

Deep Learning Foundations

أساسيات التعلم العميق



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Today's Outline:

- **Deep Learning (DL) Basics**
 - What & Why DL?
 - AI vs. ML vs. ANN vs. DL
 - AI / DL Applications
 - Artificial Neural Network (ANN) in a Nutshell
- **Diploma Overview**



Deep Learning (DL) Basics

“The man who asks a question is a fool for a minute, the man who does not ask is a fool for life” ~ Confucius.

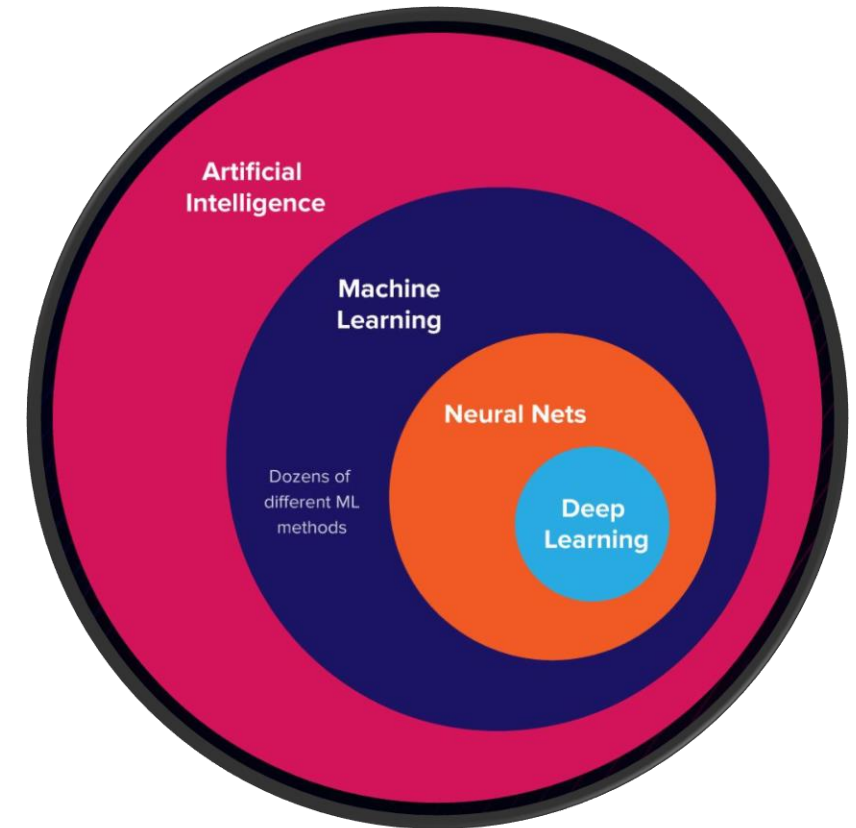
THIS IS FAKE!

- Very realistic Tom Cruise Deepfake | AI Tom Cruise
 - https://youtu.be/gipL_CEW-fk



AI vs. ML vs. ANN vs. DL

- **Artificial Intelligence (AI)** is an umbrella discipline that covers everything related to making machines smarter.
- **Machine Learning (ML)** is commonly used along with AI but it is a subset of AI. ML refers to an AI system that can self-learn based on the algorithm. Systems that get smarter and smarter over time without human intervention is ML.
- **Artificial Neural Network (ANN)** is an interconnected group of nodes, inspired by a simplification of neurons in a biological human brain.
- **Deep Learning (DL)** is a machine learning (ML) applied to large data sets. Most AI work involves ML because intelligent behavior requires considerable knowledge.





What is Deep Learning (DL)?

- A NEW WAY OF **LEARNING**

- **Deep learning (DL)** is a subset of **machine learning**, which is essentially a neural network with many deep layers.
- These **neural networks** attempt to **simulate** the behavior of the **human brain** allowing it to “**learn**” from large amounts of data.

- **DL Limitations:**

- Huge amount of Data
- Computational Power (GPU)
- Training Time



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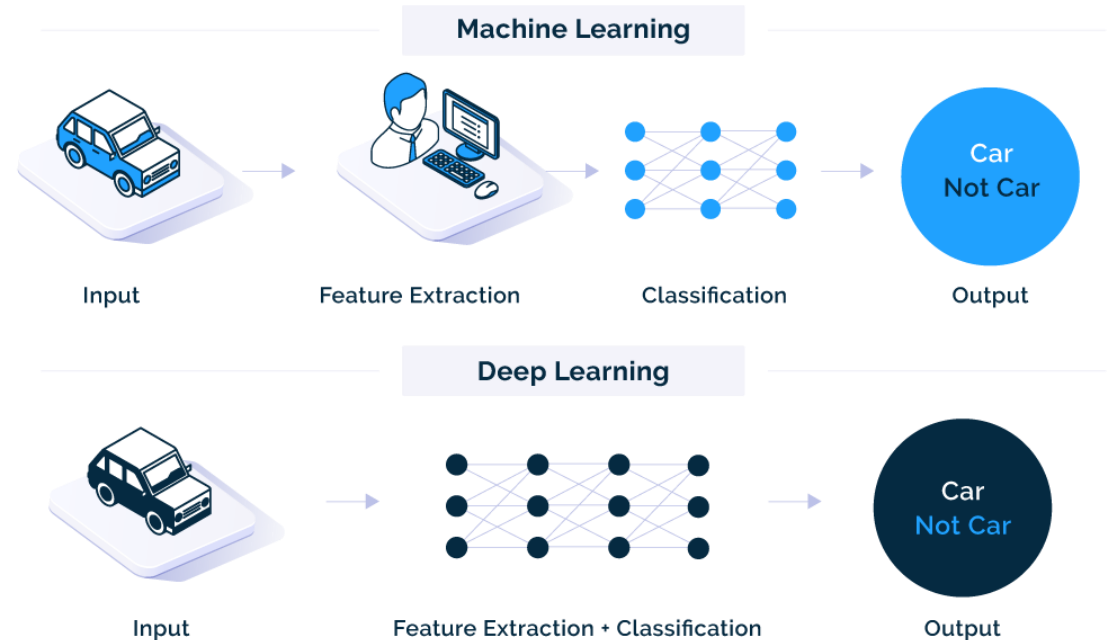
Why Deep Learning (DL)?

- **Why DL? (Useful for..)**

- Big Data / Unstructured Data.
- Complex problems.
- Better performance.
- Solving ML problems.

- **Why Not? (Not Useful for..)**

- Interpretability.
- Simple problems.
- Acceptable errors.
- No much data.

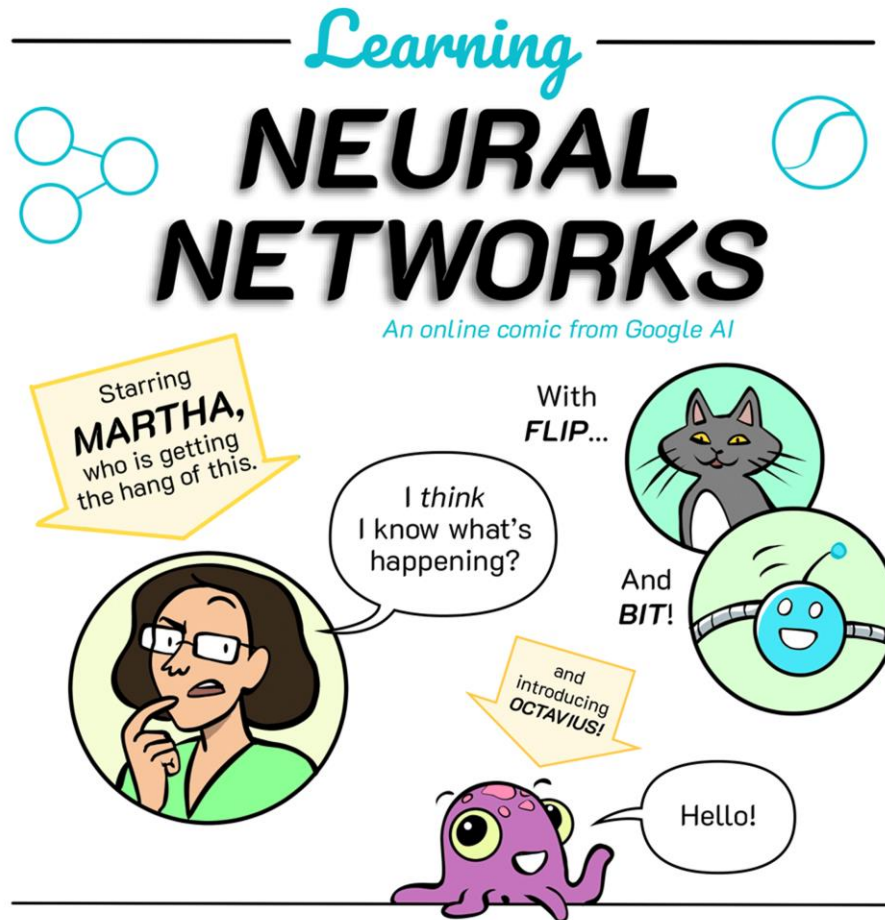


AI/DL Applications

- **Computer Vision / Pattern Recognition**
 - Image Processing
 - Object Recognition / Detection
 - Facial Recognition
- **Natural Language Processing (NLP)**
 - Natural Language Understanding (NLU) / Natural Language Generation (NLG)
 - Machine Translation
 - Sentiment Analysis
- **Computer Audition**
 - Speech Recognition
 - Speech-to-text
- **Gaming / Entertainments**
- **Robotics**



Artificial Neural Network (ANN)



Diploma Overview

Python Deep Learning Diploma – Eng. Mustafa Othman



Python DL Diploma Courses (Topics)

1. Introduction to Deep Learning (DL)
2. Deep Learning Applications & Case-studies
3. Artificial Neural Networks (ANN) Basics
4. Convolutional Neural Network (CNN) Basics
5. Recurrent Neural Network (RNN) Basics
6. Advanced Topics (Auto Encoders, Transfer Learning, & Reinforcement Learning)



Python DL Diploma Prerequisites

- Python Programming Basics
- Data Analysis Basics
 - NumPy, Pandas, Matplotlib, & Seaborn Libraries
- Machine Learning Basics
 - Classification, Regression, & Clustering
 - Scikit-learn Library



Python DL Diploma Benefits (Udemy)

- 30+ Hours of Training
- 6 Online Courses in 1
- 5+ Real-World ML Case-studies
- Interactive Explanation
- Telegram Group for Discussion
- Certificate of Completion

Development > Data Science

Python Deep Learning Diploma | دبلومة بايثون للتعلم العميق

الخطوة الثالثة في رحلتك لاجتراف "علم البيانات"، أفضل بداية لأي حد عاوز يتعلم "الشبكات العصبية والتعلم العميق" في بايثون

0.0 ★★★★★ (0 ratings) 0 students

Created by [Eng. Mustafa Othman](#)

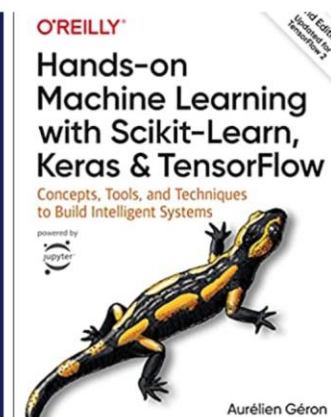
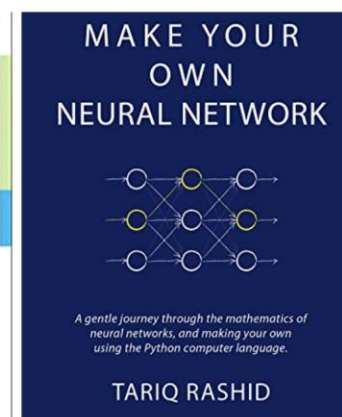
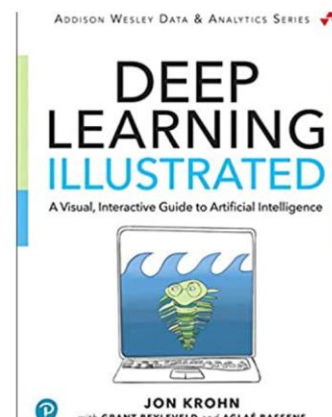
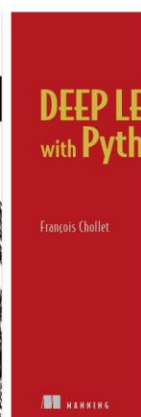
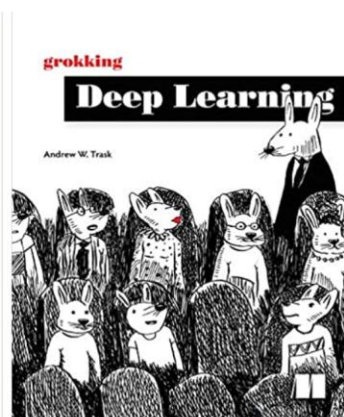
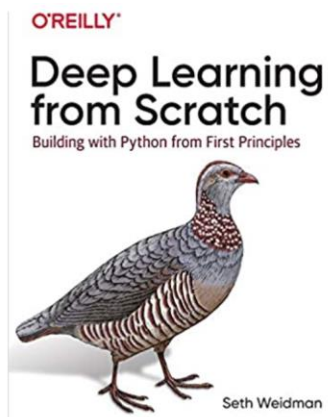
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Resources

- Websites & YouTube Channels
- Online Courses (Free / Paid)
- Books



THANKS

Keep Moving Forward! 😊



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