

NeuralNet 101

1. Orientation

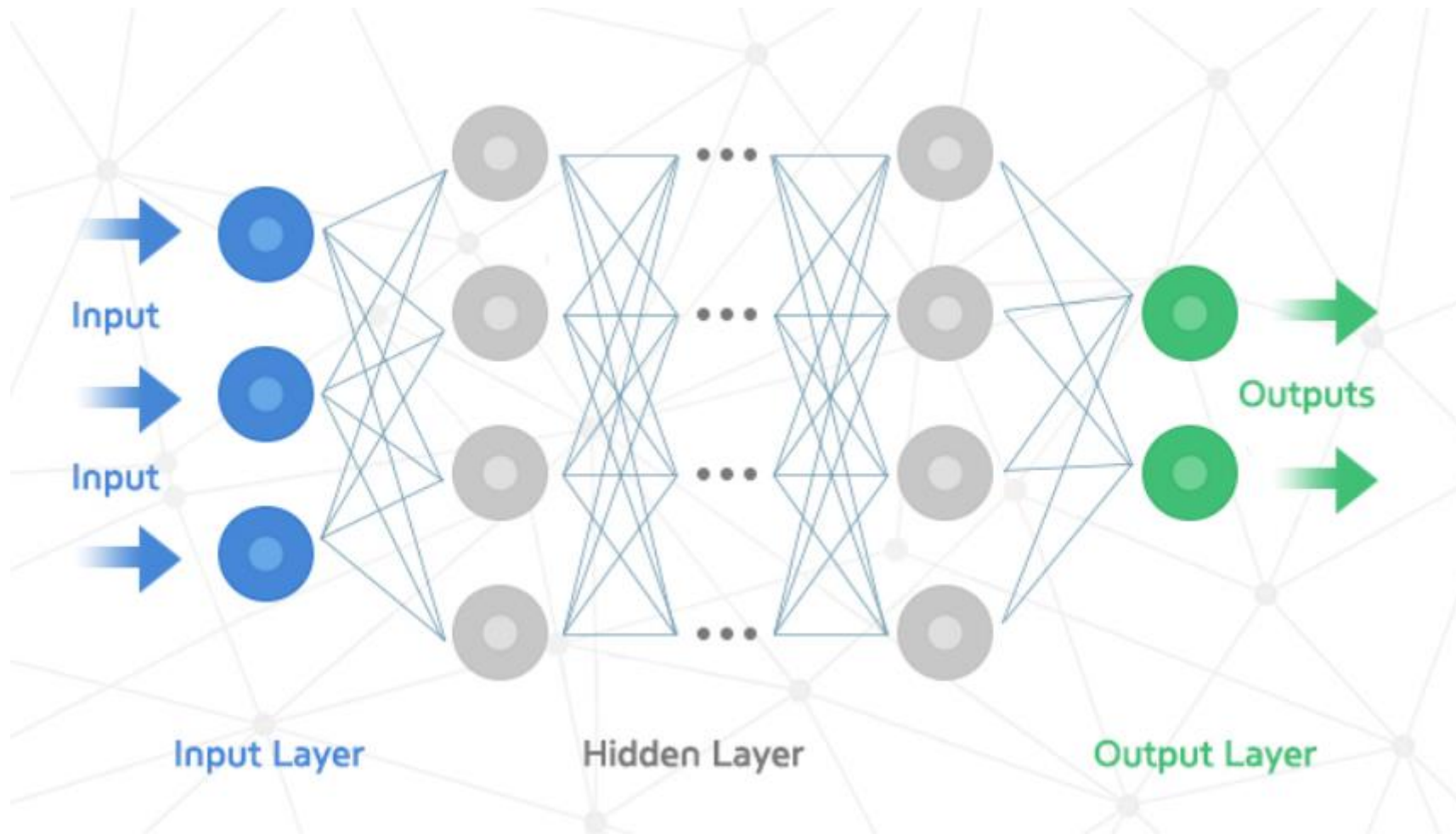
Welcome to NeuralNet 101

- In this group learning, we will use Korean but with slight English because of the proper nouns in research area (like logistic regression)
- The level of this group learning will be easy, but if you cannot get the point, the instructor will talk it based on mathematical & other intuitions.

Assignments

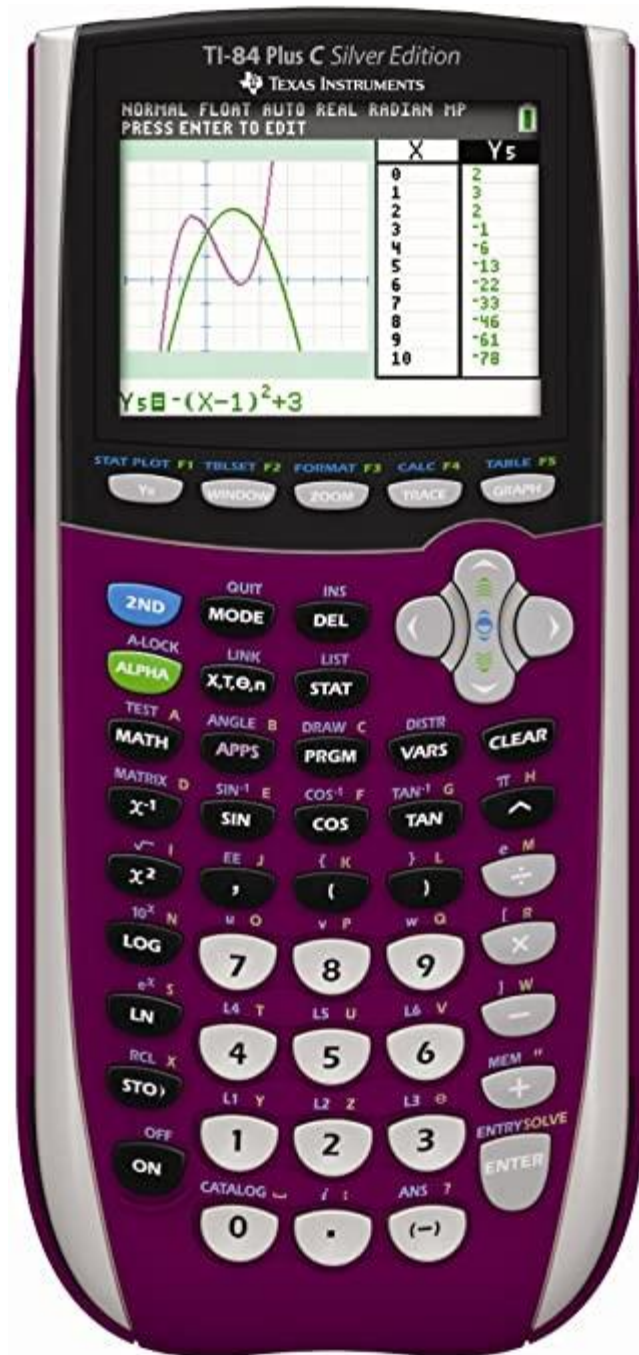
- 1st week: Learn some functions of NumPy & PyTorch and find optimal points of even polynomial functions
- 2nd week: Analyze the delivery data and predict estimated delivery time with Linear Regression
- 3rd week: Estimating the possibility of elected based on Logistic Regression
- 4th week: Classify MNIST digits with Softmax
- 5th week: Make own neural nets based on Numpy and train & evaluate it

So, what is the NeuralNet?



Referenced by: Hyundai Motors group

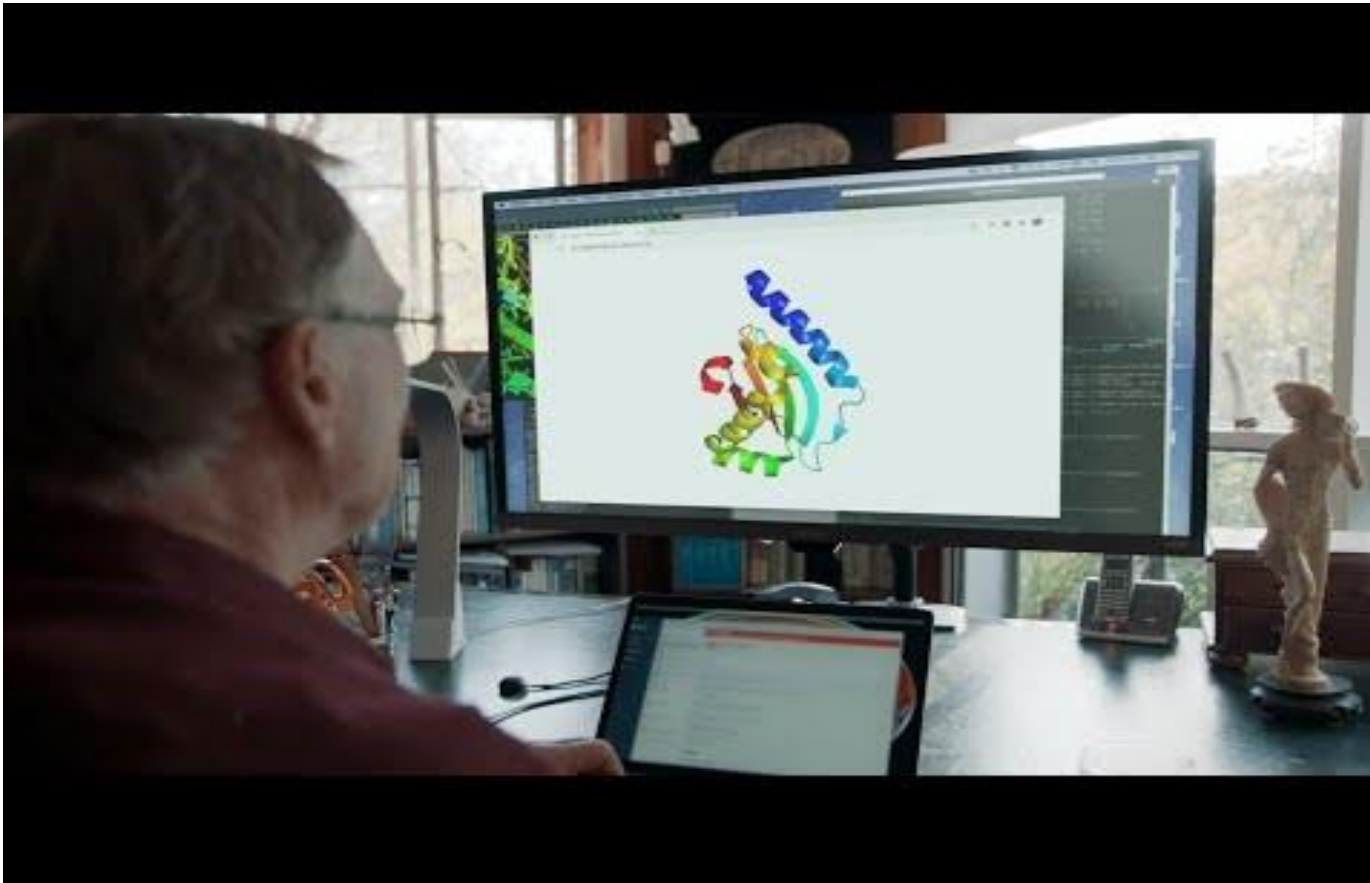
My definition of neural network: just gigantic matrix calculator



What can we do with gigantic matrix calculator?

- AlphaGo
- GPT, BERT - Language Model
- AlphaFold – Protein folding structure prediction
- We can do various useful things based on this gigantic TI-84(just joke)

AlphaFold: Leading the significant finding of science



Referenced from: [AlphaFold: The making of a scientific breakthrough - YouTube](#)

We will learn these things in this learning

- Optimization based on gradients
- Linear Regression
- Logistic Regression
- Softmax
- Error Backpropagation
- Convolution & Pooling – No Assignment

References

- I use these materials as references for making the learning slides
- 모두를 위한 딥러닝, Sung Kim, [모두를 위한 머신러닝/딥러닝 강의 \(hunkim.github.io\)](http://hunkim.github.io)
- CS231N, Stanford, [CS231n Convolutional Neural Networks for Visual Recognition](https://cs231n.github.io)
- Some of my intuitions based on experiences
- If I use different materials as reference for making learning slides, then I will tag it on the last slide of the learning slides.



Let's start to learn NeuralNets to win POSTECH :)