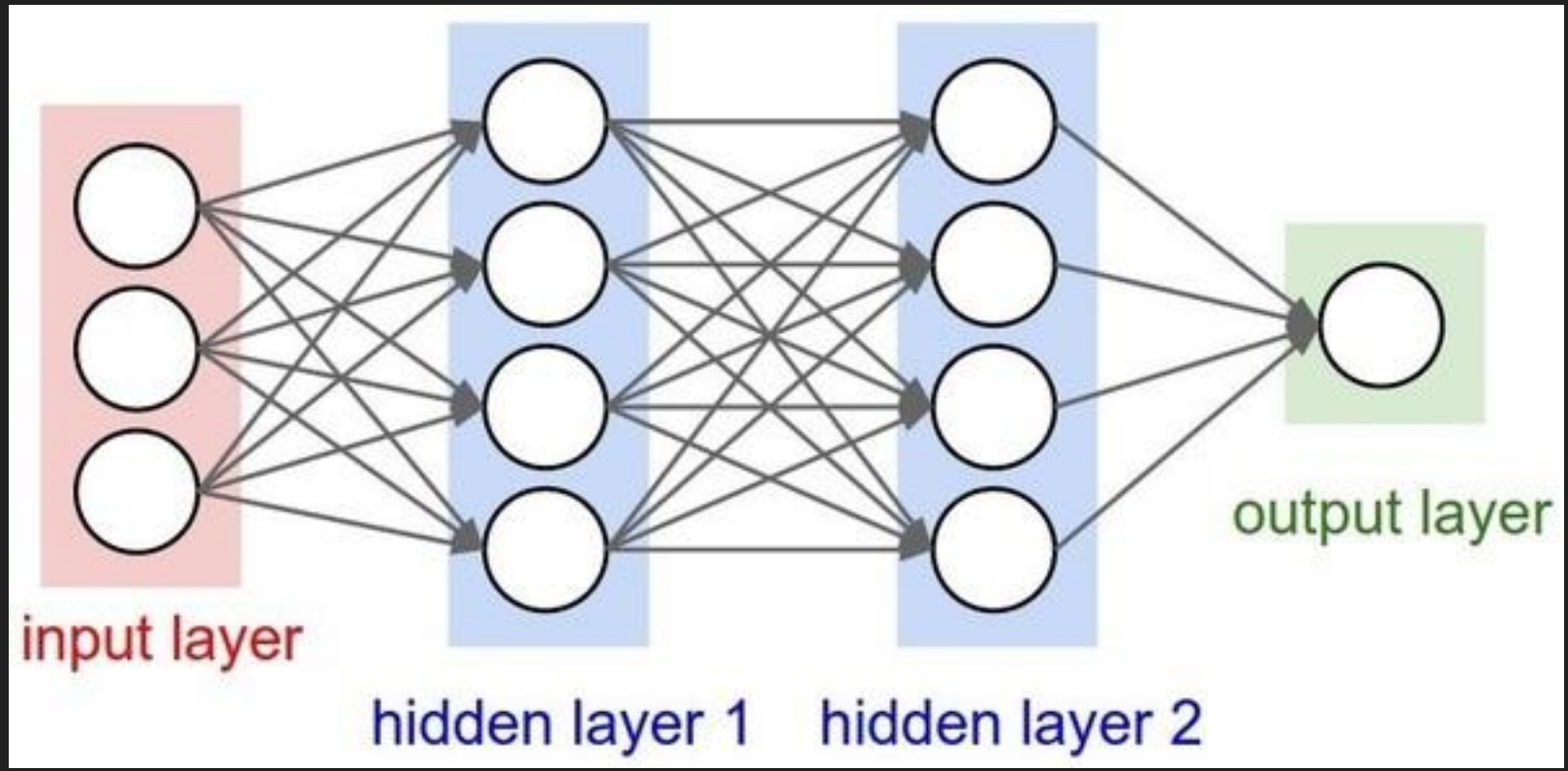
- Deep artificial neural networks are a set of algorithms that have set new records in accuracy for many important problems, such as image recognition, sound recognition, recommender systems, etc.

Open
Reference - https://skymind.ai/wiki/ai-vs-machine-learning-vs-deep-learning



https://www.qubole.com/blog/deep-learning-the-latest-trend-in-ai-and-ml/

Neural Network



Major Categories of Machine Learning

Supervised - Prediction based on labelled data

- Classification (sentiment analysis)
- Regression (stock prediction)

Unsupervised Machine Learning - Find similarities in unlabeled data

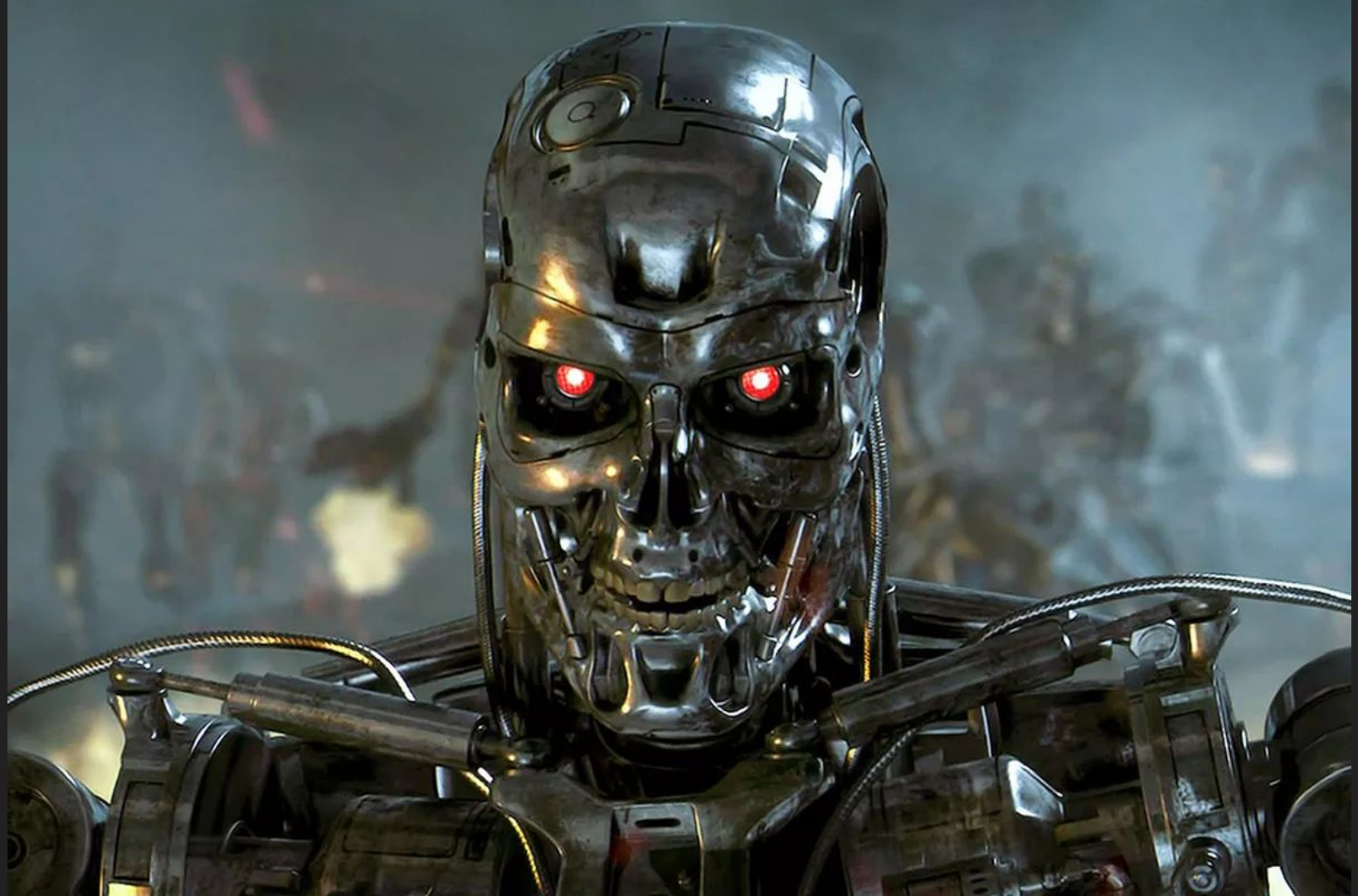
- Grouping of similar data (clustering)
- Outlier Detection

Reinforcement Learning

- Behavior changes based on rewards provided

Where are we now?

In terms of AI ??



Open

Reinforcement Learning

DeepMind's new AI just beat top human pro-gamers at Starcraft II for the first time

Open

GANs

GANs

https://www.youtube.com/watch?v=PCBTZh41Ris

How do you build a Machine Learning Model

1. Collect data
2. Clean data
3. Label data
4. Choose Suitable algorithm
5. Train model
6. Test
7. Repeat (until obtain satisfying accuracy)

Example of a Machine Learning Algorithm

Naive Bayes Algorithm - Basically an algorithm used for statistics

$$p(C_k \mid \mathbf{x}) = \frac{p(C_k)\, p(\mathbf{x} \mid C_k)}{p(\mathbf{x})}$$

Open

```
from textblob import TextBlob
```

```
testimonialpos = TextBlob("This movie was great would watch it again")
testimonialpos.sentiment
```

```
Sentiment(polarity=0.8, subjectivity=0.75)
```

```
testimonialneg = TextBlob("This movie was terrible would not watch again")
testimonialneg.sentiment
```

```
Sentiment(polarity=-1.0, subjectivity=1.0)
```

```
testimonialmly= TextBlob("Saya pergi ke rumah nenek semalam")
testimonialmly.sentiment
```

```
Sentiment(polarity=0.0, subjectivity=0.0)
```

```
testimonialweird = TextBlob("aslkncowencdjskjbvwejjb")
testimonialweird.sentiment
```

```
Sentiment(polarity=0.0, subjectivity=0.0)
```

Machine Learning Tools

- Python / R

- Anaconda
  - Jupyter notebook

- Scikit Learn

Deep Learning Tools

- Google TensorFlow
- PyTorch
- Keras
- Caffe

Resources

Cognitive Class - Free
https://cognitiveclass.ai/

Kaggle (Dataset & Examples Source)
www.kaggle.com

Rapid Experimentation

- Start Googling
- Test codes