

Python and Neural Network

TIM
30TH.JUNE

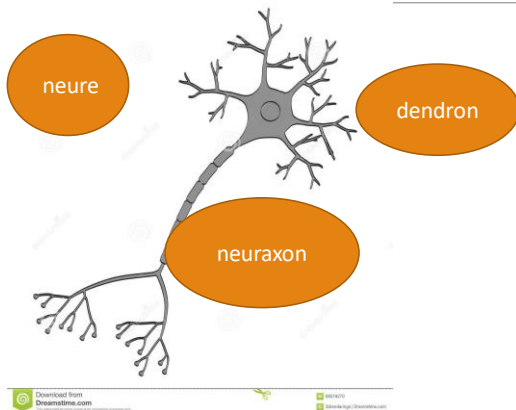
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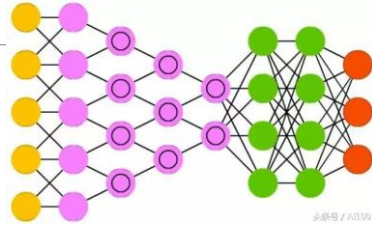
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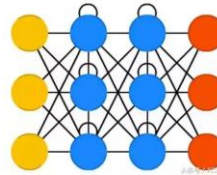
What is Netural Network



CNN: Convolutional neural networks



RNN: Recurrent neural networks



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Some Basic Netural Networks

1. FF or FFNN: Feed forward neural networks and P: perceptrons (the two adjacent layers of nerve cells are fully connected.)
2. RBF: Radial basis function
3. HN: Hopfield network (A network in which each neuron is connected to other neurons.)
4. MC: Markov Chain (Memorylessness)
5. BM: Boltzmann machines (close to the Hopfield network, but some neurons are input neurons and the rest are hidden neurons.)
6. RBM: Restricted Boltzmann machines
7. AE: Autoencoders (Like compression , not encryption)
8. SAE: Sparse autoencoders (anti with AE)
9. VAE: Variational autoencoders
10. DAE: Denoising autoencoders
11. DBN: Deep belief networks
12. CNN: Convolutional neural networks

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Some Basic Natural Networks

- 13. DN: Deconvolutional networks (inverse graphics networks or anti-CNN)
- 14. DCIGN: Deep convolutional inverse graphics networks
- 15. GAN: Generative adversarial networks (GAN can be made up of any two networks (but usually FF and CNN), one of which is used to generate content and the other to authenticate the generated content.)
- 16. RNN: Recurrent neural networks
- 17. LSTM: Long / short term memory (Gate structure, forgotten gate added)
- 18. GRU : Gated recurrent units (simplified version of LSTM)

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Some Basic Natural Networks

- 19. NTM: Neural Turing machines (abstract of LSTM)
- 20. BiRNN: Bidirectional recurrent neural networks BiLSTM: bidirectional long / short term memory networks BiGRU: bidirectional gated recurrent units
- 21. DRN: Deep residual networks (Jump from one layer to another layer)
- 22. ESN: Echo state networks (freshen, control error)
- 23. ELM: Extreme learning machines
- 24. LSM: Liquid state machines
- 25. SVM: Support vector machines (find the best solution)
- 26. Kohonen or SOM/SOFM: self organizing (feature) map (Drive adjacent neurons)

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What is Python



Python



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Why Python

Easy
Free
Embeddable

Unable to encrypt
Slow

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REPL or Shell

```

管理员: 命令提示符 - python
Welcome to Python 3.7's help utility!

If this is your first time using Python, you should definitely check out
the tutorial on the Internet at https://docs.python.org/3.7/tutorial/.

Enter the name of any module, keyword, or topic to get help on writing
Python programs and using Python modules. To quit this help utility and
return to the interpreter, just type "quit".

To get a list of available modules, keywords, symbols, or topics, type
"modules", "keywords", "symbols", or "topics". Each module also comes
with a one-line summary of what it does; to list the modules whose name
or summary contain a given string such as "spam", type "modules spam".

help> keywords

Here is a list of the Python keywords. Enter any keyword to get more help.

False          class           from            or
None           continue       global          pass
True           def            if              raise
and            del            import          return
as            elif           in              try
assert        else           is              while
async         except         lambda          with
await         finally        nonlocal        yield
break         for            not

help>

```

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Basic Grammar

1. .py
2. interpreter not compiler
3. PYTHONPATH and environment variable
4. package and `_init_.py`
5. import as from import (from import *)
6. Everything is object.
7. Data type
8. List, set, dict, tuple
9. if and else

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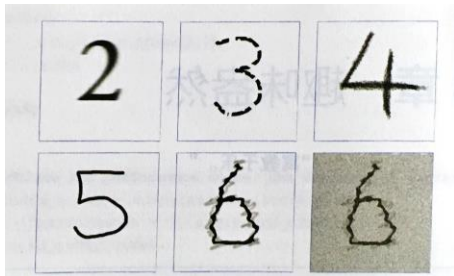
Basic Grammar

10. Never use while else
11. def function and recursion
12. Parameter trap
13. Operator can not be overload
14. Using of class

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Netural Network with Python

An example of the hand writing



https://github.com/makeyourownneuralnetwork/makeyourownneuralnetwork/blob/master/part3_load_own_images.ipynb

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