



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

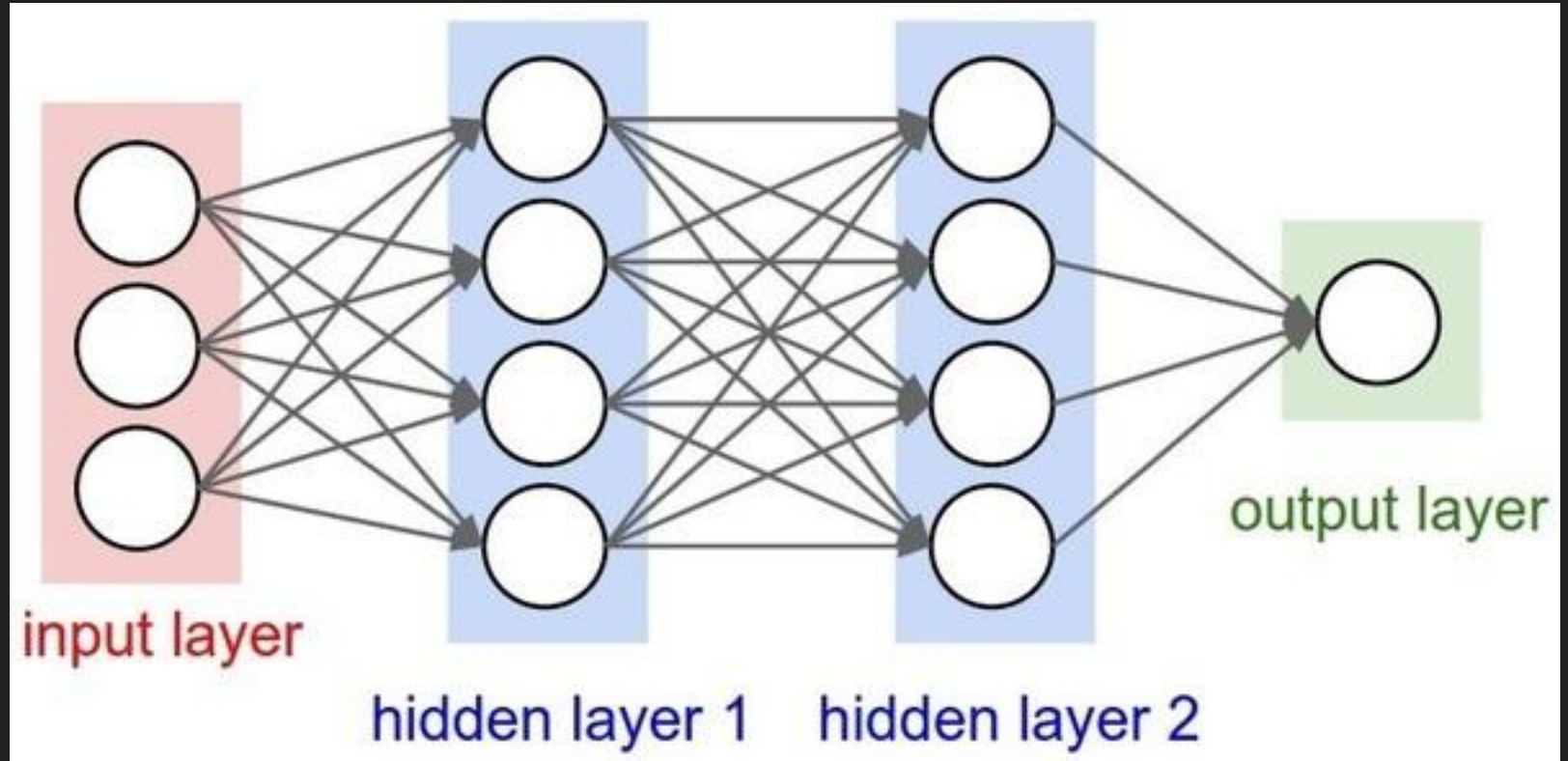
Machine Learning

- “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.

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

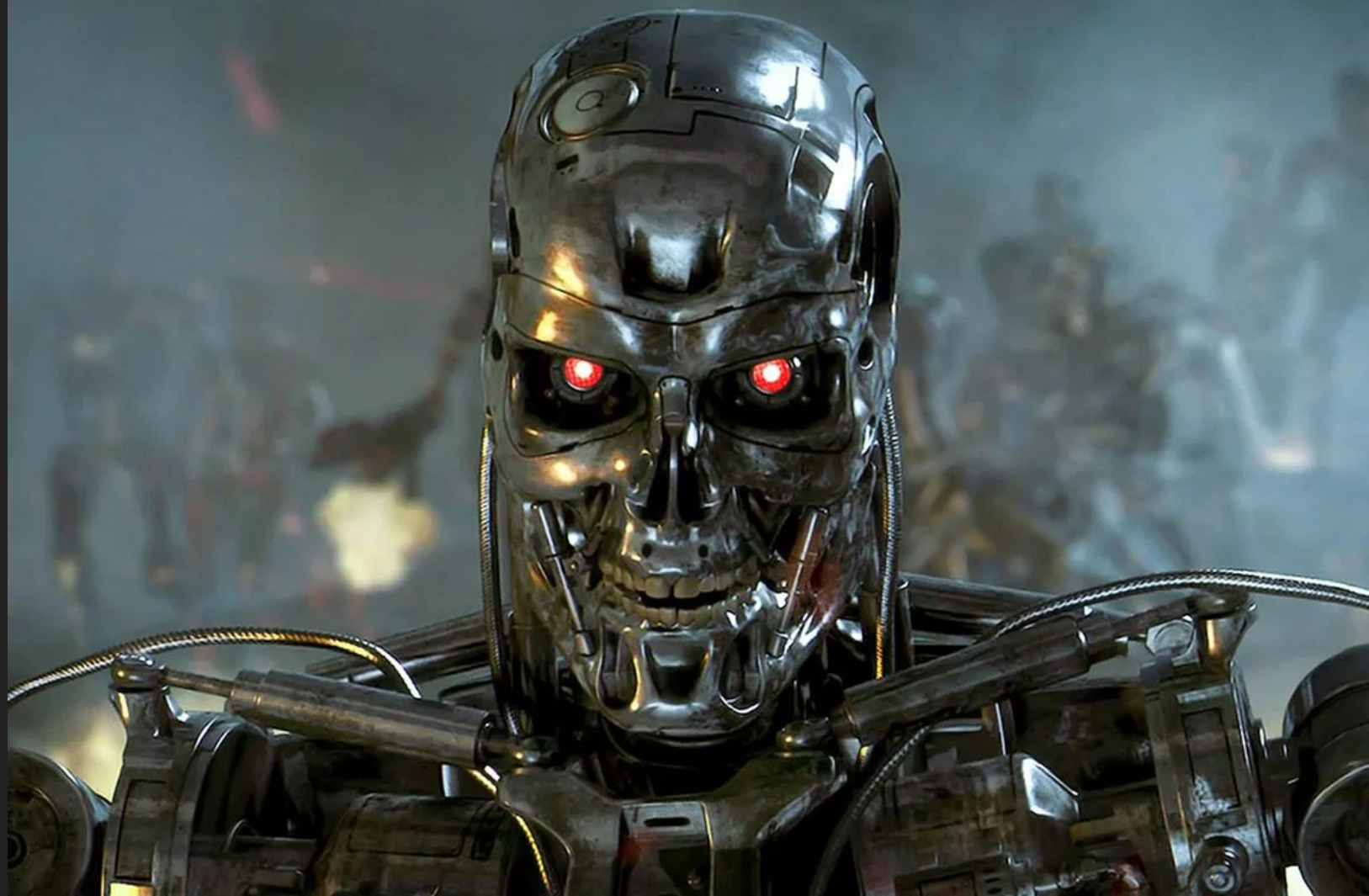
- Grouping of similar data (clustering)
- Outlier Detection

Reinforcement Learning

- Behavior changes based on rewards provided

Where are we now?

In terms of AI ??



Reinforcement Learning



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

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

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

```
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